

PROJECT MANUAL

FOR THE

LOS OSOS COMMUNITY SERVICES DISTRICT

2122 9TH STREET

LOS OSOS, CA 93402

(805) 528-9370

8TH AND EL MORO WELL EQUIPPING PROJECT

Prepared by:

WALLACE GROUP

612 Clarion Court

San Luis Obispo, CA 93401

805 544-4011

JUNE 2021

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CERTIFICATION

In accordance with the provisions of Section 6735 of the Business and Professions Code of the State of California, these specifications have been prepared by or under the direction of the following Professional Engineers licensed in the State of California:



Steven G. Tanaka, PE
C49779, Exp. 09/30/2022



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PART I

NOTICE, PROPOSAL AND AGREEMENT FORMS

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NOTICE INVITING BIDS

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LOS OSOS COMMUNITY SERVICES DISTRICT
8TH AND EL MORO WELL EQUIPPING PROJECT

NOTICE INVITING BIDS

NOTICE IS HEREBY GIVEN that the LOS OSOS COMMUNITY SERVICES DISTRICT (Owner) hereby invites sealed bids which will be received at:

LOS OSOS COMMUNITY SERVICES DISTRICT
2122 9TH STREET
LOS OSOS, CA 93402

until July 13, 2021, at 3 pm, or such later date as may be set by Addendum, at which time and at the above address, they will be publicly opened and read aloud for performing the following work:

DESCRIPTION OF WORK: The work is comprised of providing all work necessary to equip a new well for service and to blend pumped water with water produced from a separate on-site well. The work includes furnishing and installing a new well pump, pump control valve, above grade and below grade valves, piping and appurtenances, sodium hypochlorite dosing equipment, static mixer vault, concrete well pedestal, concrete slab, miscellaneous concrete, well protection cage, electrical, controls, communications and instrumentation improvements, and all other work required to create a complete and functional potable water production system.

LOCATION OF THE WORK - The work is located in Los Osos, CA and more specifically at the LOCSD 8th and El Moro Water Yard (intersection of 8th street and El Moro Avenue), Los Osos, CA, San Luis Obispo County.

BID OPENING - Telephones will not be available to bidders for the preparation of the bids or for calling in bid results. Bid forms received after the designated time will not be accepted. Bidders, their authorized agents and other interested parties, are invited to attend the bid opening.

AWARD OF CONTRACT- The OWNER intends to award a contract **to the lowest, responsive, and responsible bidder to the bid schedule delineated in these contract documents**. All bids submitted shall be in accordance with the provisions of the Contract Documents and the OWNER may waive any minor irregularities or reject any and all bids. Any bid may be withdrawn prior to bid opening but not afterward.

FORM OF THE BID - Bidders must submit proposals on the proposal bid form provided. Proposals will not be considered unless submitted on proposal forms included in the Contract Documents obtained from the OWNER. It is **not mandatory**, but highly recommended, that the bidder attend the pre-bid job conference scheduled for Thursday, June 17, 10 am at the Los Osos CSD Water Yard, at the intersection of 8th and El Moro Streets, Los Osos, California. The bidder may contact Steven Tanaka at **805-441-2293** for additional information.

BID SECURITY - Each proposal must be accompanied by cash, a certified or cashier's check, or bidder's bond on the prescribed form and made payable to the OWNER for an amount equal to at least 10 percent of the amount of the Bid, such guaranty to be forfeited should the apparent successful bidder to whom the contract is awarded fail to furnish the required bonds and insurance certificates, and enter into contract with the OWNER within the time stated in the Proposal requirements. Proposals cannot be withdrawn for the period of time specified in Article 10 of the Instructions to Bidders.

PERFORMANCE SECURITIES – The successful bidder will be required to furnish a payment bond and faithful performance bond in the full amount of the Contract price, and insurance with certificates and endorsements of insurance, as provided in the Contract Documents. The required bonds must be provided only by a surety insurer who is in good standing with the State of California Department of Insurance.

CONTRACTOR LICENSING - In accordance with the provisions of California Public Contract Code Section 3300, the OWNER has determined that the contractor shall possess a valid Class "A" General Engineering Contractor license at the time of bid issuance. Failure to possess the specified license shall render the Bid as non-responsive and shall act as a bar to award of the Contract to any bidder not possessing said license at the time of award. In the event of dispute over classification of the license required, the opinion of the contractor's State License Board shall prevail.

WAGE RATE REQUIREMENTS - In accordance with the provisions of California Labor Code Sections 1770, 1773, 1773.1, 1773.6 and 1773.7 as amended, the Director of the Department of Industrial Relations has determined the general prevailing rate of per diem wages in accordance with the standards set forth in Section 1773 for the locality in which the work is to be performed. A copy of said wage rates is on file at the office of the OWNER. It shall be mandatory upon the contractor to whom the work is awarded and upon any subcontractor under the contractor to pay not less than said specified rates to all workmen employed by them in the execution of the work.

CONTRACTOR REGISTRATION WITH DEPARTMENT OF INDUSTRIAL RELATIONS – In accordance with California Labor Code Section 1725.5, Contractors and Subcontractors (as defined by California Labor Code Section 1722.1) bidding on Public Works contracts in California shall be registered with the Department of Industrial Relations **prior to bidding**. Contractor shall verify that this requirement has been met, prior to award of Contract.

AGREEMENT TO ASSIGN - In accordance with Section 4552 of the California Government Code, the bidder shall conform to the following requirements: In submitting a bid to a public purchasing body, the bidder offers and agrees that if the bid is accepted, it will assign to the purchasing body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act 15 U.S.C. 15, or under the Cartwright Act, Chapter 2.

DEPOSIT OF SECURITIES IN LIEU OF RETAINAGE - The Contractor may elect to receive 100 percent of payment due under the Contract Documents from time to time, without retention of any portion of the payment by the OWNER, by depositing securities of equivalent value with the OWNER in accordance with the provisions of Section 20300 of the California Public Contract Code. Such securities, if deposited by the Contractor, shall be valued by the OWNER, whose decision on valuation of the securities shall be final. Securities eligible for investment under this provision shall be limited to those listed in Section 16430 of the California Government Code or bank or savings and loan certificates of deposit.

CONTRACT DOCUMENTS - Contract Documents, including Instructions to Bidders, the Contract Specifications and Drawings may be viewed and obtained at the office of the Owner, address as indicated on the cover sheet of this Project Manual.

Only PDF electronic copies of the bid documents will be made available to bidders, at no charge to bidders. The special attention of prospective bidders is called to the Instructions to Bidders portion of the Contract Documents for full directions for bidding the Work.

The successful bidder must insure that employees and applicants for employment are not discriminated against on the basis of age, color, race, national origin, ancestry, religion, sex, sexual preference, marital status, and shall comply with the Americans with Disabilities Act.

Date: 6/4/21

OWNER: 
RON MUNDS, GENERAL MANAGER

END OF NOTICE INVITING BIDS

INSTRUCTIONS TO BIDDERS

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LOS OSOS COMMUNITY SERVICES DISTRICT
8TH AND EL MORO WELL EQUIPPING PROJECT

INSTRUCTIONS TO BIDDERS

- 1) Commencement of Work: No work shall commence before contract bonds and insurance certificates have been filed with the OWNER, the Contract has been signed by the OWNER and the Notice to Proceed has been issued by the OWNER.
- 2) Completion Time: The Contractor shall obligate him/herself to satisfactorily complete the work within **two hundred ten (210) calendar days**. The date of the Notice to Proceed issued by the OWNER shall constitute the starting date of the Contract. Upon issuance of the Notice to Proceed, the Contractor shall immediately begin and diligently prosecute the work to completion.
- 3) Liquidated Damages: Per Article 6.1 of the Supplementary General Conditions.
- 4) Method of Payment: Payment will be made on the basis of the **unit price** bid and as set forth in the General Conditions and Supplementary General Conditions.
- 5) Form of the Bid and Signature: The proposal shall be submitted on the form attached hereto and shall be enclosed in a sealed envelope addressed and marked as hereinafter directed.

The bidder shall state the **unit price** for which he/she proposes to supply the labor, materials, supplies, or equipment, and perform the work required by the Specifications.

- The low bidder, for purposes of award, shall be the conforming, responsible bidder offering the most favorable bid per the project base bid. All bids shall be evaluated on the same basis.

If the proposal is made by an individual, it shall be signed and his/her full name and mailing address shall be given; if it is made by a firm, it shall be signed with the partnership name of a member of the firm, who shall also sign his/her own name, and the name and address of each member shall be given; and if it is made by a corporation, the name of the corporation shall be signed by its duly authorized officer or officers attested by the corporate seal, and the names and titles of all officers of the corporation shall be given.

Bidder may only modify his bid by written communication received by the OWNER prior to said closing time; provided that it shall be the responsibility of the bidder to ensure receipt of such document by the OWNER prior to said closing time. Any written modification so received will be read aloud at the time and place fixed for opening and reading of bids. Written communication should not reveal the Bid price but should state the addition or subtraction or other modification so that the final prices or terms will not be known by the OWNER until the sealed bid is opened.

- 6) Interpretation and Addenda: No oral representation or interpretations will be made to any bidders as to the meaning of the Contract Documents. All questions about the meaning or intent of the Contract Documents are to be directed to the engineer. Additions, deletions, or revisions to the Contract Documents considered necessary by the engineer in response

to such questions will be issued by Addenda mailed or delivered to all parties recorded by the engineer or District as having received the Contract Documents. Questions received less than 14 days prior to the date of Bid opening may not be answered. Only answers to such questions issued by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

Addenda may also be used to make other additions, deletions, or revisions to the Contract Documents.

Bidders shall make no special interpretation or inference of intent from differing formats in the Technical Specifications.

7) Bidder's Examination of Contract Documents and Site:

- A. It is the responsibility of the Bidders to inspect the site of the work in order to satisfy themselves, by personal examination or by such other means as they may prefer, of the location of the proposed work and the actual conditions of and at the site. Bidders may apply to the Engineer for additional information and explanation before submitting bids. However, no supplemental information requested or furnished shall vary the terms of the Contract Documents or affect the Contractor's sole responsibility to satisfy himself as to the conditions of the work to be performed. No claim for additional compensation will be allowed which is based upon a lack of knowledge of the actual conditions or location of the Work.

Submission of a proposal by the bidder shall constitute acknowledgment that, if awarded the contract, the bidder has relied and is relying on their own examination of (a) the site of the work; (b) access to the site; and (c) all other data, matters, and things requisite to the fulfillment of the work and, on their own knowledge of existing facilities on and in the vicinity of the site of the work to be constructed under the contract, and not on any representation or warranty of the lack of knowledge of the above items. Removal, relocation, or protection of existing public utilities not identified by the District shall be done in conformance with Section 4215 of the Government Code.

- B. Each bidder shall thoroughly examine and be familiar with legal and procedural documents, general conditions, specifications, drawings and addenda (if any). Submission of a proposal shall constitute acknowledgment, upon which the Owner may rely, that the bidder has thoroughly examined and is familiar with the Contract Documents. Failure or neglect of a bidder to receive or examine any of the Contract Documents shall in no way relieve them of any obligation with respect to their proposal or to the Contract. No claim for additional compensation will be allowed which is based upon a lack of knowledge of any Contract Documents.
- C. Each bidder shall review the Plans and Specifications, prior to the submission of the bid, and report any errors and omissions noted by the Contractor to the Engineer. The review by the Contractor shall be confined to the Contractor's capacity as a contractor, and not as a licensed design professional.

8) OWNER Investigations and Testings:

- A. Where the engineer has made investigations of surface and subsurface conditions in areas where work is to be performed under the contract, or in other areas, some of which may constitute possible local material sources, such investigations were made only for the purpose of study and design. Where such investigations have been made, bidders or contractor may, upon written request, inspect the records of the engineer as to such investigations subject to and upon the conditions hereinafter set forth. Such inspection of records may be made at the office of the engineer.
- The records of such investigations are not a part of the contract and are made available for inspection solely for the convenience of the bidder or contractor. It is expressly understood and agreed by bidder or contractor that neither the OWNER nor the engineer assumes any responsibility whatsoever with respect to the sufficiency or accuracy of the investigations thus made, the records thereof, or of the interpretation set forth therein or made by the engineer in his use thereof and there is no representation, warranty or guarantee, either express or implied, that the conditions indicated by such investigations or records thereof are correct or representative of those existing throughout such areas or any part thereof, or that unanticipated developments may not occur or that materials other than, or in proportions different from, those indicated may not be encountered.
- B. Where a log of test borings or other investigations of subsurface conditions have been made by the OWNER in respect to foundation or other structural design, and that information is shown in the plans, said information represents only the statement by the OWNER as to the character of material which has been actually encountered by it in its investigation, and is only included for the convenience of bidders. Water levels that may be shown on a log of test borings are valid on for the stated date of observation. The water level may change from season to season and from year to year. Investigations of subsurface conditions are made for the purpose of design, and the OWNER assumes no responsibility whatever in respect to the sufficiency or accuracy of borings or of the log of test borings or other preliminary investigations, or of the interpretation thereof, and there is no guaranty, either expressed or implied, that the conditions indicated are representative of those existing throughout the work, or any part of it, or that unobserved or unanticipated developments may not occur. Making such information available to bidders is not to be construed in any way as waiver of the provisions of this section and bidders must satisfy themselves through their own investigations as to conditions to be encountered.
- C. The availability or use of information described in these Instructions to Bidders and other bid documents shall not be construed in any way as a waiver of the provisions of the Instructions of Bidders and a Bidder or Contractor is cautioned to make such an investigation and examination as it deems necessary to satisfy itself as to conditions to be encountered in the performance of the work and, with respect to possible local material sources, the quality and quantity of material available from such property and the type and extent of processing that may be required in order to produce material conforming to the requirements of the Specifications.

- D. No information derived from such inspection of records of investigations or compilations thereof made by Engineer, will in any way relieve the bidder or contractor from any risk or from properly fulfilling the terms of the contract.
- E. Information derived from inspection of topographic maps, or from Plans showing location of utilities and structures will not in any way relieve the contractor from any risk, or from properly examining the site and making such additional investigations as it may elect, or from properly fulfilling all the terms of the contract.
- 9) Addenda or Bulletins: Any addenda or bulletins issued during the time of bidding shall form a part of the Contract Documents and Specifications, shall be covered in the proposal, and shall be made part of the Contract. Receipt of addenda must be acknowledged in the appropriate space on the Proposal Form. Failure to acknowledge all such addenda will be cause to reject the bid as being non-responsive. It is the Bidder's responsibility to determine whether any addenda or bulletins have been issued.
- 10) Preparation of the Proposal: All blank spaces in the Proposal Forms, Contract Documents, and Bid Schedule shall be properly filled in. The phrasing of the proposal shall not be changed and no additions shall be made to the items mentioned therein. Unauthorized conditions, limitations, or provisions attached to a proposal will render it invalid and may cause its rejection. Alterations by erasure or inter-lineation must be explained or noted in the proposal over the signature of the bidder. Alternative proposals will not be considered unless specifically provided for in the Bid Schedule.

A Bidder may withdraw his/her proposal before the time fixed for opening of bids, without prejudice to himself, by submitting a written request to the OWNER for its withdrawal, and his proposal will be returned to him unopened when reached in the procedure of opening bids. No proposal may be withdrawn after the hour fixed for opening bids without rendering the accompanying certified or cashier's check or bidder's bond subject to forfeiture as liquidated damages in like manner as in the case of failure to execute the Contract after award, as provided hereinafter.

No proposal received after the time named or at any place other than the place stated in the Notice to Bidders will be considered. All proposals will be opened and declared publicly. Bidders, their representatives, and others interested are invited to be present at the opening. The OWNER reserves the right to waive any minor irregularities in any proposal, to reject any or all proposals, to reject one part of a proposal and accept the other, except to the extent that bids are qualified by specific limitations, and to make award to the apparent lowest responsible bidder for a period of 60 calendar days from the receipt of the award of bid. No proposal can be withdrawn for a period of 60 calendar days from the date of award of the bid, unless otherwise required by law. Where bonds are required, the bidder shall name in his/her bid the surety or sureties who have agreed to furnish said bonds.

- 11) Licensing of Contractors: Before submitting bids, Contractors shall be licensed in accordance with the provisions of Chapter 9, Division 3, of the Business and Professions Code of the State of California.

A photocopy of the appropriate license(s) shall be submitted with the proposal.

In accordance with California Labor Code Section 1725.5, Contractors and Subcontractors (as defined by California Labor Code Section 1722.1) bidding on Public Works contracts in California shall be registered with the Department of Industrial Relations prior to bidding. Proof of registration with the DIR will be required prior to award of any public works contract.

- 12) List of Subcontractors Filed With Bid: Each proposal shall have listed on the forms provided, the name and address of each subcontractor to whom the bidder proposes to sublet portions of the work in excess of one-half of one percent of the total amount of the proposal. For the purpose of this paragraph, a subcontractor is defined as anyone who contracts with the Contractor to furnish materials and labor, labor only, and/or one who specially fabricates and/or installs a portion of the work or improvement according to detailed drawings contained in the Contract Documents. All listings and subsequent substitutions, if any, shall be done in conformance with the Subletting and Subcontracting Fair Practices Act, Public Contract Code Section 4100 et seq.
 - I. The Contractor shall perform with its own organization work amounting to not less than 50 percent of the original total contract price, except that any work designated "Specialty Items" may be performed by subcontract and the amount of any such "Specialty Items" so performed may be deducted from the original total contract price before computing the amount of work required to be performed by the Contractor with its own organization. When items of work in the Bid schedule are preceded by the letter (S), such items shall be deemed designated "Specialty Items." Where an entire item is subcontracted, the value of work subcontracted will be based on the contract item bid price. When a portion of an item is subcontracted, the value of work subcontracted will be based on the estimated percentage of the contract item bid price, determined from information submitted by the Contractor, subject to approval by the Engineer.
- 13) Submission of Bids: All Bids must be submitted not later than the time prescribed, at the place and in the manner set forth in the Invitation to Bid. The OWNER shall not consider any Bid received after the time fixed or received at any place other than the place stated in the Invitation to Bid. Bids must be made on the prescribed Bid forms. A complete Bid requires submission of fully completed and executed: Bid, Designation of Subcontractors (if applicable), Bid Bond (or other bid guarantee), Experience Qualifications and Noncollusion Declaration. Each Bid must be submitted in a sealed envelope, so marked as to indicate its contents without being opened, and addressed in conformance with the instructions in the Notice Inviting Bids. The bidder is wholly responsible to see that its Bid is submitted at the time and place named for the opening of bids.

Bids shall acknowledge receipt of all addenda (identified by addendum no.) issued during the bidding period. Failure to acknowledge an addendum or clarification may result in the Bid being rejected as not responsive.

Bids shall be open at the time and place specified in the Notice Inviting Bids, unless changed by addendum. All Bids will be opened and read publicly. Bidders, their representatives and other interested parties, are invited to be present at the opening.

- 13a) Discrepancy in Bids: In the event of discrepancy between unit prices and totals, unit prices will prevail. [In case of discrepancy between words and figures, words will prevail.]
- 14) Bidders Interested in More Than One Bid: No person, firm, or corporation shall make, file, or be interested in more than one proposal for the same work unless alternate bids are

specifically requested. A person, firm, or corporation who has submitted a sub-proposal to a bidder, or who has quoted prices of materials to a bidder, is not hereby disqualified from submitting a sub-proposal or quoting prices to other bidders.

- 15) Additive Bid Items: If additive bid items are called for, the Contract may be awarded at the election of the Governing Board to the lowest responsible bidder on the base bid, or on the base bid and any additive or combination of additives.
- 16) Award of Contract: Award of the contract, if awarded, will be made to the lowest responsive, responsible Bidder who's Bid complies with the requirements of the Contract Documents. Unless otherwise specified, any such award will be made within the period stated in the Notice Inviting Bids that the bids are to remain open. Unless otherwise indicated, a single award will be made for all the Bid items in an individual Bid Schedule. In the event the work is contained in more than one Bid Schedule, the owner may award Schedules individually or in combination. In the case of two or more Bid Schedules which are alternative to each other, only one of such alternative schedules will be awarded.
 - 2) Before a Bid is considered for award, the OWNER may, in addition to the Experience Qualifications form, require a Bidder to submit a statement of facts and detail as to his business, technical organization and financial resources and equipment available and to be used in performing the work. Additionally, the OWNER may require evidence that the Bidder has performed other work of comparable magnitude and type. The OWNER expressly reserves the right to reject any Bid if it determines that the business and technical organization, equipment, financial and other resources or other experience of the Bidder (including the Bidder's subcontractors) is not sufficiently qualified for the work bid upon and, therefore, justifies such rejection.
- 17) Return of Bid Security: Within 14 days after award of the contract, the owner will, if requested, return the Bid securities accompanying such Bids that are not being considered in making the award. All other Bid securities will be held until the Agreement has been finally executed. They will then be returned, if requested, to the respective Bidders who's Bids they accompany.
- 18) Lowest Responsible Bidder: In selecting the lowest responsible bidder, consideration will be given to the general competency of the bidder for the performance of the work covered by the bid. To receive favorable consideration, a bidder will be required to present evidence that he/she has successfully performed similar work of comparable magnitude or submit other evidence satisfactory to the OWNER that Bidder or his/her associates are personally competent to manage the proposed undertaking and to carry it forward to a successful conclusion. Professional integrity and honesty of purpose shall be essential requirements.
- 19) Local Conditions: Bidders shall read the Specifications, examine the reference drawings, inspect the project site, and make their own estimates of the existing facilities and the difficulties which will attend the execution of the work called for by the proposed contract, including local conditions, uncertainty of weather, project difficulty, and all other contingencies.

Bidders shall satisfy themselves by personal examination of the location of the proposed Work, and by such other means as they may choose as to actual conditions, actual quantities, and requirements and as to the accuracy of the quantities stated in the Bid Schedule. Information derived from the maps, plans, Specifications, profiles, or drawings, or from the Engineer or his/her assistants, shall not relieve the Bidder of this responsibility.

Bidders shall not at any time after the submittal of a bid make or have any claim for damages or anticipated profits or loss of profit or otherwise because of any difference between the quantities of work actually done and material furnished and the unit price stated in the Bid Schedule. **Bidders are encouraged to attend a pre-bid conference at the date, time, and location specified in the Notice Inviting Bids.**

- 20) Substitution of Materials: All materials are mentioned as standards. Should a Contractor desire to substitute materials or methods for those specified, he shall state on a separate sheet attached to his bid the price deduction he will make if such a substitution is accepted in material and/or method. Such substitution submittal, however, may not be used in the determination of the lowest qualified bidder. Question of all such substitution shall be determined prior to the award of the Contract, as no substitution will be permitted after the Contract is signed unless approved in writing by the Engineer.
- 21) Payments: Payments to the Contractor on account of the Contract shall be made in accordance with the terms set forth in Article 1.7, Section 20104.5 of the State Public Contract Code, General Conditions and Supplementary General Conditions.
- 22) Execution of Contract: The apparent successful bidder shall execute a written Contract on the Form of Agreement attached hereto, secure the payment of workmen's compensation, furnish good and approved bonds, and proof of specified insurance as required in the following Articles, all in accordance with the provisions hereof within 15 calendar days or such additional time as may be allowed by the Engineer from the date of the mailing of a notice of award of bid according to the address given by him, of the acceptance of his proposal. If a bidder to whom award is made fails or refuses to enter into Contract as herein provided, or to conform to any of the stipulated requirements in connection therewith, the money represented by Bidder's security check or Bond shall be forfeited to the OWNER, the award will be annulled, and at the discretion of the OWNER the Contract may be awarded to the next lowest bidder; and such bidders shall fulfill every stipulation embraced herein as if he were the party to whom the first award was made. A corporation to which an award is made may be required, before the Contract is finally executed, to furnish evidence of its corporate existence, of its right to do business in California, and of the authority of the officer signing the Contract and bonds for the corporation.
- 23) Bonds: A bidder to whom the Contract is awarded shall, within the time mentioned in the preceding Article, furnish a bond with a responsible corporate surety or corporate sureties conditioned upon the faithful performance of the said bidder of all covenants and stipulations in the Contract. Said bond is hereinafter referred to as the Faithful Performance Bond. Within the time mentioned in the preceding Article, the bidder to whom the Contract is awarded shall furnish such faithful performance bond, and shall also furnish a Payment Bond within said time frame. The Faithful Performance Bond and the Payment Bond shall be in the form approved by the OWNER and in the amount stipulated in the GENERAL CONDITIONS.

The surety or sureties on all bonds furnished must be satisfactory to the OWNER. The party required to furnish bonds pursuant to these instructions shall furnish such bonds at his/her own cost and expense. The OWNER reserves the right to reject any bond if, in the opinion of the Engineer, the sureties' acknowledgment is not in the form included within the Contract Documents or in another form substantially as prescribed by law.

- 24) Insurance Policies and Bonds: Attention is directed to the provisions of the Insurance Code of the State of California with reference to the writing of insurance policies and bonds covering risks located in this state, and the premiums and commissions thereon. A bidder to whom the Contract is awarded shall furnish, at the time his bond or bonds are submitted for approval, satisfactory evidence that the requirements of said Code have been observed, including proof of unemployment insurance. The required bonds must be provided only by surety insurer who is duly admitted by the Insurance Commissioner of the State of California.
- 25) Liability Insurance: Before the Contract is executed on behalf of the OWNER, a bidder to whom the Contract has been awarded shall furnish to the OWNER the necessary policy or certificate of liability insurance in which the OWNER and the Engineer shall be named as additional insureds with the bidder in the amount specified in the SUPPLEMENTARY GENERAL CONDITIONS, ARTICLE 11, entitled "Insurance." The policy shall insure the OWNER, the Engineer, the OWNER's officers and employees, the bidder, his employees and his Subcontractors and their employees, and their heirs, agents, and employees, while acting within the scope of their duties, against all claims arising out of or in connection with the work to be performed and shall remain in full force and effect until the work is accepted by the OWNER. The Policy shall provide for the limits stated with any insurance policy carried out by the OWNER.
- 26) Assignment of Contract: No assignment by the Contractor of any contract to be entered into in accordance with the Notice Inviting Bids and these Instructions to Bidders, or any part thereof, or of funds to be received thereunder, will be recognized by the awarding authority unless such assignment has had prior approval of the awarding authority and the surety has had notice of such assignment in writing and has given his/her written consent thereto.
- 27) Non-Collusion Affidavit: Section 7106 of the Public Contract Code requires that each bidder execute a Non-collusion Affidavit on all public works contracts. Bidder shall execute the Noncollusion Affidavit included with the Contract Documents and submit it to the OWNER with the Proposal.
- 28) Disqualification of Bidder: If there is a reason to believe that collusion exists among any of the bidders, none of the bids of the participants in such collusion will be considered, and the OWNER may likewise elect to reject all bids received.
- 29) Rejection of Proposals: The OWNER reserves the right to reject any proposals which are incomplete, obscure, or irregular, any proposals which omit a bid on any one or more items for which bids are required; any proposals which omit unit prices if unit prices are required; any proposal in which unit prices are unbalanced in the opinion of the OWNER; any proposals accompanied by insufficient or irregular proposal guaranty; and any proposals from bidders who have previously failed to perform properly or to complete contracts of any nature on time.
- 30) Relief of Bidders: Attention is directed to the provisions of Public Contract Code Section 5100, et seq., concerning relief of bidders, and in particular to the requirement therein that if a bidder claims a mistake was made in its bid, the bidder shall give the OWNER written notice within five (5) calendar days after the opening of the bids of the alleged mistake, specifying in the notice, in detail, how the mistake occurred.

- 31) Debarred Contractors and Subcontractors: No contractor or subcontractor who is ineligible to bid work on, or be awarded, a public works project under Labor Code sections 1771.1 or 1777.7 can bid on, be awarded or perform work as a subcontractor on the Project. The Contractor is prohibited from performing work on the Project with a subcontractor who is ineligible to perform work on a public works project under these sections of the Labor Code.
- 32) Taxes: Bid prices shall include all applicable federal, state, and local taxes.
- 33) Bid Protest Procedures: Any bid protest relating to the form or content of the bidding or Contract Documents must be submitted in writing to the OWNER, LOS OSOS COMMUNITY SERVICES DISTRICT, 2122 9TH STREET, LOS OSOS, CA 93402 at least ten (10) business days before the original date set for the bid opening. Any bidder who submits a bid shall be deemed to have waived any protest to the form or content of the bidding or Contract Documents.

Any bid protest relating to the award of the contract for the work must be submitted in writing to Owner at the address specified above. The protest must be received before 5:00 p.m. of the third business day following bid opening.

The initial protest document shall contain a complete statement of the basis for the protest. The protest shall refer to the specific portion(s) of the bid documents which forms the basis for the protest. The protest shall include the name, address and telephone number of the person representing the protesting party.

The party filing the protest shall concurrently transmit a copy of the initial protest document and any attached documentation to all other parties who have a direct financial interest that may be adversely affected by the outcome of the protest. Such parties shall include all other bidders or proposers who appear to have a reasonable prospect of receiving an award depending upon the outcome of the protest. The documents shall be transmitted by fax or overnight mail.

The procedure and time limits set forth in this paragraph are mandatory and are the Bidder's sole and exclusive remedy in the event of bid protest. Failure to comply with these procedures shall constitute a waiver of any right to further pursue the bid protest, including filing a Government Code claim or legal proceedings.

- 34) Items Required for a Completed Proposal:
- a) Signed Proposal Form
 - b) Experience Qualifications Form
 - c) Bid Schedule (acknowledge addenda, if any)
 - d) Contractor's Licensing Statement
 - e) List of Subcontractors
 - f) List of Material/Equipment Suppliers
 - g) Acknowledgment of Insurance Requirements
 - h) Bid Security Form and Bid Bond
 - i) Non-Collusion Affidavit
 - j) Certificate of Bidder Regarding Affirmative Action Program
 - k) Proof of Worker's Compensation Insurance
 - l) One photo copy of each license required by these Instructions to Bidders

m) References (or other information)

END INSTRUCTIONS TO BIDDERS

PROPOSAL

LOS OSOS COMMUNITY SERVICES DISTRICT
2122 9TH STREET
LOS OSOS, CA 93402

Los Osos CSD Board of Directors::

The undersigned hereby proposes to perform all work for which a contract may be awarded to it and to furnish any and all supervision, plant, labor, services, material, accessories, tools, equipment, supplies, transportation, utilities, and all other items and facilities necessary therefore as provided in the Contract Documents, entitled:

8TH AND EL MORO WELL EQUIPPING PROJECT

together with all appurtenances thereto, all as set forth in the Contract Documents including Addenda _____, _____, and _____; and further proposes and agrees that, if its Proposal is accepted, it will contract in the form and manner stipulated to perform all the work called for in the Contract Documents, and to complete all such work in strict conformity therewith within the time limits set forth therein, and that it will accept as full payment therefore the price or prices set forth in the Bid Schedule forming a part hereof.

A bid bond or cashiers/certified check properly made payable to:
LOS OSOS COMMUNITY SERVICES DISTRICT

hereinafter designated as the OWNER, for the sum of:

_____ dollars (\$ _____), which amount is not less than 10 percent of the total amount of the bid, is attached hereto and is given as a guarantee that the undersigned will execute the Agreement and furnish the required bonds and insurance if awarded the contract and, in case of failure to do so within the time provided, the proceeds of said check shall be forfeited to the OWNER.*

* Sureties or surety liability to the OWNER for forfeiture of the face amount of the bond shall be considered as established.

It is understood and agreed that:

1. The undersigned has carefully examined all of the documents contained in the Table of Contents and which shall comprise those documents specifically referred to in ARTICLE 4 of the Agreement;
2. The undersigned has, by investigation at the site the Work and otherwise, satisfied itself as to the nature, location, and quantity of the Work and has fully informed itself as to all conditions and matters which can in any way affect the Work or the cost thereof;
3. The undersigned fully understands the scope of the Work and has checked carefully all words and figures inserted in its Proposal and further understands that the OWNER will in no way be responsible for any errors or omissions in the preparations of this Proposal;

4. The undersigned will execute the Agreement and furnish the required Performance and Payment Bonds and proof of the specified insurance coverage within the time frame specified in Articles 22 through 25 of the Instructions to Bidders. This Proposal may not be withdrawn for a period of time specified in Article 10 of the Instructions to Bidders, unless otherwise required by law. If any bidder shall withdraw its bid within said period, the Bidder shall be liable under the provisions of the Bid Security, or the Bidder and its Surety shall be liable under the Bid Bond, as the case may be;
5. The undersigned hereby certifies that this Proposal is genuine and not sham or collusive or made in the interest or in behalf of any person not herein named, and the undersigned has not directly or indirectly induced or solicited any other bidder to put in a sham bid, or any other person or corporation to refrain from bidding; the undersigned has not in any manner sought by collusion to secure for itself an advantage over any other bidder;
6. In conformance with the current statutory requirements of Section 1860 et. seq. of the Labor Code of the State of California, the undersigned confirms the following as his or her certification:

I am aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for worker's compensation or to undertake self insurance in accordance with the provisions before commencing the performance of the Work of this contract.

7. The undersigned has submitted the following with this proposal as required for a completed bid:
 - a) Signed Proposal Form
 - b) Experience Qualifications Form
 - c) Bid Schedule (acknowledge addenda, if any)
 - d) Contractor's Licensing Statement
 - e) List of Subcontractors
 - f) List of Material or Equipment Suppliers
 - g) Bid Security Form and Bid Bond
 - h) Non-Collusion Affidavit
 - i) Affirmative Action Form
 - j) Proof of Worker's Compensation Insurance
 - k) One photo copy of each license required by these Instructions to Bidders
 - l) References (or other information)
 - m) Certificate of Liability Insurance Endorsement
 - n) Proof of Unemployment Insurance

NOW: In compliance with the Notice Inviting Bids and all the provisions herein before stipulated; the undersigned with full cognizance thereof, hereby proposes to perform the entire Work for the prices set forth in the attached Bid Sheet(s) upon which award of contract is based.

Dated _____

Bidder _____

Bidders Post Office Address

By _____

License number, expiration date

Title _____

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EXPERIENCE QUALIFICATIONS

(To Accompany Proposal)

The bidder has been engaged in the contracting business, under the present business name, for 5 years. Experience in work of a nature similar to that covered in the proposal extends over a period of 5 years.

The bidder, as a contractor, has never failed to satisfactorily complete a contract awarded to him, except as follows:

The following contracts have been satisfactorily completed in the last three (3) years for the persons, firm, or authority indicated, and to whom reference is made:

YEAR	TYPE OF WORK	CONTRACT AMOUNT	LOCATION AND FOR WHOM PERFORMED
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

The following is a list of a plant and equipment owned by the bidder, which is definitely available for use on the proposed work as required:

QUANTITY	NAME, TYPE, AND CAPACITY	CONDITION	LOCATION
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Signed: _____

Title: _____

(Same as for signature on proposal)

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BID SCHEDULE

LOS OSOS COMMUNITY SERVICES DISTRICT 8TH AND EL MORO WELL EQUIPPING PROJECT

Refer to Section 01 20 00, Price and Payment Procedures, for further definitions of the bid items in this Bid Schedule.

Item No.	Est. Qty	Unit	Description	Unit Price	Total Price
1	1	LS	Mobilization		
2	1	LS	Submersible Well Pump		
3	1	LS	Piping, Valves and Appurtenances		
4	1	LS	Chlorine Analyzer		
5	1	LS	Turbidimeter		
6	1	LS	Sodium Hypochlorite Dosing Pump		
7	1	LS	Blending Vault		
8	1	LS	Concrete, Well Enclosure, and Site Work		
9	1	LS	Electrical Improvements		
10	1	LS	Shoring and Bracing		
TOTAL AMOUNT OF BID					\$

Total Bid Amount in Words: _____

Signature of Bidder: _____ Date: _____

The undersigned agrees to perform, for the benefit of the OWNER, the work itemized herein, and in accordance with all San Luis Obispo County, State, and Federal laws.

All materials and equipment used in the execution of the described work shall comply with all applicable State and Federal codes, regulations and requirements.

The Contractor shall verify all measurements and submit a unit price for the facilities shown above. Payment will be made on a unit price basis.

The Work to be performed described in the above BID SCHEDULE shall consist of furnishing all plant, tools equipment, materials, supplies, and manufactured articles and furnishing all labor, transportation, and services, including fuel, power, water, and essential communications, and performing all Work, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents.

The quantities of work or material stated in the Unit Price Items of the Bid Schedule are supplied only to give an indication of the general scope of the work; the OWNER does not expressly or

by implication agree that the actual amount of work or material will correspond therewith, and reserves the right after award to increase or decrease the amount of any Unit Price Item of the work by an amount up to and including 25 percent of any Bid Item, without a change in the Unit Price, and shall have the right to delete any Bid Item in its entirety, or to add additional Bid Items up to and including an aggregate total amount not to exceed 25 percent of the Contract Price.

The receipt of the following addenda to the Specifications is acknowledged:

Addendum No. _____ Date _____ Addendum No. _____ Date _____

Addendum No. _____ Date _____ Addendum No. _____ Date _____

The representations made herein are made under penalty of perjury.

Dated: _____ Bidder: _____

By: _____

Contractor's License No. & Expiration Date: _____

Title: _____

END OF BID SCHEDULE

CONTRACTOR'S LICENSING STATEMENT

The undersigned is licensed in accordance with the laws of the State of California providing for the registration of Contractors, including Department of Industrial Relations (DIR) registration requirements mandated by California Labor Code Section 1725.5.

Contractor's License Classification and number: _____

Name of individual contractor (print or type): _____

Signature of Owner: _____

Business address: _____

Business telephone: _____

or

Name of Firm: _____

Business address: _____

Business telephone: _____

Signature, title, and address of members signing on behalf of partnership:

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

or

Name of Corporation: _____

Business address: _____

Corporation organized under the laws of the State of: _____

Signature of the President
of the Corporation

Signature of the Secretary
of the Corporation

Contractor's License number is: _____

The License expiration date is: _____

The representations made herein are made under penalty of perjury.

Authorized Signature of Contractor or Corporation _____

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LIST OF SUBCONTRACTORS

In accordance with the provisions of Section 4100 and 4104 et. seq. of the Government Code of the State of California, the bidder shall, in its bid, list the name, License Number and Classification, and place of business of each subcontractor who will perform work or labor or render service to the prime contractor in an amount in excess of one-half of 1 percent of the prime contractor's total bid, including the percentage of Prime Contractor's total base bid.

Name Under which Subcontractor is Licensed	License No. and Classification	Address of Office, Mill or Shop	Percent of Total Bid
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

NOTE: Do not list alternative subcontractors for same work.

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LIST OF MATERIAL/EQUIPMENT SUPPLIERS

Name the manufacturer or manufacturers of the items listed below and every major product or major piece of equipment whose cost exceeds fifteen percent (15%) of the total bid amount.

In addition, the bidder is required to fill out the following blanks, listing manufacturers from whom it intends to purchase the indicated items and which selections will be considered as binding upon the Bidder, provided that all such selections shall comply with the provisions of the Contract Documents, and may not be changed by the bidder without written approval of the Engineer.

Item	Material	Manufacturer
1.	Well Pump	
2.		
3.		
4.		
5.		
6.		
7.		

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BID SECURITY FORM

(Check to accompany bid)

(Note: The following form shall be used when a check accompanies bid in lieu of a bid bond.)

Accompanying this proposal is a _____ *Certified _____ *Cashier's check made payable to the order of LOS OSOS COMMUNITY SERVICES DISTRICT hereinafter referred to as "OWNER," for _____ dollars (\$_____), this amount being 10 percent of the total amount of the bid. The proceeds of this check shall become the property of said OWNER provided this proposal shall be accepted by the said OWNER through action of its legally constituted contracting authorities and the undersigned shall fail to execute a contract and furnish the required Performance Bond and proof of insurance coverage within the stipulated time; otherwise, the check shall be returned to the undersigned for a period of 60 calendar days from receipt of the award of bid. The proceeds of this check shall also become the property of the OWNER if the undersigned shall withdraw his bid within the period specified in Article 10 of the Instructions to Bidders, unless otherwise required by law, and notwithstanding the award of the Contract to another bidder.

Signature

Bidder

*Delete the inapplicable word

NOTE: If the bidder desires to use a bond instead of check, the Bid Bond form on the following page shall be executed. The sum of this bond shall be not less than 10 percent of the total amount of the bid.

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BID SECURITY FORM

BID BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____ as principal and _____ as surety, are held and firmly bound unto LOS OSOS COMMUNITY SERVICES DISTRICT hereinafter referred to as "OWNER," for the sum of _____dollars, (\$_____), the amount being 10 percent at least of the total amount of the bid, to be paid to the said OWNER, its successors, and assigns; for which payment, will and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if the certain proposal of the above bounden for the completion of the **8TH AND EL MORO WELL EQUIPPING PROJECT** as specifically set forth in documents entitled Contract Documents and Specifications for the **8TH AND EL MORO WELL EQUIPPING PROJECT** in accordance with the Specifications and Construction Drawings on file at the office of the Owner, 2122 9th Street, Los Osos, CA 93402 is not withdrawn within the period specified in Article 10 of the Instructions to Bidders, unless otherwise required by law, and notwithstanding the award of the contract to another bidder, and that if said proposal is accepted by the OWNER through action of its legally constituted contracting authorities and if the above bounden his/her heirs, executors, administrators, successors and assigns, shall duly enter into and execute a contract for such construction and shall execute and deliver the required Performance and Payment Bonds and proof of insurance coverage within 15 calendar days (not including holidays) after the date of notification by and from the said OWNER that the said Contract is ready for execution, then this obligation shall become null and void; otherwise it shall be and remain in full force and virtue.

IN WITNESS WHEREOF, we hereunto set our hands and seals this day of

_____ 20_____

Signature

Title

Note: The standard printed bond form of any bonding company acceptable to the OWNER may be used in lieu of the foregoing approved sample bond form provided the security stipulations protecting the OWNER are not in anyway reduced by use of the surety company's printed standard form.

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ACKNOWLEDGMENT OF INSURANCE REQUIREMENTS

By signing below, Bidder acknowledges the insurance requirements as listed in the General Conditions, Article 6 – Bonds and Insurance, and Supplementary General Conditions, Article 11 - Insurance. By this acknowledgment, the Bidder and its insurance provider(s) and surety(ies) certify that they have read and understand the insurance and bonding requirements in their entirety, including limits of coverage, additional insureds and endorsements, and bonding requirements, and that the Bidder can provide the insurance coverage and bonds as required in the Contract documents without exception.

Bidder understands that if the insurance coverage provided in these referenced Sections above cannot be provided, its bid is subject to rejection by the Owner as non-responsive.

BIDDER

Company Name: _____

Authorized Signature: _____

Printed Name: _____

Title: _____

Date: _____

INSURANCE PROVIDER/SURETY REPRESENTATIVE

Insurer/Surety Name: _____

Authorized Signature: _____

Printed Name: _____

Title: _____

Date: _____

Bidder Must Provide This Acknowledgment for Each Insurer or Surety Providing Insurance Coverage or a Bond under this Contract

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NON-COLLUSION AFFIDAVIT

TO BE EXECUTED BY EACH AWARDEE OF A PRINCIPAL CONTRACT, STATE OF CALIFORNIA)

_____) SS
_____)

I, _____, being first duly sworn, deposes and says that

he/she is _____
(sole owner, a partner, president, secretary, etc.)

of _____

the party making the foregoing bid; that such bid is not made in the interest of, or on behalf of any undisclosed person, partnership, company association, organization, or corporation; that such bid is genuine and not collusive or sham; that said bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, nor that anyone shall refrain from bidding; that said bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of said bidder or of any other bidder, not to fix any overhead, profit, or cost element of such bid price, nor of that of any other bidder, nor to secure any advantage against the public body awarding the contract or anyone interested in the proposed contract; that all statements contained in such bid are true; and further, that said bidder has not directly or indirectly, submitted his/her bid price or any breakdown thereof, nor the contents thereof, nor divulged information or data relative thereto, nor paid and will not pay fee in connection therewith to any corporation, partnership, company, association, organization, bid depository, nor to any member or agent thereof, nor to any other individual except to such person or persons as have a partnership or their financial interest with said bidder in his/her general business.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____ [date], at _____ [city], _____ [state].”

Signature

Title

Subscribed and sworn to before me on this _____ day of _____, 20____

Seal of Notary

Notary Public _____

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CERTIFICATE OF BIDDER REGARDING

AFFIRMATIVE ACTION PROGRAM

The Bidder hereby certifies that he or she is in compliance with the Civil Rights Act of 1964, Executive Order No. 11246, the California Fair Employment Practices Act of 1964, Executive Order No. 11246, The California Fair Employment Practices Act, and all other applicable Federal and State laws and regulations relating to equal opportunity employment.

Bidder's Name: _____

Address: _____

Name and Title of Signer: _____

Signature

Date

(The above certification of the Bidder regarding its affirmative action program shall be filled out completely, signed and submitted by each bidder and shall be part of the Contract Documents.)

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WORKER'S COMPENSATION INSURANCE CERTIFICATE

Prior to execution of the Contract Agreement, the Contractor shall execute the following form as required by Sections 1860 and 1861 of the California Labor Code:

I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for Worker's Compensation or to undertake self-insurance in accordance with the provisions of said Code, and I will comply with such provisions before commencing the performance of the Work of this Contract.

Date: _____

Contractor _____

By _____
(Signature)

Title _____

Attest:

By _____
(Signature)

Title _____

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AGREEMENT

LOS OSOS COMMUNITY SERVICES DISTRICT

8TH AND EL MORO WELL EQUIPPING PROJECT

This Agreement, made and entered into this _____ day of 20____, at _____, California, by and between the LOS OSOS COMMUNITY SERVICES DISTRICT referred to as the "OWNER", and _____ hereinafter referred to as the "Contractor."

WHEREAS, the Contractor, as will appear by reference to the records of the Proceedings of the OWNER, was duly awarded the Contract for the Work hereinafter mentioned.

NOW, THEREFORE, IT IS HEREBY AGREED THAT:

ARTICLE 1 - Witness to, that for and in consideration of the payment and agreements hereinafter mentioned, to be made and performed by said OWNER, and under the conditions expressed in the two bonds, bearing even date with these present, and hereunto annexed, said Contractor agrees with said OWNER, at its own cost and expense, to do all the work and furnish all materials, except such as are mentioned in the Contract Documents to be furnished by the OWNER, necessary to construct and complete in good, workmanlike and substantial manner for the below described work in accordance with the Contract Documents as listed herein and are by such reference made a part hereof.

The work generally consists of the following: All work necessary to equip a new well for service and to blend pumped water with water produced from a separate on-site well. The work includes furnishing and installing a new well pump, pump control valve, above grade and below grade valves, piping and appurtenances, sodium hypochlorite dosing equipment, static mixer vault, concrete well pedestal, concrete slab, miscellaneous concrete, well protection cage, electrical, controls, communications and instrumentation improvements, and all other work required to create a complete and functional potable water production system.

ARTICLE 2 - The said OWNER hereby promises and agrees with the said Contractor to employ, and does hereby employ, the said Contractor to provide the materials and to do the work according to the terms and conditions herein contained and referred to, for the price aforesaid, and hereby contracts to pay the same at the time, in the manner, and upon the conditions above set forth; and the said parties for themselves, their heirs, executors, and administrators.

ARTICLE 3 - The said Contractor agrees to receive and accept the price stated in the preceding Bid Sheet as full compensation for furnishing all materials and for doing all the work contemplated and embraced in this Agreement; also for all loss or damage arising out of the nature of the work aforesaid, or from the action of the elements, or from any unforeseen difficulties or obstructions which may arise or be encountered in the prosecution of the work until its acceptance by the said OWNER and for all expenses incurred by or in consequence of the suspension or discontinuance of the Work; and for well and faithfully completing the Work, and the whole thereof in the manner and according to the requirements of the Contract Documents therefore, and the requirements of the Engineer under their terms, to wit. Refer to Article 4.6 of the Supplementary General Conditions for retention to be withheld from Progress Payments.

ARTICLE 4 - This contract constitutes the entire agreement of the parties. No other agreements, oral or written, pertaining to the work to be performed under this contract exist between the parties. This contract can be modified only by an agreement in writing signed by both parties. It is also expressly agreed by and between the parties hereto that the Contract Documents shall consist of:

- Notice Inviting Bids
- Instructions to Bidders
- Bid Forms including the Bid, Bid Schedule(s), Information Required of Bidder, Bid Bond, Acknowledgment of Insurance Requirements, Designation of Subcontractors, Experience Qualifications, Contractor's Licensing Statement, List of Material/Equipment Suppliers, Non-collusion Affidavit, Certificate of Bidder Regarding Affirmative Action Program, Worker's Compensation Insurance Certificate, and all required certificates and affidavits
- Performance Bond
- Payment Bond
- General Conditions
- Supplementary General Conditions
- Technical Specifications
- Drawings as listed in the List of Drawings
- Addenda numbers _____ to _____, inclusive
- Change Orders which may be delivered or issued after Effective Date of the Agreement and are not attached hereto

There are no Contract Documents other than those listed in this Article 4. The Contract Documents may only be amended by Change Order as provided in Article 10 of the General Conditions.

ARTICLE 5 - Contractor agrees to commence work pursuant to this Contract on the date specified in the Notice to Proceed, and to diligently prosecute the same to completion within the time stipulated in the INSTRUCTIONS TO BIDDERS, Article 2.

ARTICLE 6 - The Contractor shall defend, indemnify and save harmless the OWNER, its officers, agents and employees from any and all claims, demands, damages, costs, expenses or liability occasioned by the performance or attempted performance of the provisions hereof.

ARTICLE 7 - If either party becomes involved in arbitration or litigation arising out of this contract or the performance of it, the court or tribunal in such arbitration or litigation or in a

separate suit shall award reasonable costs and expenses of arbitration and litigation, including expert witness fees and attorney fees, to the prevailing party or parties.

ARTICLE 8 - No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

OWNER and Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

IN WITNESS WHEREOF, OWNER and Contractor have caused this Agreement to be executed the day and year first above written.

LOS OSOS COMMUNITY SERVICES DISTRICT CONTRACTOR _____

BOARD PRESIDENT _____

By _____

By _____
[CORPORATE SEAL]

Attest _____

Attest _____

Address for giving notices

Address for giving notices

License No. _____

Approved as to Form:

(Signature)

Agent for service of process: _____

(Title)

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PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS,

That I/we, _____ as Principal(s), are firmly bound unto the LOS OSOS COMMUNITY SERVICES DISTRICT in the sum of:

_____ dollars, said sum being 100 percent of the amount of the following described contract, to be paid to the said LOS OSOS COMMUNITY SERVICES DISTRICT, its successors and assigns; for which payment, will and truly to be made, we bind ourselves, our heirs, executors and administrators, successors or assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT,

WHEREAS, the LOCSD Board of Directors, State of California, by formal action on the _____ day of _____, 20_____, awarded to said Principal, a contract for the:

**LOS OSOS COMMUNITY SERVICES DISTRICT
8TH AND EL MORO WELL EQUIPPING PROJECT**

in strict conformity with the Contract Documents, and whereas, said Principal, his or her heirs, executors, administrators, successors or assigns shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions, and agreements in the said Contract, and any alteration thereof made and therein provided, on his/her or their part, to be kept and performed at the time and in the manner therein specified and in all respects according to their true intent and meaning, and shall indemnify and save harmless the OWNER, its officers and agents, as therein stipulated, then this obligation shall become null and void; otherwise it shall remain in full force and effect.

And the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder shall in any way affect its obligations on the bond, and it does hereby waive notice of any change, extension of time, alteration, or addition in terms of the Contract or to the Work.

IN WITNESS WHEREOF, this instrument has been duly executed by the Principal and Surety above named, on the _____ day of _____, 20 _____.

Contractor _____ Surety _____
By _____ By _____
Title _____ Title _____

(SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY)

NOTE: Signature of person executing for the Surety must be properly acknowledged.

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PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS,

That we, _____ hereinafter referred to as "Contractor," as principal, and _____ as surety, are held and firmly bound unto OWNER in the sum of: _____ dollars (\$_____), lawful money of the United States of America, for the payment of which sum, well and truly to be made, we bind ourselves, jointly and severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, said Contractor has been awarded and is about to enter into a Contract with said LOS OSOS COMMUNITY SERVICES DISTRICT for the **8TH AND EL MORO WELL EQUIPPING PROJECT** as specifically set forth in documents entitled, "Contract Documents and Specifications for LOS OSOS COMMUNITY SERVICES DISTRICT – **8TH AND EL MORO WELL EQUIPPING PROJECT**" and is required under the terms of the Contract to give this bond in connection with the execution of said Contract;

NOW, THEREFORE, if said Contractor, his Subcontractors, his or its heirs, executors, administrators, successors, or assigns, shall fail to pay for any materials, provisions, provender, equipment or other supplies used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Insurance Code or for any amounts required to be deducted, withheld, and paid over to the Franchise Tax Board from the wages of employees of the Contractor and his Subcontractors pursuant to Section 18806 of the Revenue and Taxation Code with respect to such labor, all as required by the provisions of Title XV, Chapter 7, Sections 3247-3252 inclusive, of the Civil Code of the State of California and acts amendatory therefore, and sections of other codes of the State of California referred to therein and acts amendatory thereof, and provided that the person, companies or corporations so furnishing said materials, provisions, provender, equipment or other supplies, appliances or power used in, upon, for or about performance of the work contracted to be executed or preformed, or any person, company or corporation renting or hiring implements or machinery or power for or contributing to said work to be done, or any person who performs work or labor upon the same, or any person who supplies both work and materials therefore, shall have complied with the provisions of said laws, then said surety will pay the same in an amount not exceeding the sum herein above set forth and also will pay, in case suit is brought upon this bond, a reasonable attorney's fee as shall be fixed by the court. This bond shall insure to the benefit of any and all persons named in Section 3181 of the Civil Code of the State of California so as to give a right of action to them or their assigns in any suit brought upon this bond.

PROVIDED, that any alterations in the work to be done, or the material to be furnished, which may be made pursuant to the terms of said Contract, shall not in any way release either the Contractor or the surety thereunder, nor shall any extensions of time granted under the

provisions of said contract release either the Contractor or the surety, and notice of such alterations or extensions of the Contract is hereby waived by the surety.

WITNESS our hands this _____ day of _____ 20 _____.

Contractor _____ Surety _____

By _____ By _____

Title _____ Title _____

Signature of person executing for the Surety must be properly acknowledged.

NOTICE OF AWARD

Date: _____, 20 _____

To: _____
(Bidder)

Project: LOS OSOS COMMUNITY SERVICES DISTRICT
8TH AND EL MORO WELL EQUIPPING PROJECT

You are hereby notified that your bid dated _____, 20_____ for the above Contract has been considered. You are the apparent successful bidder and have been awarded a contract for:

(Indicate "Total Work", alternates, or sections of Work awarded)

The Contract Price of your contract is _____ Dollars (\$ _____), corresponding to Bid Schedule ____ in the Bid Documents.

You must comply with the following conditions within fifteen (15) calendar days of the date of this Notice of Award, that is, by _____, 20_____.

1. You must deliver to the OWNER three fully executed counterparts of the Agreement including all the Contract Documents.
2. You must deliver with the executed Agreement the Contract Security Bonds as specified in the Instructions to Bidders, ARTICLE 23; GENERAL CONDITIONS, ARTICLE 5.
3. You must also deliver certificates of insurance as specified in the Instructions to Bidders, ARTICLE 24 and 25; GENERAL CONDITIONS, ARTICLE 5; and SUPPLEMENTARY GENERAL CONDITIONS, ARTICLE 11.
4. (List other conditions precedent.)

Failure to comply with these conditions within the time specified will entitle the OWNER to consider your bid abandoned, to annul this Notice of Award, and to declare your Bid Security forfeited.

Within fifteen (15) calendar days after you comply with these conditions, the OWNER will return to you one fully signed counterpart of the Agreement with the Contract Documents attached.

By _____
RON MUNDS, GENERAL MANAGER

Copy to the ENGINEER

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NOTICE TO PROCEED

Date: _____, 20_____

To: _____
(Contractor)

Project: LOS OSOS COMMUNITY SERVICES DISTRICT
8TH AND EL MORO WELL EQUIPPING PROJECT

You are notified that the Contract Time under the above contract will commence to run on _____, 20_____. By that date, you are to start performing your obligations under the Contract Documents. In accordance with ARTICLE 2 of the Instructions to Bidders, the project is to be completed by _____ 20_____.

The Contract provides for an assessment of liquidated damages of the sum stipulated in Article 6.1 of the Supplementary General Conditions, for each consecutive calendar day after the above established contract completion date that the work remains incomplete.

Before you may start any Work at the site, you must

(add any applicable requirements)

LOS OSOS COMMUNITY SERVICES DISTRICT

By: _____
RON MUNDS, GENERAL MANAGER

Copy to ENGINEER

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CHANGE ORDER

Contract Changer Order No.

Date

Engineer's No. 0384-0011

CONTRACT TITLE: 8TH AND EL MORO WELL EQUIPPING PROJECT

CONTRACTOR:

DESCRIPTION OF CHANGES	NET CHANGE
NET CHANGE IN CONTRACT PRICE	\$
Original Contract Amount Total Previous Changes Amount of this Change New Contract Total Change in Contract Time	\$ \$ \$\$

This document will become a supplement to the Contract and all provisions will apply hereto.

Recommended by ENGINEER

Date

Approved by CONTRACTOR

Date

Approved by OWNER

Date

CHANGE ORDER INSTRUCTIONS:

- A. General Information: This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Time. Changes that have been initiated by a Work Directive Change must be incorporated into a subsequent Change Order if they affect Contract Price or Contract Time.
- B. Completing the Change Order Form: Engineer initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from OWNER, or both.

Once Engineer has completed and signed the form, all copies should be sent to Contractor for approval. After approval by Contractor, all copies should be sent to OWNER for approval. Engineer should make distribution of executed copies after approval by OWNER.

If a change only applies to either price or to time, cross out the part of the tabulation that does not apply.

WORK DIRECTIVE CHANGE
(Instructions on reverse side)

No. _____

DATE: _____

PROJECT: 8TH AND EL MORO WELL EQUIPPING PROJECT

CONTRACTOR:

ENGINEER: MNS ENGINEERS

You are directed to proceed promptly with the following change(s):

Description:

Attachments:

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in Time:

Method of determining Contract Price:

RECOMMENDED:

AUTHORIZED:

By _____

By _____

Title _____

Title _____

WORK DIRECTIVE CHANGE INSTRUCTIONS

A. GENERAL INFORMATION

This document was developed for use in situations involving changes in the Work which, if not processed expeditiously, might delay the Project. These changes are often initiated in the field and may affect the Contract Price or the Contract Time. This is not a Change Order, but only a directive to proceed with Work that may be included in a subsequent Change Order.

For supplemental instructions and minor changes not involving a change in the Contract Price or the Contract Time, a Field Order may be used.

B. COMPLETING THE WORK DIRECTIVE CHANGE FORM

The Engineer initiates the form, including a description of the items involved and attachments.

Based on conversations between the Engineer and the Contractor, the Engineer completes the following:

METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT PRICE: Mark the method to be used in determining the final cost of Work involved and the net effect on the Contract Price. If the change involves an increase in the Contract Price and the estimated amount is approached before the additional or changed Work is completed, another Work Directive change must be issued to change the time or Contractor may stop the changed Work when the estimated time is reached. If the Work Directive Change is not likely to change the Contract Time, the space for estimated increase (decrease) should be marked "Not Applicable."

METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT TIME: Mark the Method to be used in determining the change in Contract Time and the estimated increase or decrease in Contract Time. If the change involves an increase in the Contract Time and the estimated time is approached before the additional or changed Work is completed, another Work Directive Change must be issued to change the time or Contractor may stop the changed Work when the estimated time is reached. If the Work Directive Change is not likely to change the Contract Price, the space for estimated increase (decrease) should be marked "Not Applicable."

Once the Engineer has completed and signed the form, all copies should be sent to the OWNER for authorization because the Engineer alone does not have authority to authorize changes in Price or Time. Once authorized by the OWNER, a copy should be sent by the Engineer to the Contractor.

Once the Work covered by this directive is completed or final cost and time determined, the Contractor should submit documentation for inclusion in a Change Order.

THIS IS A DIRECTIVE TO PROCEED WITH A CHANGE THAT MAY AFFECT THE CONTRACT PRICE OR THE CONTRACT TIME. A CHANGE ORDER, IF ANY, SHOULD BE CONSIDERED PROMPTLY.

RECORDING REQUESTED BY AND WHEN RECORDED MAIL TO:
WALLACE GROUP
612 Clarion Court
San Luis Obispo, California 93401

NOTICE OF COMPLETION

Project Title: **8TH AND EL MORO WELL EQUIPPING PROJECT**

Date:

OWNER: _____ APN NO. [_____]

The Project or portion of The Project completed is: **8TH AND EL MORO WELL EQUIPPING PROJECT**

Notice of Completion Date: _____

The location of The Project is: Los Osos, San Luis Obispo County, California

The work performed under this contract has been inspected by authorized representatives of the OWNER, the Contractor, and the Engineer, and the Project (or specified part of the Project, as indicated above) is hereby accepted by the OWNER and declared to be substantially completed on the above date.

Completion of the Work shall be the date of such acceptance of the Work by the OWNER, as provided under California Civil Code Section 3086. Completion shall mean substantial performance of the contract as such is defined in Black's Law Dictionary, Revised Fourth Edition, West Publishing Company.

A list of all items remaining to be completed or corrected is appended hereto. All such work shall be completed or corrected to the satisfaction of the OWNER within 30 calendar days, otherwise the Contractor does hereby waive any and all claims to all monies withheld by the OWNER under the Contract to cover the value of such uncompleted or uncorrected items.

NO TRANSFERORS

WALLACE GROUP
Engineer

By _____
Authorized Representative/Date
(PRINTED NAME HERE)

Date: _____

The Contractor hereby accepts the above Notice of Completion and agrees to complete and correct all of the items on the appended list within 30 calendar days or waives all rights to any monies withheld therefor.

Contractor

By _____ Date: _____
Authorized Representative/Date
(PRINTED NAME HERE)

The OWNER accepts the project or specified area of the project as substantially completed and will assume full possession of the Project or specified area of the Project at _____(time), on _____(date). The responsibility for heat, utilities, security, and insurance under the Contract Documents will be assumed by the OWNER after that date.

I, the undersigned say: I am the GENERAL MANAGER of the declarant of the foregoing Notice of Completion; I have read said Notice of Completion and know the contents thereof; the same is true of my own knowledge. I declare under penalty of perjury that the foregoing is true and correct.

FOR THE OWNER LOS OSOS COMMUNITY SERVICES DISTRICT

By _____
Authorized Representative/Date
(PRINTED NAME HERE)

2122 9TH STREET
LOS OSOS, CA 93402

REMARKS: The following supplementary sheets listing such items remaining to be completed or corrected are hereby made a part of this document by this reference thereto.

**CONSENT OF SURETY - RETAINAGE
Request for Adjustment of Retainage**

PROJECT TITLE _____ PROJECT NO _____

PROJECT MANAGER _____ CONTRACT NO. _____

RESIDENT PROJECT REPRESENTATIVE _____

CONTRACTOR _____

The Contractor, _____, hereby requests
that the percentage of progress payment estimates retained by the OWNER under the
provisions of the Contract

Documents be REDUCED to _____% DISCONTINUED.
(Delete inapplicable term)

by _____ Date _____
Contractor Representative

The Surety on the Performance Bond for said Project _____
hereby approves the foregoing request.

Power of Attorney must be attached
to original copy by _____ Date _____
Attorney-in-fact

Approval IS/IS NOT recommended: The percentage of completion of _____ 20____ is
_____ % and the present percentage of elapsed time as of _____ 20____ is
_____ %.

by _____ Date _____
Resident Project Representative

Approval IS/IS NOT recommended:

by _____ Date _____
Project Manager

APPROVED/DISAPPROVED by _____ Date _____
City Administrator

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CONSENT OF SURETY - Final Payment

PROJECT NAME _____ PROJECT NO. _____

LOCATION _____ CONTRACT NO. _____

TYPE OF CONTRACT _____

AMOUNT OF CONTRACT _____

In accordance with the provisions of the above named contract between the OWNER and the Contractor, the following named surety:

on the Payment Bond of the following named Contractor:

hereby approves of final payment to the Contractor, and further agrees that said final payment to the Contractor shall not relieve the Surety Company named herein of any of its obligations to the OWNER, California, as set forth in said Surety company's bond.

IN WITNESS WHEREOF, the Surety Company has hereunto set its hand and seal this _____ day of _____ 20_____.

(Name of Surety Company)

(Signature of Authorized Representative)

TITLE: _____

(Corporate Seal)

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UNCONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT

(California Civil Code 3262(d)2)

The undersigned has been paid and has received a final payment in the sum of:

\$ _____ for labor, services, equipment, and material furnished to:

(Your Customer)

on the job of _____

(OWNER)

located at _____

(Job Description)

and does hereby waive and release pro tanto* any mechanic's lien, stop notice, or bond right that the undersigned has on the above referenced job to the following extent. This release covers a progress payment for labor, services, equipment, or material furnished to:

_____ through _____

only and does not cover any retention or items furnished after that date.

Dated _____

(Company Name)

By _____

(Title)

NOTICE TO PERSONS SIGNING THIS WAIVER: THIS DOCUMENT WAIVES RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL RELEASE FORM.

*For so much; for as much as may be; as for as it goes.

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PART II

CONDITIONS OF THE CONTRACT

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STANDARD GENERAL CONDITIONS

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GENERAL CONDITIONS



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This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By



Endorsed By



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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*
 - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

- requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.
- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
 - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
 - d. A demand for money or services by a third party is not a Claim.
11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
46. *Technical Data*
- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
 - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
 - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:* The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:* The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:* The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - 1. does not conform to the Contract Documents;
 - 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - 3. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
 - 1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 - 2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 - 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.
 - 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
 - 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
 - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

- A. *Standards Specifications, Codes, Laws and Regulations*
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. Abnormal weather conditions;
 - 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 - 4. Acts of war or terrorism.

- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.
- Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.
- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.
 - C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment

and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
3. Technical Data contained in such reports and drawings.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
 2. is of such a nature as to require a change in the Drawings or Specifications;
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
- a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;
 - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
 - c. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
 4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures

- of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special

conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

Regulations, and must be issued and signed by a surety named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.
- H. Contractor shall require:
 - 1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
 - 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 Contractor's Insurance

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
 - 1. include at least the specific coverages required;
 - 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 - 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
 - 4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
 - 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds:* The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
 - 1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 - 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
 - 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and
5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
 2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *"Or Equals"*

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
- b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

- A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.11 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

- 1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
- 2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.
1. *Shop Drawings*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.
 2. *Samples*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Engineer's Review of Shop Drawings and Samples*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will

document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

- d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
 2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 Contractor's General Warranty and Guarantee

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
1. Observations by Engineer;
 2. Recommendation by Engineer or payment by Owner of any progress or final payment;
 3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. Use or occupancy of the Work or any part thereof by Owner;
 5. Any review and approval of a Shop Drawing or Sample submittal;
 6. The issuance of a notice of acceptability by Engineer;
 7. The end of the correction period established in Paragraph 15.08;
 8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;
 - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. An itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
 - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
 - 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

- 9.05 *Lands and Easements; Reports, Tests, and Drawings*
- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
 - B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
 - C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.
- 9.06 *Insurance*
- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.
- 9.07 *Change Orders*
- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.
- 9.08 *Inspections, Tests, and Approvals*
- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.
- 9.09 *Limitations on Owner's Responsibilities*
- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- 9.10 *Undisclosed Hazardous Environmental Condition*
- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.
- 9.11 *Evidence of Financial Arrangements*
- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).
- 9.12 *Safety Programs*
- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
 - B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit will be determined as follows:
1. A mutually acceptable fixed fee; or
 2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
 - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
 - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
 - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
 - 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 - 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
 4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
 5. Other costs consisting of the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are

consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
- 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
- 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.

- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work does not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
- 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 6. Expenses incurred in preparing and advancing Claims.
- 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

- 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
- 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

- E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision

thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 3. by manufacturers of equipment furnished under the Contract Documents;
 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,

or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 Owner May Correct Defective Work

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments*
 - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
 - 2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. The Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. The Contract Price has been reduced by Change Orders;
 - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or
 - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 Contractor's Warranty of Title

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 Substantial Completion

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

- d. a list of all duly pending Change Proposals and Claims; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.
- C. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such adjacent areas;
 - 2. correct such defective Work;
 - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

- A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The

provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 2. agree with the other party to submit the dispute to another dispute resolution process; or
 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SUPPLEMENTARY GENERAL CONDITIONS

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**LOS OSOS COMMUNITY SERVICES DISTRICT
8TH AND EL MORO WELL EQUIPPING PROJECT
SUPPLEMENTARY GENERAL CONDITIONS**

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SUPPLEMENTARY GENERAL CONDITIONS

1. SCOPE

The Work to be performed under this Contract shall consist of furnishing everything necessary for the fulfillment of the Contract in strict accordance with the requirements of the Contract Documents. The Work shall be complete, and anything not expressly shown or called for in the Contract Documents which may be necessary for the complete and proper construction of the Work in good faith shall be accomplished by the Contractor as though originally so indicated in the Contract Documents, at no increase in cost to the OWNER. The Contractor shall obligate him/herself to satisfactorily complete the Work within the time stipulated in Article 2 of the Instructions to Bidders. The date of the Notice to Proceed issued by the OWNER shall constitute the starting date of the Contract. Upon issuance of the Notice to Proceed, the Contractor shall immediately begin and diligently prosecute the work to completion.

2. GENERAL

These Supplementary General Conditions amend or supplement the Standard General Conditions of the Construction Contract and other provisions of the Contract Documents as indicated. All provisions which are not so amended or supplemented remain in full force and effect. These Supplementary General Conditions are cross-referenced to EJCDC General Conditions, 2018 version.

3. SUPPLEMENTARY DEFINITIONS

Wherever in these Contract Documents the following terms are used, the intent and meaning shall be shown herein. All terms not listed in the following amended or supplementary definitions shall have the meanings assigned to them in the Standard General Conditions of the Construction Contract:

3.1 OWNER as referred to in ARTICLE 1 of the STANDARD GENERAL CONDITIONS of the Construction Contract shall be the LOS OSOS COMMUNITY SERVICES DISTRICT. The official address of the OWNER is:

LOS OSOS COMMUNITY SERVICES DISTRICT
2122 9TH STREET
LOS OSOS, CA 93402

3.2 ENGINEER as referred to in ARTICLE 1 of the STANDARD GENERAL CONDITIONS of the Construction Contract shall be WALLACE GROUP AND MNS ENGINEERS, acting either directly or through properly authorized agents acting within the scope of their particular duties delegated to them or when designated in the Contract.

The official address of the Engineer is:

WALLACE GROUP
612 Clarion Court

San Luis Obispo, California 93401

MNS ENGINEERS
811 El Capitan Way, Suite 130
San Luis Obispo, CA 93401

- 3.3 SUBSTANTIAL COMPLETION as defined in ARTICLE 1 of the STANDARD GENERAL CONDITIONS of the Construction Contract is hereby clarified with the following additional definition:

Substantial Completion shall exist when there has been no willful departure from the terms of the Contract, and no omission in essential points, and the Contract has been honestly and faithfully performed in its material and substantial particulars, and the only variance from the strict and literal performance consists of technical or unimportant omissions or defects, and that the Work may be utilized for the purposes for which it is intended. Substantial Completion shall mean Completion as evidenced by a certificate of completion filed by the **GOVERNING BODY** pursuant to the requirements of Sections 3086 and 3093 of the California Civil Code. The terms "substantially complete" and "substantially completed" as applied to any Work refer to Substantial Completion thereof.

- 3.4 SUPPLEMENTARY CONDITIONS as defined in ARTICLE 1 are also referred to as these Supplementary General Conditions.

4. AMENDMENTS OR SUPPLEMENTS TO STANDARD GENERAL CONDITIONS

- 4.1 Nothing herein shall be deemed to require the Owner to indicate the presence of existing service laterals or appurtenances wherever the presence of such utilities on the site of the construction project can be inferred from the presence of other visible facilities such as buildings, meter and junction boxes, on or adjacent to the site of construction; provided, however, that nothing herein shall relieve the Owner from identifying main or trunk lines in the plans and specifications.
- 4.3 If the Contractor, while performing the Contract, discovers utility facilities not identified by the OWNER, he shall immediately notify the OWNER and the utility owner in writing.
- 4.4 The public utility, where they are the owner, shall have the sole discretion to perform repairs or relocation work or permit the Contractor to do such repairs or relocation work at a reasonable price at the utility owner's expense.
- 4.5 Partial Payments: The provisions of ARTICLE 15 of the STANDARD GENERAL CONDITIONS of the Construction Contract are hereby amended to include the following provisions.
- 4.6 ARTICLE 15.01 PROGRESS PAYMENTS, PARAGRAPH B.4, RETAINAGE. Retainage shall be as specified in this Article 4.6 of the Supplementary General Conditions. The Contractor shall, once each month, accurately measure and submit in writing, the total amount of the work completed for each line item of the Bid Schedule at the time of such estimate. The OWNER will retain 5 percent of such estimated value of all work done as part security for the fulfillment of this

Contract by the Contractor and shall pay monthly to the Contractor, while carrying on the Work, the balance not retained, as aforesaid, after deducting therefrom all previous payments and all sums to be kept or retained, under the provisions of this Contract. No such estimate or payment will be required to be made when, in the judgment of the Engineer, the Work is not proceeding in accordance with the provisions of this Contract, or when in the Engineer's judgment the total value of the work done since the last estimate amounts to less than \$1000. No partial payment shall be made for materials on hand but not installed.

- 4.7 In order to confirm the amounts due under this paragraph, the Contractor shall file with the Engineer a schedule of values of the work completed, based upon the unit price set forth in the Bid Schedule, in the manner specified in ARTICLE 15.01 of the STANDARD GENERAL CONDITIONS of the Construction Contract provided that where the Schedule of Values is referred to, it shall mean the Bid Sheet.
- 4.8 The retained percentage as specified herein will be held by the OWNER and will be due and payable to the Contractor 35 calendar days after final acceptance of the Work by action of the **GOVERNING BODY**; provided, there have been no Stop Notices served upon the OWNER, as set forth in ARTICLE 4.6 of these SUPPLEMENTARY GENERAL CONDITIONS.

5. CONSTRUCTION DRAWINGS

- 5.1 Article 2.02.A of the General Conditions is modified as follows: Owner will furnish to Contractor only a PDF copy of the bid documents. Should Contractor desire hard copy prints, such prints shall be provided for by Contractor.

6. LIQUIDATED DAMAGES

- 6.1 General: It is agreed by the Contractor that in case all the Work called for under the Contract in all parts and requirements is not finished or completed within the time specified in the Contract, damages will be sustained by the OWNER, and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damages which the OWNER will sustain in the event of and by reason of such delay; and it is therefore agreed that the Contractor will pay to the OWNER, the sum of **\$500 per day** for each and every working day's delay in finishing the Work in excess of the completion dates prescribed in Article 2 of the Instructions to Bidders. The Contractor agrees to pay said liquidated damages herein provided for, and further agrees that the OWNER may deduct the amount thereof from any monies due or that may become due by the Contractor under the Contract.
- 6.2 It is further agreed that in case the Work called for under the Contract is not finished and completed in all parts and requirements within the completion time specified, the OWNER shall have the right to increase the number of working days or not, as may be deemed best to serve the interest of the OWNER, and if it is deemed to increase the said number of working days, the OWNER shall further have the right to charge the Contractor, its heirs, assigns, or sureties and to deduct from the final payment for the Work or any part, as may be deemed

proper, of the actual cost of engineering, inspection, superintendence, and other overhead expenses which are directly chargeable to the Contract, and which accrue during the period of such extension, except that cost of final surveys and preparation of final estimate shall not be included in such charges.

- 6.3 The Contractor will be granted an extension of time and will not be assessed liquidated damages or the cost of engineering and inspection for any portion of the delay in completion of the Work beyond the time named in the Contract for the Completion of the Work caused by Acts of God, or of the public enemy, fire, floods, epidemics, quarantine restrictions, strikes, labor disputes, shortage of materials, and freight embargoes; provided, that the Contractor shall notify the Engineer in writing of the causes of the delay within 15 calendar days from the beginning of any such delay. The Engineer shall ascertain the facts within 5 working days and determine the extent of the delay, and the Engineer's findings thereon shall be final and conclusive.
- 6.4 No extension of time will be granted for a delay caused by a shortage of materials unless the Contractor furnishes to the Engineer documentary proof that he/she has diligently made every effort to obtain such materials from all known sources within reasonable reach of the Work and further proof in the form of supplementary progress schedules, as required for "Contractor's Schedules" in Technical Section entitled "Contractor Submittals," that the inability to obtain such materials when originally planned, did in fact cause delay in final completion of the entire Work which could not be compensated for by revising the sequence of the Contractor's operations. Only the physical shortage of material will be considered under these provisions as a cause for extension of time, and no consideration will be given to any claim that material could not be obtained at a reasonable, practical, or economic cost or price, unless it is shown to the satisfaction of the Engineer that such material could have been obtained only at exorbitant prices entirely out of line with current rates, taking into account the quantities involved and the usual practices in obtaining such quantities.
- 6.5 If the Contractor is delayed in completion of the Work by reason of changes made under the provisions of ARTICLE 11 of the STANDARD GENERAL CONDITIONS of the Construction Contract, or by any act of the Engineer not contemplated in the Contract, an extension of time commensurate with the delay in completion of the Work thus caused will be granted and the Contractor shall be relieved from any claim for liquidated damages, or engineering and inspection charges or other assessments for the period covered by such extension of time; provided further, that the Contractor shall notify the Engineer in writing of the causes of delay within 15 calendar days from the beginning of any such delay. The Engineer will ascertain the facts within 5 working days and determine the extent of the delay, and his or her finding thereon shall be final and conclusive.
- 6.6 The Contractor shall have no claim for damage or compensation for any delay or hindrance whether or not contemplated by the Contract.
- 6.7 The Contractor shall not be relieved of liability for liquidated damages or engineering or inspection charges for any period of delay in completion of the Work in excess of that expressly provided for in this Article.

6.8 California Code Requirements: In accordance with the requirements of Paragraph (b) of Section 4215 of the California Government Code, the Contractor will not be assessed liquidated damages for delay in completing the Work to the extent that such delay is caused by the failure of the Owner or of a utility company, OWNER, or other agency to provide for or accomplish the relocation of an existing utility facility in a street, road, or highway.

7. PERMITS AND INSURANCE REQUIRED UNDER SUCH PERMITS

7.1 ARTICLE 7.09, PERMITS, is modified as follows:

7.1.1 Refer to Section 01 11 00, Summary of Work, for project-specific permitting requirements. No permits are required for this Work.

8. DELIVERY AND STORAGE OF MATERIALS

8.1 All packaged manufactured products for use on the Work shall be delivered to the Work site in their original, unopened packages, bearing thereon the manufacturer's name and the brand name of the product.

8.2 Whenever any product or material is selected to be used on the Work, all such products or materials shall be of the same brand and manufacture throughout the Work.

8.3 All materials shall be stored in such a manner that they will be completely protected from weather damage.

9. APPLICABLE ORDINANCES AND REGULATIONS

9.1 The Work is located in Los Osos, San Luis Obispo County, CA. In the performance of the Work the Contractor shall comply with all ordinances, regulations, and other lawful requirements of said OWNER and County and of the State, Federal, and other public authorities within their respective jurisdictions governing work on public property. In particular, the Contractor's attention is directed to the fact that all work hereunder shall conform to or exceed all requirements of the Construction Safety Orders of Cal-OSHA.

9.2 Nothing herein shall be construed to entitle the Contractor to the exclusive use of any public street, alleyway, or parking area during the performance of the Work hereunder.

10. ADDITIONAL CALIFORNIA CODE REQUIREMENTS

10.1 Deposit of Securities in Lieu of Retainage: On written request of the Contractor, and at the sole expense of the Contractor, the Contractor may deposit securities in an amount equivalent and in lieu of any monies retained by the OWNER pursuant to the terms of the Contract. Said deposits shall be made pursuant to and in accordance with the terms and provisions of Chapter 13 of the Division 5 of Title I of the Government Code, commencing at Section 4590. The securities may be deposited with the OWNER or with a State or Federally-chartered bank

as an escrow agent. If the securities are deposited with a bank, the Contractor shall furnish the OWNER with written proof of said deposit and an executed counterpart of the escrow or deposit instructions. Said instructions must contain a statement that said securities will not be released to anyone except upon written instructions of an authorized representative of the OWNER, which statement must recite that the purpose for which the deposit was made has been satisfied. Upon satisfactory completion of the Contact, the securities shall be returned to the Contractor.

- 10.2 Securities eligible for deposit under this section shall be those listed in Section 16430 of the Government Code, or bank or savings and loan certificates of deposit.
- 10.3 The Contractor shall be the beneficial owner of any securities substituted for monies retained, and the Contractor shall receive any interest that is paid thereon.
- 10.4 Assignment of Antitrust Claims: The Contractor offers and agrees to assign to the OWNER all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (14 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 commencing with Section 16700 of Part 2 of Division 7 of the California Business and Professions Code), arising from the purchase of goods, services, or materials pursuant to this Contract. This assignment shall become effective at the time that the OWNER tenders final payment to the Contractor, without further acknowledgment by the parties. The Contractor shall have the rights set forth in Sections 4553 and 4554 of the California Government Code.
- 10.5 Labor Discrimination: No discrimination shall be made in the employment of persons on the Work by the Contractor or by any subcontractor because of race, religious creed, color, national origin, ancestry, physical disability, medical condition, marital status, mental disability, sexual orientation or sex except as permitted by Section 12940 of the California Government Code.
- 10.6 Fair Employment Practice: In the performance of this Contract, the Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, ancestry, sex, age, national origin, physical disability, mental disability, medical condition or marital status. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated, without regard to their race, color, religion, ancestry, sex, sexual orientation, age, national origin, physical handicap, medical condition, or marital status. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. See Chapter 6 of Part 2.8 of Division 3 of the California Government Code commencing at Section 12940 for further details.
- 10.7 The Contractor shall permit access to its records of employment, employment advertisements, application forms, and other pertinent data and records by the State Fair Employment and Housing Commission, or any other agency of the State of California, for the purposes of investigation to ascertain compliance with the Fair Employment Practices section of this contract.

- 10.8 The OWNER may determine a willful violation of the Fair Employment Practices provision to have occurred upon receipt of a final judgment having that effect from a court in an action to which the Contractor was a party, or upon receipt of a written notice from the Fair Employment and Housing Commission that it has investigated and determined that the Contractor has violated the Fair Employment and Housing Act and has issued an order, which has become final, or obtained an injunction.
- 10.9 For willful violation of this Fair Employment Practices provision, the OWNER shall have the right to terminate this Contract either in whole or in part, and any loss or damage sustained by the OWNER in securing the goods or services hereunder shall be borne and paid for by the Contractor and by its surety under the Performance Bond, if any, and the OWNER may deduct from any monies due or that thereafter may become due to the Contractor, the difference between the price named in the Contract and the actual cost thereof to the OWNER.
- 10.10 Notice to Labor Unions: The Contractor, and any subcontractors, shall give written notice of their obligation under this Fair Employment Practice section of this Contract and of the applicable sections of the California Fair Employment and Housing Act to the labor organization with which they have a collective bargaining or other agreement. (See California Government Code Section 12990).
- 10.11 Payroll Records: The Contractor and each subcontractor shall keep an accurate payroll record, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice worker, or other employee employed by him or her in connection with the public work. The payroll records shall be certified and shall be available for inspection at all reasonable hours at the principal office of the Contractor in the manner provided in Labor Code Section 1776. In the event of noncompliance with the requirements of this Section, the Contractor shall have 10 calendar days to comply subsequent to receipt of written notice specifying in what respects such Contractor must comply with this Section. Should noncompliance still be evident after such 10-day period, the Contractor shall, as a penalty, forfeit to the OWNER 25 dollars for each worker for each calendar day or portion thereof, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, such penalties shall be withheld from progress payments then due. The responsibility for compliance with this Section is with the Contractor.
- 10.12 Wage Rates: As required under Sections 1770 et seq of the California Labor Code, the Contractor shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations (DIR). The Contractor shall post a copy of such determination at each job site. Refer to the Instructions to Bidders, Article 11, for further California Labor Code requirements for Contractor registration with DIR in accordance with California Labor Code Section 1725.5.

- 10.13 In accordance with California Labor Code Section 1813, the Contractor shall, as a penalty to the OWNER, forfeit \$25.00 for each calendar day, or portion thereof, for each worker paid less than the prevailing rates as determined by the Director for such work or craft in which such worker is employed for any public work done under the Contract by the Contractor or by any subcontractor under it.
- 10.14 Working Hours: The Contractor shall comply with all applicable provisions of Section 1810 to 1815, inclusive of the California Labor Code relating to working hours. The Contractor shall, as a penalty to the OWNER, forfeit \$25.00 for each worker employed in the execution of the Contract by the Contractor or by any subcontractor for each calendar day during which such worker was required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week, unless such worker receives compensation for all hours worked in excess of 8 hours at not less than 1-1/2 times the basic rate of pay.
- 10.15 First Aid For Employees: Pursuant to the provisions of the California Labor Code Section 6708, each Contractor and Subcontractor shall maintain or make available adequate emergency first aid treatment for its employees, agents, and representatives. As used herein, the word "adequate" shall be construed to mean sufficient to comply with the Federal Occupational Safety and Health Act (P.L. 91-596 OSHA) and the applicable requirements of Cal-OSHA. (See 29 USCA Section 651 et seq.)
- 10.16 Apprentices on Public Works: The Contractor shall comply with all applicable provisions of Section 1777.5 and 1777.6 of the California Labor Code relating to the employment of apprentices on public works.
- 10.17 Unpaid Claims: If at any time prior to the expiration of the period for service of a Stop Notice, there is served upon the OWNER a Stop Notice as provided in Sections 3170 through 3210 of the California Civil Code, the OWNER shall, until the discharge thereof, withhold the monies under its control so much of said monies due or to income due the Contractor under this Contract which shall be sufficient to answer the claim stated in such Stop Notice and to provide for the reasonable cost of any litigation thereunder; provided, that if the Engineer shall, in its discretion, permit the Contractor to file with the OWNER the Bond referred to in Section 3196 of the California Civil Code, said monies shall not thereafter be withheld on account of such Stop Notice.
- 10.18 Travel and Subsistence Pay: As required under Section 1773.8 of the California Labor Code, the Contractor shall pay travel and subsistence payments to each worker needed to execute the Work, as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed in accordance with said Section 1773.8.

11. INSURANCE

- 11.1 General: In all insurance policies required hereunder, the insurance certificate shall evidence a firm commitment by the insurance company to notify the OWNER and Engineer of the expiration or cancellation of any of the insurance policies required hereunder not less than 30 calendar days before such expiration or cancellation is effective.

11.2 Insurance Amounts:

Policy Limits: Each of said policies of insurance shall provide coverage in the following minimum amounts: for personal injury \$1,000,000 each person, \$2,000,000 aggregate limit; property damage \$1,000,000 on account of any one occurrence, \$2,000,000 aggregate limit; except that insurance required to be maintained by Subcontractors above shall provide coverage in the following minimum amounts; for personal injury \$500,000 each person, \$1,000,000 aggregate limit; property damages \$500,000 on account of any one occurrence, \$1,000,000 aggregate limit.

Additional Named Insureds: All such insurance shall include as additional named insureds: the OWNER; the Engineer and its Consultants.

11.3 Article 6.04, Builder's Risk and Other Property Insurance, of the General Conditions, is deleted in its entirety.

12. ACCESS TO PROJECT SITE

12.1 48-Hours Notice: The Contractor shall give the OWNER a minimum of 48 hours notice prior to arriving at the project site at the start of construction.

13. INTERRUPTION TO UTILITY SERVICES

13.1 48-Hour Notice: The Contractor shall give the OWNER a minimum of 48 hours notice prior to the interruption of any utility service.

13.2 The interruption of utility services shall be only made during off-peak hours, with the expressed written permission of the OWNER. Off peak hours are defined as 9:00 p.m. to 5:00 a.m. Monday through Friday.

14. MODIFICATIONS; PERFORMANCE; PAYMENT

(Timely progress payments; legislative intent; payment requests)

14.1 It is the intent of the Legislature in enacting this section to require all local governments to pay their contractors on time so that these contractors can meet their own obligations. In requiring prompt payment by all local governments, the Legislature hereby finds and declares that the prompt payment of outstanding receipts is not merely a municipal affair, but is, instead, a matter of statewide concern.

It is the intent of the Legislature in enacting this article to fully occupy the field of public policy relating to the prompt payment of local payment of local governments' outstanding receipts. The Legislature finds and declares that all government officials, including those in local government, must set a standard of prompt payment that any business in the private sector which may contract for services should look towards for guidance.

14.2 Any local agency which fails to make any progress payment within 30 calendar days after receipt of an undisputed and properly submitted payment request from a contractor on a construction contract shall pay interest to the contractor equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure.

14.3 Upon receipt of a payment request, each local agency shall act in accordance with both of the following:

Each payment request shall be reviewed by the local agency as soon as possible as practicable after receipt for the purpose of determining that the payment request is a proper payment request.

Any payment request determined not to be a proper payment request suitable for payment shall be returned to the contractor as soon as practicable, but not later than seven calendar days, after receipt. A request returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the payment request is not proper.

14.4 The number of days available to a local agency to make a payment without incurring interest pursuant to this section shall be reduced by the number of days by which a local agency exceeds the seven-day return requirement set forth in paragraph (2) of subdivision (c).

14.5 For purposes of this article:

A "local agency" includes, but is not limited to, a city, including a charter city, a county, and a city and county, and is any public entity subject to this part.

A "progress payment" includes all payments due contractors, except that portion of the final payment designated by the contract as retention earnings.

A payment request shall be considered properly executed if funds are available for payment of the payment request, and payment is not delayed due to an audit inquiry by the financial officer of the local agency.

14.6 Each local agency shall require that this article, or a summary thereof, be set forth in terms of any contract subject to this article.

14.7 Bid Schedule:

All pay line items will be paid for at the unit prices named in the Bid Schedule for the respective items of work. The quantities of work or material stated as unit price items on the Bid Schedule are supplied only to give an indication of the general scope of the Work: The OWNER does not expressly nor by implication agree that the actual amount of work or material will correspond therewith, and reserves the right after award to increase or decrease the quantity of any item of work by an amount up to and including 25 percent of any bid item in its entirety, or to add additional bid items up to and including an aggregate total amount not to exceed 25 percent of the contract price.

Quantity variations in excess of the allowable quantity changes specified herein shall be subject to the provisions of Article 11 of the STANDARD GENERAL CONDITIONS.

15. DISPUTE RESOLUTION

15.1 Any question about interpretation or clarification, disagreement, or claim that has been timely referred to the Engineer in accordance with Article 10.05, except any which have been waived by the making or accepting of final payment, shall upon timely demand of either party be subject to resolution under the following provisions:

No demand for arbitration or litigation may be made until the earlier of the following listed times:

The sixty-first day after the date of the Engineer's receipt of a claim or dispute, or for an adjustment of contract terms, or both, if a decision has not been issued by that date.

Pending a resolution of the claim or dispute, the Contractor shall proceed diligently with the performance of the contract and in accordance with the Engineer's decision unless the parties to this contract otherwise agree in writing.

16. OTHER FUNDING AGENCY REQUIREMENTS

16.1 **Agency Not a Party.** This Contract is not expected to be funded in part with funds provided by any outside Agency.

16.2 **Contract Approval.** Owner and Contractor will furnish Owner's attorney such evidence as required so that Owner's attorney can complete and execute the following "Certificate of Owner's Attorney" (Exhibit GC-A) before Owner submits the executed Contract Documents to Agency for approval. Concurrence by Agency in the award of the Contract is required before the Contract is effective.

16.3 **Conflict of Interest.** Contractor may not knowingly contract with a supplier or manufacturer if the individual or entity who prepared the plans and specifications has a corporate or financial affiliation with the supplier or manufacturer.

Owner's officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest in Contractor. Owner's officers, employees, or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from Contractor or subcontractors.

Gratuities

If Owner finds after a notice and hearing that Contractor, or any of Contractor's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of Owner or

Agency in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, Owner may, by written notice to Contractor, terminate this Contract. Owner may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which Owner bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract.

In the event this Contract is terminated as provided in paragraph 18.04.A, Owner may pursue the same remedies against Contractor as it could pursue in the event of a breach of this Contract by Contractor. As a penalty, in addition to any other damages to which it may be entitled by law, Owner may pursue exemplary damages in an amount (as determined by Owner) which shall not be less than three nor more than ten times the costs Contractor incurs in providing any such gratuities to any such officer or employee.

- 16.4 **Audit and Access to Records.** For all negotiated contracts and negotiated modifications (except those of \$10,000 or less), Owner, Agency, the Comptroller General, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the Contractor, which are pertinent to the Contract, for the purpose of making audits, examinations, excerpts and transcriptions. Contractor shall maintain all required records for three years after final payment is made and all other pending matters are closed.
- 16.5 **Small, Minority and Women's Businesses.** If Contractor intends to let any subcontracts for a portion of the work, Contractor shall take affirmative steps to assure that small, minority and women's businesses are used when possible as sources of supplies, equipment, construction, and services. Affirmative steps shall consist of: (1) including qualified small, minority and women's businesses on solicitation lists; (2) assuring that small, minority and women's businesses are solicited whenever they are potential sources; (3) dividing total requirements when economically feasible, into small tasks or quantities to permit maximum participation of small, minority, and women's businesses; (4) establishing delivery schedules, where the requirements of the work permit, which will encourage participation by small, minority and women's businesses; (5) using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce; (6) requiring each party to a subcontract to take the affirmative steps of this section; and (7) Contractor is encouraged to procure goods and services from labor surplus area firms.
- 16.6 **Anti-Kickback.** Contractor shall comply with the Copeland Anti-Kickback Act (18 USC 874 and 40 USC 276c) as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Buildings or Public Works Financed in Whole or in Part by Loans or Grants of the United States"). The Act provides that Contractor or subcontractor shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public facilities, to give up any part of the compensation to which they are otherwise entitled. Owner shall report all suspected or reported violations to Agency.

- 16.7 **Clean Air and Pollution Control Acts.** If this Contract exceeds \$100,000, Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 USC 7401 et seq.) and the Federal Water Pollution Control Act as amended (33 USC 1251 et seq.). Contractor will report violations to the Agency and the Regional Office of the EPA.
- 16.8 **State Energy Policy.** Contractor shall comply with the Energy Policy and Conservation Act (P.L. 94-163). Mandatory standards and policies relating to energy efficiency, contained in any applicable State Energy Conservation Plan, shall be utilized.
- 16.9 **Equal Opportunity Requirements.** If this Contract exceeds \$10,000, Contractor shall comply with Executive Order 11246, "Equal Employment Opportunity," as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and as supplemented by regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

Contractor's compliance with Executive Order 11246 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative active obligations required by the Standard Federal Equal Employment Opportunity Construction Contract Specifications, as set forth in 41 CFR Part 60-4 and its efforts to meet the goals established for the geographical area where the Contract is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting Contractor's goals shall be a violation of the Contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the Contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the Contract is to be performed.

- 16.10 **Restrictions on Lobbying.** Contractor and each subcontractor shall comply with Restrictions on Lobbying (Public Law 101-121, Section 319) as supplemented by applicable Agency regulations. This Law applies to the recipients of contracts and subcontracts that exceed \$100,000 at any tier under a Federal loan that exceeds \$150,000 or a Federal grant that exceeds \$100,000. If applicable, Contractor must complete a certification form on lobbying activities related to a specific Federal loan or grant that is a funding source for this Contract. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or

attempting to influence an officer or employee of any agency, a member of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 USC 1352. Each tier shall disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Certifications and disclosures are forwarded from tier to tier up to the Owner. Necessary certification and disclosure forms shall be provided by Owner.

END SUPPLEMENTARY GENERAL CONDITIONS

LOS OSOS COMMUNITY SERVICES DISTRICT

TECHNICAL SPECIFICATIONS

8TH AND EL MORO WELL EQUIPPING PROJECT

The following qualified professional civil engineer and Engineer of Record was responsible for preparing these technical specifications

Prepared by:



Nicholas Panofsky, PE C75006
Supervising Engineer
MNS Engineers

LIST OF TECHNICAL SPECIFICATIONS

DIVISION 1: GENERAL REQUIREMENTS

- 01 11 00 Summary of Work
- 01 20 00 Price and Payment Procedures
- 01 31 00 Project Management and Coordination
- 01 33 00 Submittal Procedures
- 01 50 00 Temporary Facilities and Controls
- 01 75 16 Startup Procedures
- 01 77 00 Closeout Procedures

DIVISION 2: EXISTING CONDITIONS

- 02 41 00 Demolition

DIVISION 3: CONCRETE

- 03 41 00 Precast Structural Concrete

DIVISION 9: FINISHES

- 09 96 00 High-Performance Coatings

DIVISION 22: PLUMBING

- 22 11 00 Facility Water Distribution

DIVISION 31: EARTHWORK

- 31 00 00 Earthwork
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- 32 31 13 Chain Link Fences and Gates

DIVISION 33: UTILITIES

- 33 11 37 Submersible Vertical Turbine Well Pumps

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SECTION 01 11 00

SUMMARY OF WORK

1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. The project includes all work necessary to equip a new well for service and to blend pumped water with water produced from a separate on-site well. The work includes furnishing and installing a new well pump, pump control valve, above grade and below grade valves, piping and appurtenances, sodium hypochlorite dosing equipment, static mixer vault, concrete well pedestal, concrete slab, miscellaneous concrete, well protection cage, electrical, controls, communications and instrumentation improvements, and all other work required to create a complete and functional potable water production system.

1.02 TYPE OF CONTRACT

- A. The Work covered by these Contract Documents shall be provided under a single lump sum Contract.

1.03 CONTRACTOR'S USE OF SITE AND OWNERS CONTINUED OPERATIONS

- A. The Contractor shall confine his use of the site for work and storage to the Work Area Limits shown on the contract drawings. The Contractor's use of adjacent lands and roads for access to move onto and off of the site and for daily access of workers, material and equipment shall be arranged and scheduled to minimize interference with the Owner's continued operations.
- B. The Owner intends to continue operation of its existing facility during all of the construction period. The Contractor shall plan and schedule its work to minimize impacting the Owner's continued operations and shall, at all times, maintain safe access for the Owner's operating personnel and equipment.
- C. The Contractor shall be responsible for maintaining safe emergency exiting for the Owner's and Contractor's personnel in all areas affected by the Contractor's work.
- D. If operation of the Owner's existing facility is adversely affected by the Contractor's work, the Owner may suffer a financial loss and may make a claim against the Contractor to recover its loss.

1.04 DOCUMENTING EXISTING

- A. Prior to commencing the Work, tour the site with the Owner and the Engineer. Examine and document photographically and in writing the condition of existing buildings, equipment, improvements, and landscape planting on and adjacent to the site. This record shall serve as a basis for determination of subsequent damage due to the Contractor's operations and shall be signed by all parties making the tour. Record existing conditions on digital video, and provide video to the Engineer on a CD, DVD, or USB flash drive.

1.05 SHUTDOWN OF EXISTING UTILITIES, SERVICES OR OPERATIONS

- A. Obtain the Engineer's approval at least seven days prior to requiring the shutdown of any utility, service or operation of any existing facility. Give required notice and make appropriate arrangements with the Owner, utility owners and other affected parties prior to shutdown of any utility service.
- B. Schedule utility service or operations shutdowns for periods of minimum use and at the Owner's convenience. Have all required material, equipment and workers on site prior to beginning any work involving a possible shutdown. Perform work as required to reduce shutdown time to the minimum. In some cases, this may require increased numbers of workers.
- C. No customers shall be out of service for more than a single 2-hour period.
- D. Water production facilities shall not be shut down for a period of more than 6-hours during any one shutdown.

1.06 SCHEDULE OF VALUES

- A. Specific provisions are described in Article 2, paragraph 2.03 of the General Conditions.
- B. The Contractor's Schedule of Values shall be in a form acceptable to the Engineer and have at least the following level of detail: a separate line item for each technical specification section, for site mobilization, for Construction Scheduling, for bonds and insurance, for final cleanup and for final deliverables. Subdivide final deliverables into: Record Drawings; Operation and Maintenance Manuals with Parts Lists; and Special Guarantees. Include the appropriate specification section and paragraph number for each line item. Subdivide major trades or portions of the work into multiple line items relating to observable milestones to aid monthly progress evaluations in accordance with the following example:

Concrete Work
 Slab on grade
 Pump Pedestal
 Thrust Blocks

Each line item of work shall be allocated to a specific bid item.

1.07 CONTRACT MODIFICATIONS

- A. The following documents may be used by the Engineer:
 - 1. Request for Quotation: Issued by the Engineer, a Request for Quotation is used to describe a proposed change and request a cost quotation from the Contractor but does not authorize a change in the Work or in the Contract Time or Price.
 - 2. Change Order: Signed by the Engineer signifying its recommendation, and signed by the Contractor and Owner signifying their acceptance, a Change Order changes the Scope of Work and possibly the Contract Price and/or Contract Time.

3. Work Directive Change: Signed by the Owner (and in some cases by the Contractor) signifying their acceptance and issued by the Engineer, a Work Directive Change is used: (1) to direct the Contractor to do extra work on a cost accounting basis with a fixed maximum sum when the Owner and Contractor have not agreed on the price and time for the change, and (2) to direct the Contractor to do work that the Contractor contends is not included in the contract scope. Work done under case 1 will be converted to a Change Order when the Contractor and Owner agree on the change in price and time. The Contractor may make a claim for recovery of cost and time extension for work done under case 2; but if the claim is denied because the work is determined to be included in the contract scope, then the Contract Time and Price will not be changed. Work done under both cases 1 and 2 shall be done in accordance with the requirements for work done on a cost accounting basis described in General Conditions Section 13.01.
4. Response to Request for Information: Issued by the Engineer, a Response to Request for Information is used to order or document minor changes in the work consistent with the intent of the Contract Documents and NOT involving a change in price or time. Information issued on a Response to Request for Information shall NOT authorize a change in Contract Price or Contract Time and shall not be considered a Constructive Change Order. If the Contractor considers that a Response to Request for Information would cause a change in Contract Price or Time, it shall notify the Engineer in writing within 15 days of receipt of the Response to Request for Information and shall not proceed with the work. See General Conditions Section 3.04.
5. The Contractor hereby expressly waives any claim or right to make a claim for an increase in contract time or price without written notice to the Engineer of the Contractor's intent to make a claim 5 days prior to proceeding to execute the work or portion thereof giving rise to such claim.
6. The Contractor agrees that it shall not consider any Response to Request for Information, order, instruction, clarification, suggestion or any other communication either written or oral, given intentionally or unintentionally by the Engineer, Owner or any other person as authorization or direction to do any work that would cause a change in Contract Time or Price unless it is a formal written Change Order or Work Directive Change signed by the Owner.

1.08 REGULATORY REQUIREMENTS

- A. The codes and regulations together with local amendments when applicable adopted by the State and other governmental authorities having jurisdiction shall establish minimum requirements for this project. This project shall comply with the following:
 1. International Building Code (IBC), latest edition
 2. California Fire Code (UFC), latest edition
 3. California Mechanical Code (UMC), latest edition
 4. California Plumbing Code (UPC), latest edition
 5. California Electric Code (NEC), latest edition
 6. California Building Code (CBC), latest edition
 7. California Code of Regulations
 - a. Title 8, Industrial Relations: Especially CAL-OSHA.
- B. The latest edition of the requirements in effect at the date of submission of bids shall apply.

- C. Paragraphs addressing Pre-Engineered Systems and Performance Specifications in other Sections cover the Contractor's responsibility to comply with code requirements when (1) performance specifications are used to describe all or portions of Work or items and (2) when pre-engineered (contractor designed) systems are specified.
- D. In cases where the Contract Documents are more restrictive than applicable codes, the Contractor shall comply with the Contract Documents.

1.09 REFERENCE STANDARDS

- A. When these specifications state that Work or tests shall conform to specific provisions in a referenced standard, specification, code, recommendation or manual published by an association, organization, society or agency the referenced provisions, as they apply to the Work of the Contractor only shall be considered a part of these specifications as fully as if included in total. When these specifications or applicable codes contain higher or more restrictive requirements than those contained in reference standards these specifications or applicable codes shall govern.
- B. The latest edition of a referenced standard published at the time of submission of bids shall apply unless a specific date for the referenced standard is cited in these specifications.
- C. General provisions in referenced standards, specifications, manuals or codes shall not change the specific duties and responsibilities between any of the parties involved in this work from those described in the General Conditions. Provisions in referenced standards with regard to measurement and payment shall not apply to this Work unless specifically cited. See General Conditions Article 15.

1.10 SPECIFICATION LANGUAGE AND STYLE

- A. Many parts of the Specifications as well as notes on the Drawings are written in the active voice and are addressed to the Contractor.
 - 1. When words or phrases requiring an action or performance of a task are used, it means that the Contractor shall provide the action or perform the task. For example: provide, perform, install, furnish, erect, connect, test, operate, adjust or similar words mean that the Contractor shall perform the action or task referred to.
 - 2. When words or phrases requiring selection, acceptance, approval, review, direction, designation or similar actions are referred to, it means that such actions are the Owner's or the Engineer's prerogative and that the Contractor must obtain such action before proceeding.
- B. Requirements in the Specifications and Drawings apply to all work of a similar type, kind or class even though the word "all" or "typical" may not be stated.

1.11 DEFINITIONS

- A. The following terms, when used in the Contract Documents, shall have the meanings listed:

ACCEPTABLE	"acceptable to the Engineer"
PERFORM	"perform all operations required to complete the work referred to in accordance with the intent of the Contract Documents"
PROVIDE	"furnish and install the work referred to including proper anchorage, connection to required utilities or other work, testing, adjustment and startup ready to put in service and perform the intended function"
REQUIRED	"required by the Contract Documents or required to complete the Work and produce the intended results"
SATISFACTORY	"acceptable to the Engineer"
SHOWN	"as indicated on the Drawings"
SPECIFIED	"as written in the Contract Documents including the Specifications and the Drawings"
SUBMIT	"submit to the Engineer"

1.12 ABBREVIATIONS

- A. The following acronyms or abbreviations are used in these specifications for the organizations listed.

<u>Abbreviation</u>	<u>Stands for</u>
AASHTO	American Association of State 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
AI	Asphalt Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
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
APWA	American Public Works Association
AREA	American Railway Engineering Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood-Preservers' Association

<u>Abbreviation</u>	<u>Stands for</u>
AWS	American Welding Society
AWWA	American Water Works Association
CAGI	Compressed Air and Gas Institute
CAL/OSHA	State of California Department of Industrial Relations, Division of Industrial Safety
CAL TRANS	California Department of Transportation
CBC	California Building Code
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
CS	Commercial Standards for the U.S. Department of Commerce
CTI	Cooling Tower Institute
DFPA	Douglas Fir Plywood Association
EIA	Electronic Industries Association
EPA	U.S. Environmental Protection Agency
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
GO 128	General Order No. 128, California Public Utilities Commission Rules for Underground Electrical Construction
HI	Hydraulic Institute
HMI	Hoist Manufacturers Institute
IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronic Engineers
IES	Illuminating Engineering Society
IGCC	Insulating Glass Certification Council
IPCE	International Power Cable Engineers Association
ISA	Instrument Society of America
NAAMM	National Association of Architectural Metal Manufacturers
NBS	National Bureau of Standards
NCPI	National Clay Pipe Institute
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NETA	International Electrical Testing Association
NFPA	National Fire Protection Association
NGVD	National Geodetic Vertical Datum
NSF	National Sanitation Foundation
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Act
PCA	Portland Cement Association
REA	Rural Electrification Administration

<u>Abbreviation</u>	<u>Stands for</u>
SAMA	Scientific Apparatus Makers Association
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SSPC	Structural Steel Painting Council
TCA	Tile Council of America
UBC	Uniform Building Code
UFC	Uniform Fire Code
UMC	Uniform Mechanical Code
UPC	Uniform Plumbing Code
USDC	U.S. Department of Commerce
UL	Underwriters Laboratories
WCLIB	West Coast Lumber Inspection Bureau
WIC	Woodwork Institute of California
WQCB	Water Quality Control Board (Regional)
WRCB	Water Resources Control Board

END OF SECTION

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

1.01 SCOPE

- A. This section describes the bid items for which payment will be made for the project. Payment will be made for those items listed in the Bid Schedule only. All items of work not specifically listed in the Bid Schedule shall be included in the prices for the various items listed on the bid schedule. The cost of the Work, including all labor, material and equipment necessary for the completion of the work itemized, even though not shown or specified, shall be included in the unit price for the various items described herein.

1.02 LIMITATIONS

- A. The Owner reserves the right to omit items as may be deemed necessary, and the same shall in no way affect or make void the contract, except appropriate additions or deductions from the contract total price will be made at the stipulated price.
- B. The District further reserves the right to reject any or all bids, to waive any informality or irregularity in any bid or the bidding procedure, and to delete any items of work in the award of contract.
- C. Bidders must bid on all items in the Bid Schedule, in order for their bids to be complete. The award of contract will be based upon the total bid for all items.

1.03 MEASUREMENT AND PAYMENT

- A. Measurement and payment for all bid items shall be in accordance with the provisions of the General Conditions.

1.04 BID ITEM DESCRIPTIONS

The following sets forth a general description of the type of work for each bid item listed in the schedule, but is not intended to be all inclusive.

Bid Item 1. Mobilization: The lump sum price paid for Mobilization shall include full compensation for bonds, insurance, required permits and fees, shop drawings, submittals, project phasing, supervision, coordination of work, meetings, "as-built" plans or record drawings, movement of personnel, equipment, supplies, and incidentals to and from the project site, locating and potholing existing utilities; for the establishment of all other facilities necessary for work on the project; site cleanup; demobilization; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items of work on the project site. The Contractors bid price for this bid item shall be limited to a maximum of 10% of the Total Bid Price listed in the bid schedule.

Bid Item 2. Submersible Well Pump: The lump sum price paid for the Submersible Well Pump shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals to furnish and install the submersible well pump including fabrication, delivery, installation, and testing, complete, in place, in accordance with the Contract Documents.

- Bid Item 3. Piping, Valves, and Appurtenances: The lump sum price paid for Piping, Valves, and Appurtenances shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals for demolition and construction of all above and below grade potable water piping, valves, and appurtenances, including piping; fittings; couplings; joint restraints; thrust blocks; valves; pump control valve; sample taps; well discharge plate; pump drop pipe; wellhead piping and appurtenances; flow meter; sample lines to chlorine analyzer and turbidimeter; static mixer; pipe supports; connections to existing piping; negotiating interfering/abandoned utilities; protection of existing utilities; protection of existing conduits and structures; trench excavation; trench dewatering; pipe bedding; pipe backfill; compaction; surface repairs over below grade piping, and disinfection and testing, complete, in place, in accordance with the Contract Documents.
- Bid Item 4. Chlorine Analyzer: The lump sum price paid for the Chlorine Analyzer shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals to furnish and install the chlorine analyzer including purchase, delivery, mounting, installation, testing, drain/discharge piping, complete, in place, in accordance with the Contract Documents.
- Bid Item 5. Turbidimeter: The lump sum price paid for the Turbidimeter shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals to furnish and install the turbidimeter including purchase, delivery, mounting, installation, testing, drain/discharge piping, complete, in place, in accordance with the Contract Documents.
- Bid Item 6. Sodium Hypochlorite Dosing Pump: The lump sum price paid for the Sodium Hypochlorite Dosing Pump shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals to furnish and install the sodium hypochlorite dosing pump including purchase, delivery, mounting, installation, testing, sodium hypochlorite piping, valves, appurtenances and injection quill, complete, in place, in accordance with the Contract Documents.
- Bid Item 7. Blending Vault: The lump sum price paid for the Blending Vault shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals for construction of the blending vault including: pre-cast concrete vault and hatch, stripping; grubbing; off haul and disposal of excess and unsuitable materials; excavation for the vault, bedding and backfill; compaction; complete, in place, in accordance with the Contract Documents and for all other work and improvements called for or implied by the Contract Documents which are not included in other bid items but are required to complete the Work.
- Bid Item 8. Concrete, Well Enclosure, and Site Work: The lump sum price paid for Concrete, Well Enclosure, and Site Work shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals for the concrete slab; well pedestal; well enclosure; splash block; off haul and disposal of excess and unsuitable materials; excavation, grading, compaction, and aggregate excluding work associated with site piping and vault trenching and excavation; temporary fences; site security; installation, maintenance and removal of BMPs and erosion control measures; maintenance of and the control of runoff into storm drains and water courses; water pollution control; dust control; noise control including maintaining engines and mufflers of equipment; control of noise attenuation

enclosures for stationary construction equipment to reduce noise pollution; and restoration and cleanup of the work area, complete, in place, in accordance with the Contract Documents and for all other work and improvements called for or implied by the Contract Documents which are not included in other bid items but are required to complete the Work.

- Bid Item 9. Electrical Improvements: The lump sum price paid for Electrical Improvements shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals for electrical improvements including controls, variable frequency drive, motor control center, electrical cabinets, instrumentation, wiring, cables, conduit, conduit supports, electrical connections, and installation thereof including trenching, backfill, compaction, and conduit supports, complete, in place, in accordance with the Contract Documents.
- Bid Item 10. Shoring and Bracing: The lump sum price paid for Shoring and Bracing shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals to comply with OSHA requirements, confined space access and other safety requirements, OSHA permits, design, installation and removal of excavation safety shoring, sheeting, bracing, and other precautions necessary to ensure worker and public safety in accordance with applicable laws.

END OF SECTION

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

1.01 PROJECT COORDINATION

- A. Coordinate scheduling, submittals and work of various Sections of the Specifications and subcontractors to assure efficient and orderly sequence of interdependent construction. Provide accommodations for items to be furnished and installed by Owner and labeled "NIC" (not in contract) on the Drawings and for Owner Furnished Contractor Installed items.

1.02 MECHANICAL AND ELECTRICAL COORDINATION

- A. The Contractor's superintendent or a specially assigned assistant shall be designated the mechanical/electrical coordinator and shall coordinate the exact location, space priorities and sequence of installation of all mechanical and electrical work with each other and with all other trades. The mechanical/electrical coordinator shall assure compliance with the requirements of this paragraph 1.02.
- B. The location of mechanical and electrical work may be indicated diagrammatically on the Drawings. Actual locations shall follow locations shown on the Drawings as closely as practicable but shall be altered or adjusted in the field by the mechanical/electrical coordinator as required by the following:
 - 1. Organize mechanical and electrical work to make efficient use of space. Combine similar items into groups; make all runs parallel to or at right angles with building lines.
 - 3. Layout and install work to provide adequate space and access for adjustment, servicing, and maintenance and maximize space available for future installation of additional services or replacement of existing services.
 - 4. Assure all access doors required by code or required for adjustment, servicing or maintenance are provided. Locate access doors to provide convenient access and to coordinate with finished visual elements.
 - 5. Coordinate location of fixtures, registers, grills, outlets, switches, panelboards, pullboxes, access doors, and other exposed mechanical and electrical items with functional and visual elements. Verify location of questionable items with Engineer before proceeding.
- C. Prepare large scale coordinated detailed installation drawings showing the work of all affected trades to coordinate the actual installed location of all equipment and of all mechanical and electrical work for all areas. Review coordination drawings with Engineer and all affected trades before proceeding.
- D. Review Shop Drawings and Product Data prior to submission for the Engineer's Review to assure that physical characteristics and service requirements are compatible with contract requirements, field conditions, and other items submitted.
- E. Verify that required services such as electrical power characteristics, control wiring, and utility requirements of items and equipment submitted and furnished are compatible with services provided. Notify Engineer of potential problems prior to ordering items or equipment and prior to installing services or completing construction in areas where services would have to be installed.

- F. Schedule installation sequence of various elements of mechanical and electrical work to achieve optimum compliance with requirements under Mechanical and Electrical Coordination in this Section.

1.03 CUTTING, FITTING, AND PATCHING

- A. Provide cutting, fitting, or patching required to complete the Work and to make all of its parts fit together properly. Include cutting, fitting, and patching required to:
 - 1. Fit the several parts together and to integrate with other work.
 - 2. Uncover work to install or correct ill-timed work.
 - 3. Provide openings in elements of work for penetrations of mechanical and electrical work.
 - 4. Remove and replace defective and non-conforming work.
 - 5. Remove samples of installed work for testing.
- B. Request guidance from the Engineer prior to beginning cutting or altering construction, which affects:
 - 1. Structural integrity of any element.
 - 2. Functional performance of any element.
 - 3. Integrity of weather-exposed or moisture-resistant elements.
 - 4. Efficiency, maintenance, or safety of elements.
 - 5. Visual qualities of sight-exposed elements.
 - 6. Work by Owner or separate contractor.
- C. Execute cutting and patching using workers that specialize in and are skilled in installing the type of work being cut or patched.
- D. Perform work in accordance with the Contract Documents or in the absence of specific requirements comply with best trade practice for the work involved.
 - 1. Execute work by methods that will avoid damage to other work.
 - 2. Provide proper support and substrates to receive patching and finishing materials.
 - 3. Cut concrete materials using masonry saw or core drill. Locate all reinforcing steel, conduits and pipes with electronic detecting devices prior to cutting or core drilling existing concrete.
 - 4. Replace or patch work with new materials meeting the requirements of these specifications or if not specified matching materials and finishes of existing or adjacent work.
 - 5. Cut wall, ceiling and floor finishes to fit snugly around pipes, sleeves, ducts, conduit, and other penetrations. Provide fire and/or acoustical caulking as required by code or conditions of use.
 - 6. Maintain integrity of wall, ceiling, or floor construction; completely seal voids against smoke, fire and water.
 - 7. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.
 - 8. Report any hazardous or unsatisfactory conditions to the Engineer.

1.04 ALTERATION PROJECT PROCEDURES

- A. Plan, schedule and perform alteration work as required to minimize impacting the Owner's continued operations. See Section 011100 paragraph titled "Contractor's

Use of Site and Owner's Continued Operations."

- B. The existing well and iron and manganese treatment plant must remain in operation during construction. Schedule utility interruptions, piping connections, and interruption of existing plant operations as required to permit continued compliance with regulatory requirements and to meet Owners flow and processing requirements.
- C. Perform cutting fitting and patching in accordance with provisions in other paragraphs of this Section. Where new work abuts or aligns with existing work perform a smooth even transition. When a smooth unnoticeable transition is not feasible cut existing surfaces along a straight line at a natural dividing point and provide a groove or cover plate as recommended by the Engineer.
- D. Provide new construction in accordance with the technical specifications or if not specified provide new construction matching adjacent or similar existing work in material and finish.

1.05 CONNECTIONS TO UNDERGROUND UTILITIES, CONDUITS, OR PROCESS PIPING

- A. Obtain best available current information on location, identification and marking of existing utilities, piping and conduits and other underground facilities before beginning any excavation. In areas where utilities that participate in Underground Service Alert may occur, call 811 for information at least 48 hours in advance of beginning work. Give Engineer 24 hours notice before beginning work.
- B. The location of existing utilities and underground facilities known to the Design Engineer are shown in their approximate location based on information available at the time of preparing the Drawings. The actual location, size type and number of utilities and underground facilities may differ from that shown and utilities or underground facilities may be present that are not shown.
- C. Use extreme care when excavating or working in areas that may contain existing utilities, process piping, conduits or other underground facilities. Use careful potholing, hand digging and probing to determine the exact location of underground installation. Some locations contain multiple pipes or conduits. Prior to performing any subsurface work, investigate, determine and prepare a plan to turn off or disconnect each utility believed to be in the within 100 feet of the subsurface work in the event of an accidental breach of a utility conduit.
- D. Where connections to existing utilities or other underground facilities is required or where new piping or conduits may cross or interfere with existing utilities or underground facilities carefully excavate and uncover existing installations to a point 1 foot below the pipe or conduit to determine the actual elevation and alignment. Call the Engineer's attention to differing existing conditions that may require a clarification or change.
- E. Shutdown of existing utilities, services or operations shall be done in accordance with Section 011100.

1.06 FIELD ENGINEERING AND LAYOUT

- A. See General Conditions, Article 4.03 regarding reference points provided by Owner.
- B. General Conditions, Article 7.02 requires the Contractor to accurately layout the Work including the corners of slabs, pipes, fittings, and valves.
- C. Employ an experienced surveying instrument technician to layout all detailed dimensions and elevations from reference points. Use recognized engineering survey methods and documentation techniques.

1.07 PRECONSTRUCTION MEETING

- A. Prior to beginning the Work, the Contractor and its key personnel and Subcontractors including the Contractor's Superintendent, Project Manager, and Field Engineer shall attend a meeting with the Owner and the Engineer to discuss the following:
 - 1. Name, Authority, and Responsibilities of Parties Involved
 - 2. Project Procedures:
 - a. Progress meetings
 - b. Correspondence
 - c. Notification
 - d. Submittal of Product Data, Shop Drawing Samples, and Proposed Equivalents
 - e. Requests for Information
 - f. Response to Requests for Information
 - g. Requests for Quotation
 - h. Work Directive Change
 - i. Change Orders
 - j. Engineer's "Items of Concern List"
 - 3. Temporary Schedule and Contractor's Construction Schedule
 - 4. Temporary Facilities and Control
 - 5. Testing During Construction
 - 6. Contractors Coordination
 - 7. Mechanical/Electrical Coordination
 - 8. Maintenance of Record Drawings
 - 9. Owner Provided Items or Work and Owner Furnished Contractor Installed items
 - 10. Early Beneficial or Partial Occupancy
 - 11. Final Testing, Startup, and Balancing
 - 12. Punch Lists and Project Closeout Procedures
 - 13. Final Deliverables including Record Drawings, Operation and Maintenance Manuals, and Special Guarantees.

1.08 PROGRESS MEETINGS

- A. The Engineer will conduct bi-weekly progress meetings with Contractor and Owner at job site. Attendance required by Contractor's project manager, superintendent and affected Subcontractors and suppliers. The Engineer will prepare, maintain and distribute agenda and dated record of: (1) actions required and taken and (2) decisions needed and made.
- B. Agenda:

1. Review critical items/action list.
2. Review work progress. Compare actual progress with planned progress shown on Contractors rolling three-week Schedule. Discuss Corrective action required. Compare actual and projected progress with Contractor's Construction Schedule, propose methods to correct deficiencies.
3. Review status of Submittals; review delivery dates and date of need for critical items.
4. Review coordination problems.
5. Schedule needed testing and critical inspections.
6. Review critical requirements for each trade or major piece of equipment prior to beginning work or installation.
7. Discuss Contractor Quality Control.
8. Discuss open items on Engineers "Items of Concern List."
9. Discuss impact of proposed changes on progress Schedule.
10. Other business.

1.09 PERFORMANCE SPECIFICATIONS AND CONTRACTOR DESIGNED WORK

- A. Work under this Contract may be specified by a combination of descriptive, performance, reference standard and proprietary specifications. In the event of conflict between any of the various specification methods used to specify a single item the order of precedence shall be the order in which the methods are listed in the preceding sentence. The terms used to describe types of Specifications are taken from the Construction Specification Institute (CSI) Handbook of Practice.
- B. Where Specifications are used to define the characteristics of Contractor designed systems, items or components, the Contractor shall be fully responsible to design, engineer, manufacture, and install the systems, items and components to meet the specified functional requirements, performance requirements, quality standards, durability standards and conditions of use as well as all applicable codes, regulations and referenced trade or industry standards. The Contractor shall perform such design by employing engineers licensed in the State in which the Work is being constructed. The Contractor's design submittals shall include calculations and assumptions on which the design is based and shall be stamped and signed by appropriately licensed engineers.
- C. The Owner and the Engineer shall have the right to rely on the expertise and professional competence of the Contractor's design. Favorable review of the Contractor's design submittal shall not relieve the Contractor from full responsibility for the adequacy of the Contractor design.

1.10 MATERIAL AND EQUIPMENT

- A. General:
 1. Verify that products delivered meet requirements of Contract Documents and the requirements for Favorably Reviewed submittals.
- B. Compatibility of Equipment and Material:
 1. Similar items, equipment, devices or products furnished under a single specification section shall all be made by the same maker and have interchangeable parts.
 2. In addition, but only if so stated in each affected Specification Section, similar

items furnished under two or more Specification Sections shall be made by the same maker and have interchangeable parts.

3. All similar materials or products that are interrelated or used together in an assembly shall be compatible with each other.

C. Transportation and Handling:

1. Transport and handle products in accordance with manufacturer's instructions.
2. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
3. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

D. Storage and Protection:

1. Store and protect products in accordance with manufacturer's instructions. Seals and labels shall be intact and legible.
2. Store moisture sensitive products including finish woodwork, acoustical products, motors, electrical equipment, instruments and controls in weathertight, humidity and temperature controlled enclosures.
3. For exterior storage of fabricated products, place items on sloped supports, aboveground.
4. Cover products subject to deterioration from moisture, dust, or sunlight with opaque watertight but breathable sheet covering. Provide ventilation to avoid condensation.
5. Provide offsite storage and protection including insurance coverage when materials are stored off-site.
6. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
7. Provide facilities, equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
8. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

E. Installation Standards and Manufacturers' Recommendations:

1. Install all products and materials in strict compliance with the most restrictive of the following:
 - a. The manufacturer's or provider's written instructions or recommendations. Follow step-by-step installation procedures.
 - b. Recommendations of referenced trade associations or standards.
 - c. These specifications and drawings.
2. Where conflicts exist present alternatives with advantages and disadvantages to Engineer for decision.

- F. If reference standards or manufacturer's instructions contain provisions that would alter or are at variance with relationships between the parties to the Contract set forth in the Contract Documents, the provisions in the Contract Documents shall take precedence.

1.11 BACKING, SUPPORTS AND FASTENERS

- A. Provide backing, supports, bracing, fasteners and other provisions required for the proper support and attachment of all work. Backing, supports, bracing and

fasteners shall be sized to resist vertical and horizontal loads including seismic and wind loads required by codes listed under Regulatory Requirements in Section 011100. Where finishes in existing facilities must be removed to install backing or where finishes are installed in new construction prior to installing backing the Contractor shall remove finishes, install backing and reinstall finishes.

- B. Low velocity pneumatic type power-driven fasteners may be used only:
 - 1. Where specifically shown, specified or approved.
 - 2. Where they meet the structural requirements for a particular assembly with a safety factor of at least 400 percent.
 - 3. Power-driven fasteners may not be used for electrical or mechanical installations or to attach any items loaded in withdrawal or subject to vibration.
 - 4. Non-load bearing metal stud tracks fastened to concrete. Powder-driven fasteners shall not be used within 3 inches of the edge or corners of concrete surfaces

1.12 SEISMIC REQUIREMENTS

- A. The Contractor is responsible for producing designs that resist the total seismic forces in accordance with applicable design criteria.
- B. Total seismic forces shall be determined in accordance with the seismic design for non-structural components and equipment in the State of California adopted and amended versions of *IBC* Chapter 16 and the required coefficients and factors for determining the total design seismic forces are as follows:
 - 1. Spectral Response Coefficients, $S_{DS} = 0.83g$, $S_{D1} = 0.474g$
 - 2. Component Importance Factor, $I_p = 1.0$
 - 3. Mapped Spectral Response Accelerations, $S_s = 1.239g$, $S_1 = 0.463$
- D. Non-structural components and equipment shall include the following items:
 - 1. Mechanical, electrical, and plumbing equipment and appurtenances.
 - 2. Conduit, piping, cable trays, raceways, ducts and similar systems.
 - 3. Tanks and vessels (include contents), including support systems.
 - 4. Storage racks, suspended ceilings, light fixtures, raised floors, partitions, architectural features and other non-structural components.
- E. Coordinate the layout so that adequate space is provided between items for relative motion. Provide additional supports and restraints between items of different systems when necessary to prevent seismic impacts or interaction.

1.13 SAFETY

- A. In accordance with generally accepted construction practice, applicable law and the General Conditions, especially paragraph 7.12, the Contractor shall be solely and exclusively responsible for:
 - 1. Construction means and methods.
 - 2. Safety of employees engaged in the work while on and off the site.
 - 3. Safety of the Owner, the Engineer, the Design Engineer, and others who may visit or be affected by the work.
 - 4. Safety of the work itself including material and equipment to be incorporated therein.
 - 5. Safety of other property at the site or adjacent thereto.

6. Safety programs, equipment and protective devices required to assure the safety of persons and property for whom/which the Contractor is responsible.
- B. The duties of the Engineer in conducting review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's work methods, equipment, bracing, scaffolding or safety measures in, on, or near the construction site.
 - C. The Contractor is hereby informed that work on this project could be hazardous. The Contractor shall carefully instruct all personnel working in potentially hazardous work areas as to potential dangers and shall provide such necessary safety equipment and instructions as required to prevent injury to personnel and damage to property, and to comply with all applicable laws and regulations including Cal-OSHA, Federal OSHA, and other regulations referenced in these Contract Documents.
 - D. The Contractor shall, at all times, maintain the job in a condition that is safe for the Owner, the Engineer and their Consultants to make site visits and to conduct construction reviews. If the Owner or the Engineer cannot allow personnel to visit the job because it is not safe, the Contractor is not providing required safe access to the Work as required by General Conditions, paragraph 8.01.
 - E. The Contractor shall prepare a Safety Plan meeting the requirements of applicable regulations. As a minimum, the Contractor's Safety Plan shall set forth definite procedures for informing workers about safety, for instructing workers in safe practices, for assuring that workers are using appropriate safety equipment and safe work practices and for reporting accidents.

1.14 EXCAVATION AND TRENCHING; WORK WITHIN CONFINED SPACES

- A. Submit specific plans to the Owner showing details of provisions for worker protection from caving ground in accordance with Section 6705 of the California State Labor Code. The Owner's acceptance of the detailed plans submitted is only an acknowledgment of the submission and does not constitute review or approval of the designs, design assumptions, criteria, completeness, applicability to areas of intended use, or implementation of the plans, which are solely the responsibility of the Contractor.
- B. Work Within Confined Spaces: Work within confined spaces is subject to applicable laws, regulations and safety orders including applicable California Tunnel Safety Orders.
- C. The foregoing provisions do NOT reduce the requirement for the Contractor to maintain safety in ALL operations performed by the Contractor or its Subcontractors.

1.15 CONTRACTOR'S QUALITY CONTROL

- A. The Contractor shall be fully responsible for inspecting the work of its suppliers and Subcontractors to assure that the work when completed will comply with the standards for materials and workmanship required by the Contract Documents.
- B. Inspections, periodic observations and testing performed by the Owner or the

Engineer are for the Owner's benefit and information only and shall not be construed as partial or incremental acceptance of the work and shall not be deemed to establish any duty on the part of the Owner or the Engineer to the Contractor, its subcontractors or suppliers.

- C. The Contractor shall:
 - 1. Monitor quality control over suppliers, manufacturer, products, services, site conditions, and workmanship, to produce work of specified quality.
 - 2. Comply fully with manufacturer's installation instructions, including performing each step in sequence as recommended by the manufacturer.
 - 3. Submit a Request for Information to Engineer before proceeding with work when manufacturers' instructions or reference standards conflict with Contract Documents.
 - 4. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
 - 5. Perform work by persons specializing in the specific trade and class of work required and qualified to produce workmanship of specified quality.
 - 6. Secure products in place with positive anchorage devices designed and sized to withstand seismic, static and dynamic loading, vibration, and physical distortion or disfigurement.

- D. If reference standards or manufacturers' instructions contain provisions that would alter or are at variance with relationships between the parties to the Contract set forth in the Contract Documents, the provisions in the Contract Documents shall take precedence.

- E. The Contractor shall provide assistance required by the Engineer to adequately inspect the Work including ladders, scaffolding, lighting, ventilation and other aids to facilitate access and provide a safe working environment.

1.16 TESTING LABORATORY SERVICES AND CERTIFIED LABORATORY REPORTS

- A. Provide testing service in accordance with General Conditions Article 14 and specific requirements contained in each technical specification section. Submit Certified Laboratory Reports required by technical specification sections.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

1.01 SUBMITTAL PROCEDURES

- A. Accompany each submittal with a Submittal form, which contains the following information:
 - 1. Contractor's name and the name of Subcontractor or supplier who prepared the submittal.
 - 2. The project name and identifying number.
 - 3. Description of the submittal and reference to the Contract requirement or technical specification section and paragraph number being addressed.
- B. Submit the number and type of copies for each submittal and follow the procedures described below or in other paragraphs in this Section. Submit one digital copy of submittals not covered in this Section 013300.
 - 1. Designation of Superintendent: one digital copy for information. Include name, address, home telephone number and a brief resume.
 - 2. List of Subcontractors and Major Suppliers: one digital copy for information. Include address, telephone number and name of responsible party.
 - 3. Schedule of Values, in a form acceptable to the Engineer one digital copy for information. No copy will be returned.
 - 4. Subcontractors'/Suppliers'/Manufacturers' Affidavits, submit one digital copy for items specified in the Technical Specifications.
 - 5. Environmental Protection Plan. Submit one digital copy for information.

1.02 SCHEDULE OF SUBMITTALS

- A. Submit one digital copy for information. No copy will be returned.
- B. See General Conditions paragraph 2.05. Within 15 days after the Notice to Proceed, submit a Schedule of Submittals showing the date by which each submittal required for Product Review or Product Information will be made. Identify the items that will be included in each submittal (see paragraph 1.05 of this Section) by listing the item or group of items and the Specification Section and paragraph number under which they are specified. Indicate whether the submittal is required for Product Review of Proposed Equivalents, Shop Drawings, Product Data or Samples or required for Product Information only.

1.03 PLAN OF OPERATIONS

- A. Submit one digital copy.
- B. Before beginning on site work, submit a plan showing Contractor's intended use of the site assigned to it. Show location of enclosing fence, access points and gates. Show location for Contractor's, Subcontractor's, and Engineer's field office and parking. Show location of Contractor's and Subcontractor's work areas and storage areas.

1.04 CONSTRUCTION SCHEDULE

- A. Submit one digital copy for information. See General Conditions paragraphs 2.05.
- B. The Contractor's Construction Schedule shall be in the form of a computer generated network analyses diagram and supporting mathematical analysis using the Critical Path Method (CPM).
 - 1. Draw network diagram to scale using actual calendar dates. Show work subdivided into identifiable activities within each trade such that no activity has a duration longer than five (5) working days. Show order and interdependencies of each activity.
 - 2. Use actual calendar dates to show planned and actual performance and show:
 - a. Preceding and following event numbers.
 - b. Activity description.
 - c. Estimated duration of activity.
 - d. Earliest start date.
 - e. Earliest finish date.
 - f. Actual start date.
 - g. Actual finish date.
 - h. Latest start date.
 - i. Latest finish date.
 - j. Total and free float.
 - k. Monetary value of activity, keyed to Schedule of Values.
 - l. Percentage of activity completed.
 - m. Dates for Making submittals of Proposed Equivalents, Product Data and Shop Drawings.
- C. If the Construction Schedule does not reflect the required format requirements, the specified work, or the Contract Time, it will be returned to the Contractor for modification.
- D. Revise the Construction Schedule and resubmit within seven (7) days following any meeting to review Contractor's Application for Payment when Contractor's work is fifteen (15) days or more behind schedule.
- E. Accelerated Work if Required to Meet Schedule: Give Engineer 3 days prior notice of construction that will take place outside of normal work hours or work days. Compensate Owner for extra inspection cost caused by Accelerated Work required to meet Schedule.
- F. Give Engineer 3 days prior notice of normal work days on which construction will not take place or of scheduled construction that will not take place. Compensate Owner for extra inspection cost resulting from failure to give notice.

1.05 SHOP DRAWING, PRODUCT DATA AND SAMPLES SUBMITTED FOR PRODUCT REVIEW

- A. This paragraph covers submittal of Shop Drawings, Product Data and Samples required for the Engineer's review referred to as Product Review submittals in the Technical Specifications (Division 2 through 33). Submittals required for information only are referred to as Product Information submittals in the Technical Specifications and are covered in paragraph 1.07 of this Section.

- B. Number and type of submittals:
 - 1. Shop Drawings: Submit one clear, sharp high contrast digital copy, which will be reviewed, marked and stamped. A single electrostatic copy will be returned to the Contractor. The Contractor shall make and distribute the required number of additional copies to its superintendent, subcontractors and suppliers.
 - 2. Product Data: Submit one clear digital copy. One copy will be marked, stamped and returned. The Contractor shall make and distribute the required number of additional copies to its superintendent, subcontractors and suppliers.
 - 3. Samples: Submit three labeled samples or three sets of samples of manufacturers' full range of colors and finishes. Comply with requirements in Technical Specification Sections. One sample will be returned to Contractor.

- C. The Contractor shall make all Product Review submittals early enough to allow adequate time for the Engineer's review, for manufacture and for delivery at the construction site without causing delay to the Work. Submittals shall be made early enough to allow for unforeseen delays such as:
 - 1. Failure to obtain Favorable Review because of inadequate or incomplete submittal or because the item submitted does not meet the requirements of the Contract Documents.
 - 2. Delays in manufacture.
 - 3. Delays in delivery.

- D. Content of Submittals:
 - 1. Each submittal shall include all of the items and material required for a complete assembly, system or Specification Section.
 - 2. Submittals shall contain all of the physical, technical and performance data required by the specifications or necessary to demonstrate conclusively that the items comply with the requirements of the Contract Documents.
 - 3. Include information on characteristics of electrical or utility service required and verification that requirements have been coordinated with services provided by the Work and by other interconnected elements of the Work.
 - 4. Provide verification that the physical characteristics of items submitted, including size, configuration, clearances, mounting points, utility connection points and service access points, are suitable for the space provided and are compatible with other interrelated items that are existing or have or will be submitted.
 - 5. Label each Product Data Submittal, Shop Drawing and Sample with the information required in paragraph 1.01A of this Section. Highlight or mark every page of every copy of all Product Data submittals to show the specific items being submitted and all options included or choices offered.
 - 6. Additional requirements for Product Review submittals are contained in the Technical Specification sections.
 - 7. Designation of work as "NIC" or "by others," shown on Shop Drawings, shall mean that the work will be the responsibility of the Contractor rather than the subcontractor or supplier who has prepared the Shop Drawings.

- E. Compatibility of Equipment and Material: Verify that items contained in the same or in different submittals meet the requirements in the paragraph titled "Material and Equipment in Section 013100 especially the subparagraphs titled "Compatibility of Material and Equipment."

- F. Requirements for Contractor Designed Items and for First Specified (Named) Items: Verify that items meet the requirements in the paragraph titled "Performance Specifications and Contractor Designed Items" in Section 013100.
- G. Requirements for the Contractor's review and stamping of submittals prepared by the Contractor or by Subcontractors or suppliers prior to submitting them to the Engineer are covered in General Conditions paragraph 7.16.
- H. Submittals that contain deviations from the requirements of the Contract Documents shall be accompanied by a separate letter explaining the deviations. The Contractor's letter shall:
1. Cite the specific Contract requirement including the Specification Section and paragraph number for which approval of a deviation is sought.
 2. Describe the proposed alternate material, item or construction and explain its advantages and/or disadvantages to the Owner.
 3. State the reduction in Contract Price, if any, offered to the Owner.
- I. Engineer's Review Procedure and Meaning:
1. The Engineer will stamp and mark each Product Review submittal prior to returning it to the Contractor. The stamp will indicate whether or not the review was favorable and what action is required of the Contractor. Review categories "No Exceptions Taken" and "Make Corrections Noted" both indicate Favorable Review.
 2. The Engineer's Favorable Review is contingent on the Contractor's warranties required by General Conditions paragraph 7.16 and is subject to all of the limitations and conditions in General Conditions Article 7. Favorable Review is also contingent on:
 - a. The compatibility of items included in a submittal with other related or interdependent items included in previous or future submittals.
 - b. Future submittal of items related to or required to be part of this submittal that were not included with this submittal.
 3. Favorable Review of a submittal does not constitute approval or deletion of items required as part of the submittal but not included with the submittal. Favorable Review of items included in the submittal does not constitute deletion of specified features, options or accessories that were not included in the submittal.
 4. The action required by the Contractor for each category of review is as follows:
 - a. **NO EXCEPTIONS TAKEN.** NO RESUBMITTAL REQUIRED.
 - b. **MAKE CORRECTIONS NOTED:**
 - (1) **NO RESUBMITTAL REQUIRED.** The Contractor shall make corrections noted prior to manufacture.
 - (2) **PARTIAL RESUBMITTALS REQUIRED.** The Contractor shall submit related accessory or optional items as noted which are required but were not included with the submittal and/or shall resubmit unsatisfactory portions or attributes of items as noted. The Contractor may proceed to manufacture those portions of the submittal that will be unaffected by required resubmittals.
 - c. **AMEND AND RESUBMIT.** The Contractor shall amend and resubmit the submittal as noted or required to comply with the Contract Documents.
 - d. **REJECTED - RESUBMIT.** The item submitted does not comply with the Contract Documents in a major way. Resubmit items that comply with the requirements of the Contract Documents.

5. The letter of transmittal accompanying the returned Product Review submittal may contain numbered notes. Marking a corresponding number on a Shop Drawing or Product Data submittal shall have the same affect as applying the entire note to the submittal.
- J. Re-submittals that contain changes that were not requested by the Engineer on the previous submittal shall be accompanied by a letter explaining the change.
- K. Favorable Review Required Prior to Proceeding: Do not proceed with manufacture, fabrication, delivery or installation of items prior to obtaining the Engineers Favorable Review of Product Review submittals.
- L. Intent and Limitation on Engineer's Review:
 1. See General Conditions Article 7.
 2. The Contractor has primary responsibility for submitting and providing work that complies with the requirements of the Contract Documents. That responsibility cannot be delegated in whole or in part to subcontractors or suppliers. Neither the Engineer's Favorable Review nor the Engineer's failure to notice or comment on deficiencies in the Contractor's submittals shall relieve the Contractor from the duty to provide work, which complies with the requirements of the Contract Documents.

1.06 PROPOSED EQUIVALENTS

- A. Submit a letter documenting the proposed equivalent in accordance with General Conditions Paragraph 7.05 Comply with the submittal requirements for Shop Drawings, Product Data, and Samples submitted for Product Review in another paragraph of this Section.
- B. See General Conditions paragraphs 7.04 through 7.05.
- C. Time of Submittal:
 1. Submittal of Proposed Equivalents shall be submitted within 35 days of the Notice to Proceed. The Engineer may agree to a later submittal date if requested in writing within 35 days of the Notice to Proceed. The request shall identify the item, give the Specification reference, and proposed manufacturer and model number of the item that will be submitted and the proposed submittal date.
 2. The Engineer's agreement to a later submittal date shall be in writing and shall not be construed as Favorable Review or acceptance of the manufacturer or item proposed.
- D. Content of submittals shall be the same as required for Product Data, Shop Drawings and Samples submitted for Product Review in another paragraph of this Section. In addition, the Contractor shall provide information on several recent similar installations of the item to verify its suitability. The information shall include the project name and location, the Owner's name, address, telephone number and name of a knowledgeable person to contact for information on performance of the product.
- E. When the Contractor has listed specific maker's products on LIST OF MATERIAL/EQUIPMENT SUPPLIERS form submitted with its Bid, no changes will

be permitted without submittal of acceptable evidence justifying the change and the Engineer's written approval.

- F. If a non-equivalent substitute is submitted for review, it shall be accompanied by a proposed reduction in Contract Price which shall include the increased cost of Engineering service required to evaluate the proposed substitute (which shall be paid to the Owner whether or not the substitute is accepted) plus the greater of
1) the difference in price between the first specified item and the item submitted and
2) the difference in value to the Owner between the two items.

1.07 PRODUCT INFORMATION SUBMITTALS

- A. Submit one digital copy. No copies will be returned.
- B. Product Information submittals are required for the Owner's permanent records and will be used for future maintenance, repair, modification or replacement work. Product Information submittals will be examined only to verify that the required submittals have been made; they will NOT be reviewed for compliance with the Contract Documents.
- C. Make Product Information submittals prior to delivering material, products or items for which Product Information submittals are required.
- D. The Contractor has the sole and exclusive responsibility for furnishing products and work that meets the requirements of the Contract Documents.
- E. The Engineer reserves the right to comment on any submittal and to reject any product or work delivered, installed or otherwise at any time that the Engineer become aware that it is defective or does not meet the requirements of the Contract Document. See General Conditions paragraph 7.16.

1.08 OPERATION AND MAINTENANCE MANUALS AND PARTS LISTS

- A. Submit three complete sets.
- B. Provide operation and maintenance manuals and parts list for all equipment furnished under this contract. Comply with the detailed requirements in Technical Specification sections. Include instructions for delivery, storage, assembly, installation, lubrication, adjusting, startup, operation and maintenance.
 - 1. For all equipment include:
 - a. Startup instructions
 - b. Normal operation instructions.
 - c. Trouble shooting instructions.
 - d. Lubrication instructions.
 - e. Maintenance and reinstallation instructions.
 - f. Parts identification.
 - g. List of spare parts recommended to have on hand.
 - h. Operator safety instructions.
 - 2. For all Electrical Equipment, provide the following additional information:
 - a. Equipment ratings.
 - b. Calibration curves and rating tables if appropriate.
 - 3. For Complex Equipment provide in addition:

- a. Alternate specified operating modes.
 - b. Emergency shutdown instructions.
 - c. Normal shutdown instructions.
 - d. Long-term shutdown instructions.
4. Operation and maintenance manuals for systems composed of separate pieces of equipment shall include a system explanation of items 1, a, b, and c, and 3a through c, as well as the instructions for each separate piece of equipment.
- C. Submit at least 15 days prior to Facility Startup and Training specified in Section 017516, paragraph 1.05.
 - D. Provide the number of copies specified in paragraph 1.01 of this Section. Bind each copy in one or more "D" ring, 8-1/2x11, 3-ring binders with clear view spine and cover, Avery E-Z –D View Binder; K&M; or equal. Prepare Titles for the spine and cover and a Table of Contents listing each piece of equipment. Organize the contents by Specification Section and paragraph number under which the equipment was specified. Provide labeled tab separators for each major item or group of smaller similar items. When standard manufacturers literature is used highlight or mark all copies to shop specific items and options provided.

1.09 MANUFACTURER'S CERTIFICATES

- A. Submit one digital copy.
- B. When specified in Technical Specification section, submit manufacturers' certificate to Engineer for review. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate. Certificates may be recent or previous test results on material or Product, but must be acceptable to the Engineer.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

1.01 TEMPORARY UTILITIES

- A. Sanitary Facilities: Provide and maintain self-contained portable sanitary facilities for the Contractor's, subcontractor's, Engineer's, and Owner's use. Facilities shall comply with applicable regulations and shall be serviced, cleaned and disinfected frequently.
- B. Temporary Water and Power:
 - 1. Water and Power: Limited water service will be available at the project site for the Contractor's use. The Contractor shall provide temporary connection and distribution systems and remove them at the end of its work.
 - a. Water: Connect to existing water service and provide backflow prevention devices. Install a meter and reimburse the Owner for the cost of water used.
 - b. Power: The Contractor may also make connections to the existing electrical system at 120 volts. The Contractor may use reasonable amounts of power for loads not exceeding 20 amps from existing electric service at no charge, but shall provide temporary connection, distribution, ground fault protection and overcurrent protection. The Contractor shall provide a silenced electric generator or separate electric service, at the Contractor's expense, for all loads over 20 amps. Sound levels from generator equipment shall not exceed 60 decibels at the property line.
- C. Temporary Lighting: Provide and maintain lighting for construction operations to achieve a minimum lighting level of 20-foot candles for rough work and 60-foot candles for finish work.
- D. Temporary Fire Protection:
 - 1. Provide and maintain fire protection equipment, including extinguishers, fire hoses, and other equipment required by law, insurance carriers, or necessary for proper fire protection during the course of the work.
 - 2. Use fire protection equipment only for fighting fires.
 - 3. Locate fire extinguishers throughout the construction site.

1.02 TEMPORARY CONSTRUCTION

- A. The Contractor is solely and exclusively responsible for the design, construction and maintenance of all temporary construction including forms, falsework, shoring, scaffolding, stairs, ladders and all other similar items. See General Conditions paragraph 13.01.
- B. Construct adequate and safe forms and falsework, to rigidly support partially completed structures. Provide temporary bridges and decking to maintain vehicular and pedestrian access. Design and construct temporary forms, falsework, bridges and decking in accordance with applicable regulations and codes.

1.03 BARRICADES, FENCES AND ENCLOSURES

- A. Barricades: Provide temporary guard rails, ladders, stairs, guards, and barricades to protect persons in accordance with applicable regulations, including California Code of Regulations Title 8 and Cal/OSHA.
- B. Fences:
 - 1. Existing fences enclose the present facilities site. The fences are for the protection and security of the present operating facilities. If it is necessary for the Contractor to remove some of the fences for installation of new work, the Contractor shall provide equivalent temporary protection and security. Replace fencing removed by the Contractor with new fencing of equivalent quality prior to completion.
- C. Enclosures:
 - 1. Provide temporary watertight closures for openings in exterior surfaces as required to protect interiors from weather, moisture, humidity and extreme temperature.

1.04 PROTECTION OF INSTALLED WORK

- A. Provide temporary and removable protection for installed products. Control activity in immediate work area to minimize damage.
- B. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by covering surfaces.
- C. Provide heavy planking to protect curbs, gutters, culverts, paving and similar surfaces from damage by heavy equipment or vehicles.

1.05 SECURITY

- A. Provide security and facilities to protect the Work from unauthorized entry, vandalism, or theft.

1.06 ACCESS ROADS AND PARKING AREAS

- A. Access Roads: The contractor shall utilize existing access points to the site as designated on the Drawings.

1.07 TEMPORARY CONTROLS

- A. Cleaning:
 - 1. During Construction: Maintain the site and all work in a clean orderly fashion free of waste debris and rubbish. Store debris in covered containers. Pick up and remove debris daily if required, but not less frequently than weekly. Burning debris on site is not permitted. Remove debris from permanently closed spaces prior to enclosing them. Clean mud from vehicles before leaving the site.
 - 2. If work under this Contract creates dusty, dirty or unsightly conditions in adjacent areas, the Contractor shall immediately cleanup the affected areas.
 - 3. Final cleanup is specified in Section 017700.

- B. Dust Control: Employ measures to minimize the creation of dust which may produce damage or nuisance to property or persons. Contractor shall be responsible for all damage resulting from dust produced by construction operations. Periodically wet down unpaved areas where vehicles are operated. See Earthwork specification sections.
- C. Erosion and Sediment Control: Employ measures to minimize erosion and trap any sediment created by construction operations before it leaves the site. Prevent sediment from entering streams or other water bodies.
- D. Noise Control: Comply with regulations limiting construction noise levels. Use silenced air compressors. Use jack hammers with exhaust mufflers. Minimize noise disturbance to the public and adjacent property owners.
- E. Pest and Rodent Control: Avoid creating conditions conducive to pests and rodents. Comply with regulations governing the use of chemicals to control pests and rodents.
- F. Water Control: Maintain excavations free of water.

1.08 PROTECTION OF TREES

- A. Protect all trees on the site from damage. Do not cut roots larger than 2 inches in diameter during excavating or trenching operations.
- B. Do not attach ropes, cables, guys or braces to trees.
- C. Do not trim any trees without the Engineer's authorization.

1.09 TRAFFIC REGULATION

- A. Conduct operations so as to offer the least possible obstruction and inconvenience to public traffic. Do not overload or damage paved or improved surfaces, sidewalks, curbs or gutters.
- B. Provide temporary barricades, lights, flag persons and other means to safely control pedestrian and vehicular traffic entering and leaving the project site and on the project site.

END OF SECTION

SECTION 01 75 16

STARTUP PROCEDURES

1.01 FACILITY STARTUP

- A. Commission all systems and equipment to verify performance, function, and correct operation by performing procedures to activate, startup, adjust, test, and demonstrate that the work is in operating order in accordance with these general requirements of this Section and the detailed requirements of the technical sections under the system or equipment specified.
- B. To ensure that the work is ready for full-time operation the procedures include verification, balancing, calibration, witness testing, documentation, inspection by equipment manufacturers and operator training where specified.
- C. Notification: Notify the Engineer five days prior to starting each system or piece of equipment.
- D. Coordination: During the startup period, coordinate the operation of the facility with Engineer, subcontractors, Owner's operators, and manufacturer's representatives.
- E. Furnish test equipment, measuring devices and supplies required to conduct tests.
- F. Maintain the equipment until acceptance. Provide all chemicals necessary until acceptance.
- G. Furnish all expendable supplies, gas, water, etc., required for startup, demonstration and testing and dispose of all waste or used supplies, water, etc.

1.02 SUBMITTALS

- A. Startup Plan, Forms, and Schedule: Prepare a facility startup plan and schedule. The plan shall include test methods and procedures and sample forms for recording test data.
- B. Manufacturer's affidavit.
- C. Submit documentation of tests, and the like.

1.03 INITIAL STARTUP AND OPERATION OF FACILITIES

- A. The following listing is a general sequence of startup activity steps to be used in placing facility systems into operation:
 - 1. Perform initial lubrication of equipment and have manufacturers check and adjust equipment. Provide all subsequent lubrication and maintenance, and such staff as required for test operation until the Owner assumes equipment maintenance responsibility after Step 14 below.
 - 2. Perform satisfactory testing of electrical work required prior to energizing of the electrical system.

3. After completion of Step 2, perform satisfactory electrical testing required after energizing of the electrical system.
4. Complete calibration of instruments.
5. Satisfactorily complete system verification of instrumentation work.
6. After completion of Steps 1 and 3, perform a rotational test of equipment and correct backward rotating drives.
7. After completion of Steps 5 and 6, test operate the equipment by manually initiating the operation. Where manual operation bypasses alarm or safety monitoring, provide continuous supervision of such parameters. Perform this step using water in lieu of chemicals.
8. Concurrent with Step 7, perform instrumentation and control testing and adjustments as related to the equipment being tested.
9. Concurrent with Step 7 and where possible at this stage of startup, complete the performance testing specified for the equipment.
10. Concurrent with Step 7, perform adjustments of the electrical work as related to the equipment being tested.
11. Repeat Steps 1 through 10 as required for other equipment items until all process components and utility systems are ready for total plant operation. It may be necessary for the Contractor to put portions of the newly constructed Work in service before constructing other portions of the facility or completing the Work as a whole.
12. Notify the Owner and the Engineer five days before total plant operation is to occur so that the Owner may order chemicals and make other arrangements for full time operation.
13. Upon completion of all the above steps, the facility shall be started up and operated on a complete full time basis beginning on the indicated date. The Owner will provide operating personnel and sodium hypochlorite. For two consecutive days beginning with the start-up day, the Contractor shall have an electrician at the plant site, during the day shift. Representatives of manufacturers of critical equipment shall also be present at least one day as required elsewhere in the specifications. The Contractor shall also provide personnel, on a 24-hour per day, "on call" basis, if necessary, to adjust, repair, and correct deficiencies as required to keep the facilities in continuous operation for a period of 30 days. The Contractor shall train the operators in the proper operation and the control of the new facilities. The Contractor shall also furnish all such mechanical and electrical workers as required to make adjustments to and perform all required maintenance for the operating equipment until the end of the 30-day initial operation period. Maintenance of operating equipment shall include lubrication, adjustments, replacements, and modifications as required.
14. After successful completion of the 30-day initial operation period, the Owner will take over maintenance duties as well as operation.
15. Following the commencement of Step 13, satisfactorily complete equipment performance testing, electrical testing and adjustments, and instrumentation/control testing and adjustments to the extent that such testing and adjustments could not be made prior to full plant operation.
16. Complete the documentation of testing and commissioning for submittal during the startup process and before acceptance.

1.04 MANUFACTURER'S FIELD SERVICE AND AFFIDAVITS

- A. Field Service: Where specified, manufacturers of equipment shall provide field service. Field service shall be provided by an authorized factory-trained and qualified manufacturer's representative for the specific equipment. Equipment shall not be considered ready for full time operation until after the manufacturer's representative has checked and adjusted the equipment, and certified by written affidavit that the equipment has been properly installed, tested, adjusted, lubricated, and calibrated, and is ready for full time operation.
- B. Affidavits: Acceptable affidavits shall be submitted prior to completion of the work.
 - 1. Affidavits shall contain the following specific wording:
"The [*Name of Equipment*] has been properly installed, tested, adjusted, lubricated, and calibrated, and is ready for full time operation. The installation has been inspected and has been found to be in conformance with our (the manufacturer's) standards and requirements."
 - 2. No amplification, dilution, or modification of this specific wording will be permitted.

1.05 TRAINING

- A. Submit Operation and Maintenance Manuals and Parts Lists specified in Section 013300 at least 15 days prior to the first training session.
- B. Demonstrate the operation, maintenance and safety procedures for all systems and equipment to personnel designated by the Owner.
- C. Provide 8 hours of classroom training and onsite demonstration of systems and equipment.
 - 1. Illustrate classroom training with diagrams, checklists, photographs and other visual aids as appropriate. Use video, slides, or overhead projector to present visual materials.
 - 2. Prepare a course summary illustrated with copies of visual materials. Distribute one copy to each course attendee, four copies to the Owner and two copies to the Engineer.
- D. In addition to overall training specified above, provide special demonstration and training for specific pieces of equipment specified in the Technical Specification Sections.

END OF SECTION

SECTION 01 77 00

CLOSEOUT PROCEDURES

1.01 FINAL CLEANUP

- A. Prior to Final Inspection, clean the entire construction area and all other areas affected by the performance of work under this Contract. Perform cleaning using personnel specializing in and skilled in cleaning and maintenance work. Perform repair work using personnel skilled in executing the type of work being repaired. Perform all work to the highest trade standards applicable to that type of work.
 1. Remove all temporary construction, signs, tools, equipment, excess material and debris.
 2. Remove all lumps, splatters, spots and stains caused by paint, adhesive, asphalt, concrete, mortar, sealant or other foreign material from exposed or finished surfaces. Remove all temporary labels.
 3. Repair, patch or replace new or existing work including pavement, sidewalks, curbs, gutters, catch basins, gratings, manholes, covers, landscaping, plant materials and other items that have been damaged, broken, cracked or chipped as a result of performing this Work.
 4. Remove all hazardous material and material that may cause sediment in drainage systems prior to washdown. Remove all grease and oil stains on pavement caused by Contractor's equipment.

1.02 CONTRACTOR'S ACTION LIST OF ITEMS TO BE CORRECTED AND/OR COMPLETED

- A. During construction, the Contractor shall maintain an action list of items to be corrected and/or completed. The Contractor shall regularly add items and update the list as information becomes available or as requested by the Engineer. The Contractor shall deliver a current copy of the list to the Engineer at each progress meeting.

1.03 SEMIFINAL INSPECTION/SUBSTANTIAL COMPLETION

- A. See General Conditions paragraph 15.03. When the Contractor considers the Work nearly complete, the Contractor shall review the Contract Documents, inspect the Work, and use the Contractor's action list to prepare a Contractor's Punch List of all deficient or uncompleted items. The Contractor shall complete or correct items on the Punch List. When the Work is Substantially Complete in accordance with General Conditions paragraph 15.03, the Contractor shall notify the Engineer in writing that the Contractor has reviewed the Contract Documents, inspected the Work and believes that the Work is Substantially Complete and ready for Semifinal Inspection.
- B. On receipt of the Contractor's Punch List and notice that the work is ready for Semifinal Inspection, the Engineer will inspect the Work. The Engineer may add additional items to the Contractor's Punch List, may find that the work is not ready for inspection, is ready for inspection but not Substantially Complete or that the Work is Substantially Complete. When the Engineer finds the Work is Substantially Complete, it will prepare a Final Punch List and a notice of Substantial Complete,

which will state the date of Substantial Completion and the time agreed to by the Owner and the Contractor (not to exceed 30 days) in which the Work shall be fully complete and ready for Final Inspection.

1.04 FINAL INSPECTION, FINAL COMPLETION AND FINAL PAYMENT

- A. See General Conditions paragraph 15.05. When the Contractor has completed or corrected all the items on the Engineer's Final Punch List, the Contractor shall give the Engineer written notice that the Work is ready for Final Inspection. When the Engineer finds the Work acceptable and fully complete in accordance with the Contract Documents, and upon receipt of a final Application for Payment and all final submittals, the Engineer will recommend the Owner issue a Notice of Final Completion, make Final Payment and Accept the Work stating to the best of the Engineer's knowledge, information and belief, and on the basis of the Engineer's observations and inspection, the Work has been fully completed in accordance with the terms and conditions of the Contract Documents.
- B. Final Submittals include:
 - 1. Operation and Maintenance Manuals and Parts Lists
 - 2. Record Drawings
 - 3. Extra Materials
 - 4. Insurance Certificate showing required continuation of coverage beyond Final Payment. See General Conditions paragraph 6.01.
 - 5. Release of Liens. See General Conditions paragraphs 15.06.
 - 6. Waiver of Claims by Contractor. See General Conditions paragraph 15.07.
 - 7. And any other submittals required by the Contract Documents and not previously received.
- C. The Owner will record the Notice of Final Completion at the County Records Office within 10 days after completion.
- D. The Owner will make Final Payment to the Contractor 35 days after recording the Notice of Final Completion.

1.05 RECORD DRAWINGS

- A. The Contractor shall maintain on the jobsite, a complete set of Contract Documents and a complete file of all addenda, contract modifications and favorably reviewed submittals. The Contractor shall prepare a set of Record Drawings concurrently with the construction of the Work and in accordance with General Conditions paragraph 7.11 and the following:
 - 1. Show the invert elevation and the top of pipe, top of conduit or top of protective concrete encasement for other utilities. Elevations shall be related to a permanent visible elevation benchmark set at the site by the Contractor.
 - 2. Show the horizontal location of underground utilities measured from permanent visible physical features such as face of building, face of tank, or centerline of manhole.
 - 3. Comply with detailed requirements in technical specification sections describing the type of information required on Record Drawings. The Contractor's copy of Contract Documents, Contract modifications and Record Drawings shall be available to the Engineer for weekly verification that the records are being currently updated.

B. Submit Record Drawings and obtain acceptance prior to completion.

1.06 EXTRA MATERIALS

A. Deliver specified extra materials and parts to the Owner. Itemize all items on a transmittal letter in duplicate and obtain signature of receiving party. Submit copies of signed transmittals for all specified extra materials and parts prior to completion.

1.07 SPECIAL GUARANTEES

A. Article 7.17 of the General Conditions covers the Contractor's responsibility to remedy defects due to faulty workmanship and materials, which appear within one year from the date of Final Completion and acceptance by the Owner.

B. Guarantees for more than one year when called for in various sections of the Specifications shall be evidenced by the Contract Documents and in the form of a special guarantee written on the letterhead of the Contractor, Subcontractor, or Supplier doing the work and/or supplying the item to be guaranteed, and countersigned by the Contractor as follows. Failure to provide the special guarantee on the letterhead shall not relieve the Contractor, Subcontractor, or Supplier from its obligations for the special guarantees.

C. Special Guarantee:

We hereby guarantee that the _____ which we have provided in the _____, Project, was done in accordance with the Drawings and Specifications, and that the work, as installed, will fulfill the requirements of the guarantee included in Specification Section _____. We agree to repair or replace any or all of our work, together with any other adjacent work which may be damaged or displaced by so doing, that may prove to be defective in workmanship or material (with the exception of defects due to ordinary wear and tear, and unusual abuse or neglect) within a period of _____ years from the date of acceptance of the abovenamed facility, without any expense whatsoever to the Owner. In the event of our failure to comply with the above-mentioned conditions within the period set forth in Article 7 of the General Conditions after being notified in writing by the Owner, we, collectively or separately, do hereby authorize the Owner to proceed to have said defects repaired and made good at our expense, and we will honor and pay the costs and charges therefor upon demand. We understand that the provisions of General Conditions paragraphs 17.17 apply to this Special Guarantee.

Signed _____
(Subcontractor or Supplier)

Company _____

Address _____

Telephone Number _____

Countersigned _____
(Contractor)

- D. Submit two notarized original signed copies of each required Special Guarantee prior to completion.

1.08 TWELVE-MONTH INSPECTION

- A. Thirty (30) days prior to the expiration of the one-year guarantee period described in General Conditions Article 7, the Contractor shall tour the project with the Engineer and/or the Owner to prepare a list of corrective work required under the 12-month guarantee. The Contractor shall correct all items found to be defective within 20 days of receipt of the list of items to be corrected.

END OF SECTION

SECTION 02 41 00

DEMOLITION

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide all demolition required to perform the work covered under this contract including without limitation:
 - 1. Remove existing construction shown to be removed.
 - 2. Remove and replace existing construction and/or finishes as required to provide access to perform other work included in this contract.
 - 3. Include removal of mechanical and electrical work that is to be abandoned and is contained in construction to be removed whether or not the mechanical and electrical work is shown. Disconnect and cap off utilities in accordance with applicable codes and safety regulations.
 - 4. Where utilities that are not shown pass through construction that must be removed and those utilities serve other areas notify the Engineer before disrupting service. If rerouting is required to maintain service, the Owner may issue a Change Order to accomplish the required work.
 - 5. Store and protect items intended for reuse.
 - 6. Assume ownership of debris and unwanted materials, remove from the site and dispose of legally.

1.02 NOISE AND DUST CONTROL

- A. Perform work in accordance with requirements in Division 1. Particular attention is directed without limitation to paragraphs titled: Substantial Completion and Use of Site and Other Areas.
- B. Perform work in a manner to cause least disturbance to local residents and District staff and least damage to work to remain.
- C. Maintain adequate means of safe, clear egress to buildings at all times.
- D. Employ all available techniques for construction noise abatement. Use remote, well-muffled air compressors and newest noise suppressed pneumatic and electric tools.

1.03 WARNING

- A. The Contractor is advised that work under this Section may be hazardous. The Contractor is to take all necessary precautions to ensure the safety of workers and property. Removal of and/or working in areas containing even minor amounts of hazardous material including without limitation, asbestos, lead-based paint, PCBs or other hazardous materials requires special precautions, knowledge and procedures. If hazardous material is suspected, notify the Engineer.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 REMOVAL OF CONSTRUCTION IN AREAS TO RECEIVE NEW WORK

- A. Remove all unwanted mechanical and electrical work (whether shown or not) that is not wanted and is not needed to serve other areas in, on, or concealed behind work being removed. Cap off or terminate all mechanical or electrical work in accordance with the requirements of Divisions 15 and 16.
- B. Protect mechanical and electrical work that serves other areas. Relocate concealed mechanical and electrical work that is required to preserve service to other areas.
- C. If structural elements are encountered that were not shown, protect them from damage and report their presence to the Engineer.

3.02 REMOVAL OF LIMITED PORTIONS OF EXISTING CONSTRUCTION TO PERMIT MODIFICATIONS

- A. Provide careful, selective cutting and removal of existing construction as required to permit relocation or modification of partitions, doors, or openings. Cut and remove the least amount of work possible except when a larger area needs to be removed to permit strengthening existing construction or when required to remove finishes to a natural break line such as a corner or change in material.
- B. Protect existing construction to remain with temporary coverings.
- C. Treat existing mechanical, electrical or structural work as described in other parts of this Section.
- D. When modifications are complete, replace removed work with new construction and finishes to match adjacent existing work. Standards of material and workmanship shall be in accordance with other portions of this Specification or if not covered then in accordance with current practice for this class of work.

3.03 REMOVAL OF EXISTING CONSTRUCTION TO PROVIDE ACCESS TO PERFORM WORK

- A. Provide careful selective cutting and removal of existing construction where required to permit installation of new concealed mechanical or electrical work, or installation of equipment, fixtures or devices.
- B. Treat existing mechanical, electrical or structural work as described in other parts of this Section.
- C. Replace and/or patch removed construction and finishes in accordance with other parts of this Section.

3.04 PROTECTION OF WORK TO REMAIN

- A. Protect all work to remain. Repair damage with materials, workmanship and finishes matching existing work when new.
- B. Most concrete slabs will not be replaced in this contract, protect from any damage due to impact, dirt, abrasion, paints and solvents.

3.05 IF HAZARDOUS MATERIALS ARE ENCOUNTERED

- A. If hazardous materials are discovered, comply with paragraph 1.01 of this Section and all applicable laws.

3.06 REMOVAL AND DISPOSAL OF MATERIAL

- A. Store debris in suitable covered containers located where directed by the Owner and remove from site when full. Burning on the site is not permitted.
- B. Removed material (other than material to be reused) shall become the property of the Contractor who shall remove it from the site and dispose of it in a legal manner.

END OF SECTION

SECTION 03 41 00

PRECAST STRUCTURAL CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Precast reinforced concrete box, complete with openings, and hatches.
 - 2. Precast concrete splash block

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM), Standard Specifications:
 - 1. A36 Structural Steel
 - 2. C150 Portland Cement
 - 3. C857 Minimum Structural Design Loading for Underground Precast Concrete Utility Structures
 - 4. C858 Underground Precast Concrete Utility Structures
 - 5. C891 Installation of Underground Precast Concrete Utility Structures
- B. American Association of State Highway and Transportation Officials (AASHTO), Standard Specifications for Highway Bridges.
- C. Federal Specification: SS-S-210: Sealing Compound, Preformed Plastic, for Expansion Joints and Pipe Joints.

1.03 SUBMITTALS

- A. Submit in accordance with Section 013300.
- B. Product Data:
 - 1. Descriptive details of the manufacturer's proposed standard products, including:
 - a. Precast vault.
 - b. Hatches and hardware.
 - c. Minimum concrete 28-day compressive strength.
 - d. Cement certification.
 - 2. Shop drawings, including:
 - a. Design criteria.
 - b. Reinforcing steel location and concrete cover.
 - c. Layout of all inserts, attachments and openings.
 - d. Location and type of joints.

1.04 QUALITY ASSURANCE

- A. Provide products of a manufacturer who has been regularly engaged in the design and manufacture of the product.
- B. Demonstrate to the satisfaction of the Engineer that the quality is equal to the product made by those manufacturers specifically named herein, if an alternate product manufacturer is proposed.

PART 2 - PRODUCTS

2.01 DESIGN CRITERIA

- A. General: ASTM C857, C858, and also:
 - 1. Structure live load: AASHTO Loading Class HS 20-44.
 - 2. Backfill material: Native Backfill.
 - 3. Buoyancy: Design structure for groundwater up to grade.

2.02 PRECAST SECTIONS

- A. General:
 - 1. Cement: ASTM C150, Type II, low alkali.
 - 2. Roof slab openings: Integrally cast hatch frame into opening.
 - 3. Lifting eyes: Provide for each section.
- B. Manufacturer: Mid State Concrete Products, Oldcastle Precast; or equal.

2.03 HATCH FRAMES AND COVERS

- A. Covers: Shall be reinforced to support AASHTO H-20 wheel load with a maximum deflection of 1/150th of the span. Manufacturer to provide structural calculations stamped by a Registered Professional Engineer upon request.
- B. Operation of the covers shall be smooth and easy with controlled operation throughout the entire arc of opening and closing.
- C. Operation of the covers shall not be affected by temperature.
- D. Covers: Shall be 1/4" (6.3 mm) steel diamond pattern with a non-reflective and slip-resistant surface.
- E. Frame: Channel frame shall be 1/4" (6.3 mm) steel with full anchor flange around the perimeter.
- F. Hinges: Shall be specifically designed for horizontal installation and shall be through bolted to the covers with tamperproof Type 316 stainless steel lock bolts and shall be through bolted to the frame with Type 316 stainless steel bolts and locknuts.
- G. Lifting mechanisms: Manufacturer shall provide the required number and size of compression spring operators enclosed in telescopic tubes to provide, smooth, easy, and controlled cover operation throughout the entire arc of opening and to act as a check in retarding downward motion of the covers when closing. A maximum lifting force of 30 pounds shall be required to open the vault hatch. The upper tube shall be the outer tube to prevent accumulation of moisture, grit, and debris inside the lower tube assembly. The lower tube shall interlock with a flanged support shoe fastened to a formed 1/4" gusset support plate.
- H. A removable exterior turn/lift handle with a spring loaded ball detent shall be provided to open the covers and the latch release shall be protected by a flush, gasketed, removable screw plug.

- I. Hardware:
 - 1. Hinges: Heavy-duty 316 stainless steel hinges, each having a minimum 3/8" (9.5mm) diameter Type 316 stainless steel pin, shall be provided and shall pivot so the cover does not protrude into the channel frame.
 - 2. Covers shall be equipped with a hold open arm that automatically locks the cover in the open position.
 - 3. Covers shall be fitted with the required number and size of compression spring operators. Springs shall have an electrocoated acrylic finish.
 - 4. Type 316 stainless steel snap lock with fixed handle shall be mounted on the underside of the cover.
 - 5. Hardware: Compression spring tubes shall be an anti-corrosive composite, all fasteners and all other hardware shall be Type 316 stainless steel.
- J. Hatch frame shall be cast into the pre-cast concrete vault.

2.04 SOURCE QUALITY CONTROL

- A. Precast Sections:
 - 1. Verify concrete compressive strength test results are satisfactory for the sections supplied.
 - 2. State the curing method. Identify the start and end dates for the sections supplied.
- B. Frames and Covers:
 - 1. Verify cast test bar tensile strengths are satisfactory.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General: ASTM C891 and also:
 - 1. Compact subgrade to 95% relative density for 6-inch minimum depth.
 - 2. Provide a 6-inch class II aggregate base layer under the base slab and compact to 95% relative density prior to placement.
 - 3. Apply primer to joint surfaces in accordance with manufacturer's instructions. Make all joints watertight with sealant gaskets.
 - 4. Backfill around the vault with native Backfill material. Compact the backfill material to 95% of relative density from the base up to final finish grade, over an area defined as being within a distance of 4 feet from the exterior walls of the vault.

3.02 FIELD QUALITY CONTROL

- A. Verify all precast sections are continuously sealed with gaskets.

END OF SECTION

SECTION 09 96 00

HIGH-PERFORMANCE COATINGS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Section 099600 provides the requirements for; coating systems, surface preparation, coating application, and quality assurance/quality control relative to the equipment, structures listed in the Finish Schedule/Contract Drawings.
- B. Unless specified elsewhere, or shown on the Contract Drawings, the following shall not be coated:
 - 1. Metal completely embedded in concrete (except aluminum).
 - 2. Piping buried in ground or encased in concrete.
 - 3. Galvanized metal, including galvanized pipe supports
 - 4. Chain-link fence and galvanized fence gates.
 - 5. Rubber.
 - 6. Plastic pipe, including: polyvinyl chloride, polyethylene, and polypropylene piping.
 - 7. Stainless steel.
 - 8. Bronze, brass.
 - 9. Nameplates and grease fittings.
 - 10. Factory finished electrical panels.
 - 11. Factory fusion-bonded epoxy coated items.
 - 12. Aluminum or galvanized ductwork enclosed inside furred ceiling spaces.
 - 13. Electrical conduit.
- C. The Contractor's bid shall be based upon using the products specified. If the products specified are not available in formulations that meet applicable regulations for volatile organic compounds (VOC) levels at time of application, the Contractor shall submit for review products of equivalent quality and function that comply with regulations in effect at that time. A reasonable difference in cost of material between the first named items specified and the products that are required to meet regulations that change after the bid date and are in effect at the time of application may be approved for payment by Change Order in accordance with the General Conditions.

1.02 DEFINITIONS

- A. Abrasive: Material used for blast-cleaning, such as sand, grit or shot.
- B. Abrasive Blast Cleaning: Cleaning/surface preparation by abrasive propelled at high speed.
- C. Anchor Pattern: Profile or texture of prepared surface(s).
- D. American National Standards Institute (ANSI)
- E. ASTM International (ASTM)

- F. Bug Holes: Small cavities, usually not exceeding 15 mm in diameter, resulting from entrapment of air bubbles in the surface of formed concrete during placement and compaction.
- G. Coating/Lining Thickness: The total thickness of primer, intermediate and/or finish coats.
- H. Dewpoint: Temperature of a given air/water vapor mixture at which condensation starts.
- I. Dry Film Thickness (DFT): Depth of cured film, usually expressed in mils (0.001-inch). Use this definition as opposed to existing definition.
- J. Drying Time: Time interval between application and curing of material.
- K. Dry to Recoat: Time interval between application of material and ability to receive next coat.
- L. Dry to Touch: Time interval between application of material and ability to touch lightly without damage.
- M. Feather Edging: Reducing the thickness of the edge of paint.
- N. Feathering: Operation of tapering off the edge of a point with a comparatively dry brush.
- O. Field Coat: The application or the completion of application of the coating system after installation of the surface at the site of the work.
- P. Hold Point: A defined point, specified in Section 09960, at which work shall be halted for inspection.
- Q. Holiday: A discontinuity, skip, or void in coating or coating system film that exposes the underlying substrate.
- R. Honeycomb: Segregated condition of hardened concrete due to non-consolidation.
- S. ICRI: International Concrete Repair Institute.
- T. Incompatibility: Inability of a coating to perform well over another coating because of bleeding, poor bonding, or lifting of old coating; inability of a coating to perform well on a substrate.
- U. Laitance: A layer of weak, non-durable concrete containing cement fine that is brought to the surface through bleed water as a result of concrete finishing/over-finishing.
- V. Mil: 0.001-inch.
- W. National Association of Corrosion Engineers International (NACE)
- X. Overspray: Dry spray, particularly such paint that failed to strike the intended surface.
- Y. Pinhole: A small diameter discontinuity in a coating or coating system film that is typically created by outgassing of air from a void in a concrete substrate resulting in exposure of the substrate or a void between coats.
- Z. Pot Life: Time interval after mixing of components during which the coating can be satisfactorily applied.

- AA. Resurfacer/Resurfacing Material: A layer of cementitious and/or resin-sed material used to fill or otherwise restore surface continuity to worn or damaged concrete surfaces.
- BB. Shelf Life: Maximum storage time for which a material may be stored without losing its usefulness.
- CC. Shop Coat: One or more coats applied in a shop or plant prior to shipment to the site of the work, where the field or finishing coat is applied.
- DD. Spreading Rate: Surface area covered by a unit volume of paint at a specific film thickness.
- EE. The Society for Protective Coatings (SSPC)
- FF. Stripe Coat: A separate coat of paint applied to all weld seems, pits, nuts/bolts/washers and edges by brush. This coat shall not be applied until any previous coat(s) have cured and, once applied, shall be allowed to cure prior to the application of the subsequent coat(s).
- GG. Surface Saturated Dry (SSD): Refers to concrete surface condition where the surface is saturated (damp) without the presence of standing water.
- HH. Tie Coat: An intermediate coat used to bond different types of coatings. Coatings used to improve the adhesion of a succeeding coat.
- II. Touch-Up Painting: The application of paint on areas of painted surfaces to repair marks, scratches, and areas where the coating has deteriorated to restore the coating film to an unbroken condition.
- JJ. Technical Practice Committee (TPC)
- KK. VOC Content: The portion of the coating that is a compound of carbon, is photochemically reactive, and evaporates during drying or curing, expressed in grams per liter (g/l) or pounds per gallon (lb/gal).
- LL. Immersion: Refers to a service condition in which the substrate is below the waterline or submerged in water or wastewater at least intermittently if not constantly.
- MM. Weld Spatter: Beads of metal scattered near seam during welding.
- NN. Wet Film Thickness (WFT): The primer or coating film's thickness immediately following application. Wet film thickness is measured in mils or thousandths of an inch (0.001-inch) and is abbreviated WFT.

1.03 REFERENCES

- A. This section contains various guide documents, technology reports, and other industry standards relative to surface preparation, coating application, and testing methods. These references are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of Section 099600 shall prevail.
- B. Standards and References:
 - 1. American National Standards Institute (ANSI):
 - a. ANSI/NSF 61 Drinking Water System Components Health Effects

2. ASTM International (ASTM):
 - a. ASTM D16-11a Standard Terminology for Paint, Related Coatings, Materials, and Applications
 - b. ASTM D3960 Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings
 - c. ASTM D4262 Standard Test Method for pH of Chemically Cleaned or Etched Concrete Surfaces
 - d. ASTM D4263 Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
 - e. ASTM D4414 Standard Practice for Measurement of Wet Film Thickness by Notch Gages
 - f. ASTM D4417 Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel
 - g. ASTM D4541 Standard Test Methods for Pull-Off Strength of Coatings on Metal Substrates Using Portable Adhesion Testers
 - h. ASTM D4787 Standard Practice for Continuity Verification of Liquid or Sheet Linings Applied to Concrete Substrates
 - i. ASTM D5162 Standard Practice for Discontinuity (Holiday) Testing of Nonconductive Protective Coating on Metallic Substrates
 - j. ASTM D7234 Standard Test Method for Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Adhesion Testers
 - k. ASTM E337 Standard Test Method for Measuring Humidity With a Psychrometer
 - l. ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
3. Federal:
 - a. FS 595b: Federal Standard Colors
4. International Concrete Repair Institute (ICRI):
 - a. ICRI 310.2 Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays
5. National Association of Corrosion Engineers International (NACE):
 - a. NACE Standard SP0188 Standard Recommended Practice – Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates
 - b. NACE Standard RP0288 Standard Recommended Practice, Inspection of Linings on Steel and Concrete
 - c. NACE Standard SP0892 Standard Recommended Practice, Linings Over Concrete in Immersion Service
 - d. NACE Publication TPC2 Coatings and Linings for Immersion Service
6. National Association of Pipe Fabricators (NAPF):
 - a. NAPF 500-03 Surface Preparation Standard for Ductile Iron Pipe and Fittings in Exposed Locations Receiving Special External Coatings and/or Special Internal Linings

7. Occupational Safety and Health Administration (OSHA):
 - a. OSHA Title 29, Part 1926 Safety and Health Standards for Construction
8. Society for Protective Coatings (SSPC):
 - a. SSPC-PA COM Paint Application Specifications and Guides (Commentary)
 - b. SSPC-AB 1 Mineral and Slag Abrasives
 - c. SSPC-PA 1 Shop, Field, and Maintenance Painting of Steel
 - d. SSPC-PA 2, Level 3 Measurement of Dry Coating Thickness with Magnetic Gages
 - e. SSPC-PA 9 Measurement of Dry Coating Thickness on Cementitious Substrates Using Ultrasonic Gages
 - f. SSPC Technology Guide 6 Guide for Containing Debris Generated During Paint Removal Operations
 - g. SSPC Technology Guide 7 Guide to the Disposal of Lead-Contaminated Surface Preparation Debris
 - h. SSPC-PA Guide 10 A Guide to Safety and Health Requirements for Industrial Painting Projects
 - i. SSPC-PA Guide 11 Protecting Edges, Crevices, and Irregular Steel Surfaces by Stripe Coating
 - j. SSPC Technology Guide 12 Guide for Illumination of Industrial Painting Projects
 - k. SSPC-PA Guide 15 Field Methods for Retrieval and Analysis of Soluble Salts on Steel and other Non Porous Substrates
 - l. SSPC-PA Guide 17 Procedure for Determining Conformance to Steel Profile/Surface Roughness/Peak Count Requirements
 - m. SSPC-PA Guide 19 Guide to Selecting Coatings for Use Over Galvanized Steel Substrates
 - n. SSPC SP1 Solvent Cleaning
 - o. SSPC SP2 Hand Tool Cleaning
 - p. SSPC SP3 Power Tool Cleaning
 - q. SSPC SP5 White Metal Blast Cleaning
 - r. SSPC SP6 Commercial Blast Cleaning
 - s. SSPC SP7 Brush-Off Blast Cleaning
 - t. SSPC SP10 Near-White Blast Cleaning
 - u. SSPC SP11 Power Tool Cleaning to Bare Metal
 - v. SSPC SP 13 Surface Preparation of Concrete
 - w. SSPC SP 14 Industrial Blast Cleaning
 - x. SSPC SP 15 Commercial Grade Power Tool Cleaning
 - y. SSPC SP 16 Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals
 - z. SSPC-TR 2/NACE 6G198 Wet Abrasive Blast Cleaning
SSPC-TR3/NACE 6A192 Dehumidification and Temperature Control During Surface Preparation, Application, and Curing for

aa. SSPC-TU-3	Coatings/Linings of Steel Tanks, Vessels, and Other Enclosed Spaces
bb. SSPC-VIS 1	Overcoating
	Visual Standard for Abrasive Blast Cleaned Steel
cc. SSPC-VIS 3	Visual Standard for Power and Hand – Tool Cleaned Steel
dd. SSPC-VIS 4	Visual Standards (Waterjetting)
ee. SSPC-VIS 5	Visual Standards (Wet Abrasive Blast Cleaning)
SSPC-WJ 1,2,3,4	Water Jetting Surface preparation Standards

1.04 SUBMITTALS

- A. Provide in accordance with Section 01 33 00:
1. Submit a copy of the specified Finish Schedule included in paragraph 3.04 denoting the specific products and specific manufacturers for each item (structure, equipment, or substrate plus the manufacturer's brand name, product name, and designation number for each coat of each system to be used.
 - a. If materials other than those listed are submitted, provide information to justify and define the proposed substitution. The Owner may further require the Contractor to furnish additional test results from an independent paint laboratory comparing the proposed substitution with one of the named products, at no additional cost to the Owner.
 - b. Submit a color card or fan deck for each manufacturer and each coating product submitted.
 2. Submit a list and description of all surfaces for which there is a question about what standard coating system to apply as part of the work through a Request for Information.
 3. Prior to ordering material, submit a complete schedule of coatings to be applied including location and Owner approved colors for each location (structure, equipment, substrate).
 4. Current printed recommendations and product data sheets for coatings/coating systems including:
 - a. VOC data.
 - b. Storage requirements.
 - c. Surface preparation recommendations.
 - d. Primer type, where required.
 - e. Maximum dry and wet mil thickness per coat.
 - f. Minimum and maximum curing time between coats, including atmospheric conditions for each.
 - g. Curing time before submergence in liquid.
 - h. Thinners/solvents for reduction and cleaning.
 - i. Ventilation requirements.
 - j. Minimum and maximum atmospheric application conditions.
 - k. Allowable application methods.
 - l. Maximum allowable moisture content (concrete substrates).
 - m. Maximum shelf life.

5. Manufacturer's Certification documenting the submitted coatings meet applicable Air Quality Management District regulations as to allowable VOC content for the place of application and use intended.
6. Qualifications for Quality Control personnel to be provided on site by the Contractor including, but not limited to, the inspector's NACE and SSPC Certification numbers for the certifications requested in paragraph 1.05.E.2.
7. Material Safety Data Sheets (MSDS) for all materials to be delivered to the job site, including coating system materials, solvents, and abrasive blast media.
8. Information that defines the end date for field coating application for all equipment, machinery, and piping to ensure that the maximum recoat time for the shop applied primers will not be exceeded when field applied coatings are installed.
9. Provide written confirmation by the shop and field applied coating manufacturers indicating compatibility between the shop and field applied coatings has been checked and approved by those manufacturers.

1.05 QUALITY ASSURANCE

A. Environmental Regulatory Requirements:

1. All work, material, procedures, and practices shall conform to requirements of the local Air Resources Board or Air Quality Management District having jurisdiction. Prime or finish coat painting done in locations other than the project site shall be in accordance with air quality regulations in effect at the place the coating is applied. Products specified herein are, to the best of the Design Engineer's knowledge, in compliance with the applicable VOC levels allowable at the date these Specifications were issued for bid.
2. The Air Resources Board or Air Quality Management District having jurisdiction may prohibit the sale or application of paints and enamels containing more than the stipulated quantities of volatile organic compounds manufactured after a stated date. Provide material meeting applicable regulations effective at the date of manufacture, or if not available, provide top of the line materials developed as replacements for specified materials and meeting applicable regulations as to VOC content.
3. If the Contractor applies coatings which have been modified or thinned other than as recommended or approved by manufacturer, the Contractor shall be responsible for any fines, costs, remedies or legal actions that may result.
4. Surface preparation activities resulting in the generation of airborne emissions shall be performed in accordance with applicable Federal, State, County, or Local regulations and ordinances. The Contractor shall be responsible for securing any and all licenses and permits required, at no additional cost to the Owner.
5. All debris (liquid or solid) generated from surface preparation or coating activities shall be disposed off site in accordance with applicable Federal, State, County, or local regulations and ordinances. The Contractor shall be responsible for all required testing, licenses, permits, and fees, at no additional cost to the Owner.

B. Coating Manufacturer's Qualifications:

1. All protective coatings furnished shall:
 - a. Be of a manufacturer who has been regularly engaged in the manufacture of protective coatings with a minimum of 10 years of successful experience.

- b. Demonstrate to the satisfaction of the Engineer successful performance on comparable projects.
- C. Coating Applicators Qualifications:
 - 1. The application company or entity must demonstrate a minimum of five (5) years of practical experience in the application of the specified coatings and the successful completion of a minimum of five (5) projects of similar size and complexity within the last three (3) years. This must be verified in writing by the selected coating system manufacturer.
 - 2. For the application company's or entity's personnel: employ only those persons on the project trained in the application of the specified protective coatings. Written confirmation of this must be provided by the approved coating systems manufacturer.
- D. Coatings Preconstruction Meeting:
 - 1. The Contractor shall attend a coatings preconstruction meeting prior to commencing any surface preparation or coating application work. Parties attending the meeting shall include the General Contractor, Owner, and Coating Applicator. The following items shall be reviewed and discussed at the coatings preconstruction meeting.
 - a. Schedule
 - b. Environmental requirements
 - c. Surfaces to be coated and protection of surfaces not to be coated
 - d. Colors
 - e. Surface preparation
 - f. Application
 - g. Coating repair
 - h. Field quality control
 - i. Housekeeping
 - j. Protection of coating systems
 - k. Coordination with other trades / work activities/schedule
- E. Quality Control Requirements:
 - 1. The Contractor is responsible for ensuring the surface preparation and coating activities meet the requirements of this specification. Inspections by the Owner, or a representative of the coating manufacturer, will not relieve or limit the Contractor's responsibilities.
 - 2. The specified quality control tasks shall be performed by an individual who has been properly trained and has a minimum of 5 years experience. The Contractor shall provide the Owner documentation indicating that the individual designated to perform quality control has received training similar to NACE CIP Level 3, SSPC PCI Level 2, and, has a minimum of 5 years field experience.
 - 3. Coatings application shall conform to requirements of this specification and the standards referenced in paragraph 1.03.B. Changes in the coating system installation requirements will be allowed only with the written authorization of the Owner before work commences.
 - 4. Contaminated, outdated, diluted materials, and/or materials from previously opened containers shall not be used.
 - 5. For repairs, the Contractor shall provide the same products, or products recommended by the coating manufacturer, as used for the original coating.
 - 6. The Contractor shall conduct the work so the coating system is installed as specified and shall inspect the work continually to ensure that the coating system

is installed as specified. Coating system work not conforming to the specifications or is otherwise not acceptable shall be corrected in accordance with the coating manufacturer's written procedures.

7. The following quality control tests are mandatory.

Test Requirement	Reference Standard	Interval / Frequency
Measure and Record Ambient and Surface Temperatures	N/A	During coating application and initial cure. Every 3 hours.
Measure and Record Relative Humidity and Dew Point	ASTM D 337	During coating application and initial cure. Every 3 hours,
Abrasive Cleanliness	SSPC AB-1 SSPC AB-2 ASTM D 4940	Each day abrasive blasting is performed. Immediately prior to start of abrasive blasting
Compressed Air Cleanliness	ASTM D 4285	Each day compressed air is utilized for abrasive blasting, paint application, or to remove surface contamination immediately prior to any of the indicated operations.
Determining Level of Cleanliness (substrate condition after the specified surface preparation has been completed)	SSPC – VIS 1 SSPC – VIS 3 SSPC - VIS 4/NACE VIS 7 SSPC - VIS 5/NACE VIS 9 SSPC - SP 1 SSPC - SP 2 SSPC - SP 3 SSPC - SP 5/NACE No. 1 SSPC - SP 6/NACE No. 3 SSPC - SP 7/NACE No. 4 SSPC - SP 10/NACE No. 2 SSPC - SP 11 SSPC - SP 13/NACE No.6 SSPC - SP 14/NACE No.8 SSPC - SP 15 SSPC - SP 16 SSPC – WJ 1,2,3,4	Each day surface preparation is performed. Immediately prior to coating application.
Levels of Soluble Salt Contamination (steel and other nonporous substrates)	SSPC Technology Guide 15	Each day coating application is performed. / Immediately prior to coating application
Surface pH (concrete or metal)	ASTM D 4262 (use 6.1 and 6.2 for metal)	Each day coating application is performed. Immediately prior to coating application.
Measurement of Surface Profile (metal substrates)	ASTM D 4417	Each day surface preparation is performed. Upon completion of shift or task.
Measurement of Surface Profile (concrete substrates)	ASTM D 7682	Each day surface preparation is performed. Upon completion of shift or task.
Moisture in Concrete (plastic sheet method)	ASTM D 4263	Upon completion of surface preparation. Whenever climatic conditions substantially change.
Measure and Record Material Temperatures (all components)	N/A	Each day coating application is performed. Immediately prior to coating application.

Test Requirement	Reference Standard	Interval / Frequency
Wet Film Thickness	ASTM D 4414	Each day coating application is performed. Hourly during coating application.
Dry Film Thickness (ferrous metal/magnetic substrates)	SSPC-PA 2	After coating has properly cured. After each layer (component) of the specified coating system.
Dry Film Thickness (non-ferrous metal substrates)	ASTM D 1400	After coating has properly cured. After each layer (component) of the specified coating system.
Holiday Detection (conductive substrates)	NACE SPO 188	After coating system has properly cured. Once on entire surface and as necessary over repaired areas to verify effectiveness of the repair(s).
Holiday Detection (metal substrates)	ASTM D 5162	After coating system has properly cured. Once on entire surface and as necessary over repaired areas to verify effectiveness of the repair(s).
Adhesion Testing (metal substrates)	ASTM D 4541	After coating system has properly cured. Number of tests proportionate to surface area.
Final Cure (solvent rub – organic coatings)	ASTM D 5402	After coating system has been cured per manufacturer's published recommendations.

F. Mandatory Hold Point Inspections:

1. Hold Point Inspections shall be performed in the Owner's presence. The Contractor shall provide the Owner a minimum two (2) hours notice prior to performing a Hold Point Inspection.
2. Hold Point Inspections shall be performed as follows for each structure, equipment, substrate to receive coating application:
 - a. Prior to surface preparation to determine if the environmental or site conditions would be detrimental to surface preparation/coating application, and if the substrate is void of detrimental defects/contamination.
 - b. Upon completion of the specified surface preparation (concrete and non ferrous substrates) or upon completion of the first full production day of surface preparation (ferrous substrates), ensure that the specified level of cleanliness and surface profile have been achieved.
 - c. Upon completion of each coating system component to: ensure that no visual coating defects such as runs, sags, voids, holidays, and embedment of foreign matter are present, and ensure that the specified dry film thickness has been achieved.
 - d. Upon final cure of the complete coating system to: identify visual coating defects, measure coating system dry film thickness, perform cure evaluation testing, perform holiday detection testing, and perform adhesion testing. Due to the nature and complexity of the specific testing requirements, this Hold Point may encompass between several hours to several days.
 - e. Upon completion of remedial repairs (final inspection), should the coating defects be identified at the final cure Hold Point Inspection, all previously

stated Hold Points will be applicable during the coating repair process after which a final inspection will be performed. Retesting will be required for the repaired areas at no additional cost to the Owner.

3. The Contractor shall indicate the execution and nature of each Hold Point Inspection in the daily report.
4. The Owner will acknowledge participation at each individual Hold Point on a Contractor prepared document appended to the daily report. The document must include a section wherein the Owner may indicate exceptions or qualifications. It shall be the Contractor's responsibility to ensure that the Hold Point Inspection is acknowledged by the Owner.
5. Failure to comply with any or all of the Hold Point Inspection requirements may result in the rejection of all subsequent work.
6. Hold Point Inspections may only be waived by written authorization from the Owner.

1.06 ILLUMINATION

- A. Provide the following minimum illumination during all phases of work:
 1. General work area: 25-Foot Candles
 2. Surface preparation and coating application: 30-Foot Candles
 3. Inspection: 50-Foot Candles

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all coating materials in unopened containers with manufacturer's label, which must include name, batch number, manufacturer date, shelf life, and VOC content.
- B. Store in an assigned area onsite with concurrence from the coating manufacturers. Maintain storage area clean and fire safe. Dispose of used rags, thinner and buckets daily. Store solvents in closed approved storage containers.

1.08 WARNINGS

- A. Be advised that application of paint, epoxy and protective coating materials may be hazardous. Take all necessary precautions to ensure the safety of workers and property.
- B. Be advised that as a part of this work abrasive blasting is required. This may require the use of special equipment. Become familiar with the existing site conditions and take all steps necessary to protect adjacent facilities and personnel, at no additional cost to the Owner. In addition, abrasive blasting and painting is called for in, on or around mechanical equipment, which may be damaged by grit, dust, or painting overspray. Mask, wrap, enclose and provide all protection required to safeguard this equipment at no additional cost to the Owner.
- C. Perform abrasive blasting activities in a manner that will not cause nuisance to plant operations and private property and equipment.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. The specific manufacturers listed have been provided as levels of quality as well as jurisdictional VOC compliance for the specified substrate and exposure conditions. Although not stated, the term "or approved equal" is applicable.
- B. Coatings used shall be the products of a single coating manufacturer. Mixed manufacturer coating systems are prohibited.
- C. Alternate coating systems submitted for consideration must be of the same generic type as those specified.
- D. Coatings shall not contain heavy metals that exceed the regulated levels of the jurisdiction in which the coatings will be applied.
- E. Colors are to be factory mixed, using light-fast colorants proportioned by accurate measurement into proper type base.
- F. Abrasive Media:
 - 1. Shall not be classified as a health or environmental hazard.
 - 2. Shall be delivered to the site in sealed bag or containers.
 - 3. Shall be kept clean and dry while stored on site.
 - 4. Shall not be reused for abrasive blasting unless specifically manufactured for reuse and appropriate recycling equipment is utilized.
 - 5. Shall be of an appropriate size, shape, and hardness to produce the specified surface profile(s).

2.02 COATING SYSTEM

- A. System Requirements:
 - 1. It shall be the Contractor's responsibility to ensure that there is chemical compatibility between all shop applied primers or coatings on all machinery and equipment provided for the project and any field applied coatings. Compatibility shall mean that there is no chemical reactivity or physical property of the shop or field applied coatings which will cause or promote intercoat adhesion problems or proper cure problems for the shop or field applied coatings on machinery or equipment or piping. The Contractor shall provide written confirmation by the shop and field applied coating manufacturers that compatibility has been checked and approved by those manufacturers. The rework to correct any compatibility problem between shop and field applied coatings shall be solely the responsibility of the Contractor at no additional cost to the Owner.
- B. All ferrous surfaces, not specifically excluded as described elsewhere in this section shall be coated with the following Zinc-Epoxy-Polyurethane System:

System Thickness:	Minimum of; 3 to 4 mils of zinc rich primer, one intermediate or primer epoxy coat at 5 to 6 mils and one finish coat of polyurethane at 2 to 3 mils DFT.
Primer:	One coat at the coating manufacturer's recommended dry film thickness per coat to meet the specified minimum thickness

- Intermediate: One coat at the coating manufacturer's recommended dry film thickness per coat to meet the specified minimum thickness.
- Finish: One coat at the coating manufacturer's recommended dry film thickness per coat to meet the specified minimum thickness.

Approved Manufacturers:

System Manufacturer	First / Prime Coat(s)	Intermediate Coat(s)	Finish Coat(s)
PPG	Amercoat 68HS	Amerlock 400 VOC	Amershield VOC
Carboline	859 VOC	Carboguard 890 VOC	Carbothane 134MC
Sherwin Williams	Zinc Clad III HS Primer	Macropoxy 646 100	Hi Solids Polyurethane 100
Tnemec	Series 94 H ₂ O	Series V69	Series 1075

PART 3 - EXECUTION

3.01 COATINGS

A. General:

- Coating application shall not proceed until the Owner has received the VOC certifications specified in paragraph 1.04.A.4, the Owner has inspected the materials, and the coating manufacturer has trained the Contractor in the surface preparation, mixing and application of each coating system.

B. Shop and Field Coats:

- Shop applied prime coat: Except as otherwise specified, prime coats may be shop-applied or field-applied. Shop-applied primer shall be compatible with the specified coating system and shall be applied at the minimum dry film thickness recommended by the coating manufacturer. Product data sheets identifying the shop primer used shall be provided to the on-site coating application personnel. Adhesion tests shall be performed on the shop primer as specified in paragraph 3.01.B.3. Damaged, deteriorated and poorly applied shop coatings that do not meet the requirements of this section shall be removed and the surfaces recoated. If the shop prime coat meets the requirements of this section, the field coating may consist of touching up the shop prime coat and then applying the finish coats to achieve the specified film thickness and continuity.
- Field Coats: Field coats shall consist of one or more prime coats and one or more finish coats to build up the coating to the specified dry film thickness. Unless otherwise specified, finish coats shall not be applied until other work in the area is complete and until previous coats have been inspected.
- Adhesion Confirmation: The Contractor shall perform an adhesion test after proper cure in accordance with ASTM D3359 to demonstrate that: (1) the shop applied prime coat adheres to the substrate; and (2) the specified field coatings adhere to the shop coat. Test results showing an adhesion rating of 5A on immersed surfaces and 4A or better on other surfaces shall be considered acceptable for coatings 5 mils or more in thickness (Method A). Test results showing an adhesion rating of 5B on immersed surfaces and 4B or better on

other surfaces shall be considered acceptable for coating thicknesses less than 5 mils.

C. Application Location Requirements:

1. Equipment, Non-immersed: Items of equipment, or parts of equipment which are not immersed in service, shall be shop primed and then finish coated in the field after installation with the specified or acceptable color. If the shop primer requires top coating within a specified period of time, the equipment shall be finish coated in the shop and then touch-up painted after installation. If equipment removal and reinstallation is required for the project, touch-up coating work shall be performed in the field following installation.

3.02 PREPARATION

A. General:

1. Shop primed surfaces which are to be incorporated in the work shall be prepared in the field by cleaning surfaces in accordance with SSPC SP-2 (Hand Tool Cleaning). Damaged shop coated areas shall be cleaned in accordance with SSPC SP-3 (Power Tool Cleaning) and recoated with the primer specified.
2. For coatings over factory coated or shop primed equipment, delete the zinc rich primer and use a compatible primer as recommended by the coating manufacturer.
3. Bare ferrous metal surfaces shall be prepared in accordance with SSPC SP-6 (Commercial Blast Cleaning) 2.5 – 3.0. Ferrous metal with rust bleeding shall be cleaned in accordance with SSPC SP-11 (Power Tool Cleaning to Bare Metal). Areas of rust penetration shall be spot blasted to SSPC SP-10 (Near White Blast) and spot primed with the specified primer.
4. Damaged galvanized steel areas with exposed ferrous metal and/or rusted shall be cleaned in accordance with SSPC SP-5 (White Metal Blast Cleaning) or Power Tool Cleaned to Bare Metal in accordance with SSPC SP-11 to achieve a uniform 1.0 to 1.5 mil profile and spot primed with the primer specified.
5. Nonferrous and galvanized metal shall be prepared in accordance with SSPC SP-16 to impart a 1.0 to 2.0 mil profile to the galvanized steel surfaces. Where this cannot be performed, prepare by abrading in accordance with SSPC SP-3, Power Tool Cleaning to impart a 1.0 to 1.5 mil profile uniformly to the galvanized steel surfaces.
6. Surfaces to be coated shall be clean and dry. Before applying coating or surface treatments, oil, grease, dirt, rust, loose mill scale, old weathered coatings, and other foreign substances shall be removed. Oil and grease shall be removed before mechanical cleaning is started. Where mechanical cleaning is accomplished by blast cleaning, the abrasive used shall be washed, graded and free of contaminants which might interfere with the adhesion of the coatings. The air used for blast cleaning shall be sufficiently free of oil and moisture to not cause detrimental contamination of the surfaces to be coated.
7. Cleaning and coating shall be scheduled so dust and spray from the cleaning process shall not fall on wet, newly coated surfaces. Hardware, hardware accessories, nameplates, data tags, machined surfaces, sprinkler heads, electrical fixtures, and similar uncoated items which are in contact with coated surfaces shall be removed or masked prior to surface preparation and painting operations. Following completion of coating, removed items shall be reinstalled. Equipment adjacent to walls shall be disconnected and moved to permit cleaning

- and painting of equipment and walls and, following painting, shall be replaced and reconnected.
8. Containment: The Contractor shall erect and maintain protective enclosures as required to ensure that surface preparation debris, including dust, is contained within the immediate work area. All costs associated with containment shall be paid by the Contractor.
 9. Dust and Contaminants: Protect substrate from excessive dust and airborne contaminants during coating application and curing. Use temporary dust barriers to close off areas being painted from areas where other work is being performed.
- B. Abrasive Blast Cleaning:
1. When abrasive blast cleaning is required to achieve the specified surface preparation the following requirements for blast cleaning materials and equipment shall be met:
 - a. Used or spent blast abrasive shall not be reused on this project.
 - b. The compressed air used for blast cleaning shall be filtered and shall contain no condensed water and no oil. Moisture traps shall be cleaned at least once every four hours or more frequently as required to prevent moisture from entering the supply air to the abrasive blasting equipment.
 - c. Oil separators shall be installed just downstream of compressor discharge valves and at the discharge of the blast pot discharges. These shall be checked on the same frequency as the moisture traps as defined in Item 2 above.
 - d. Regulators, gauges, filters, and separators shall be in use on compressor air lines to blasting nozzles times during this work.
 - e. An air dryer or desiccant filter drying unit shall be installed which dries the compressed air prior to blast pot connections.
 - f. The air dryer shall be used and maintained for the duration of surface preparation work.
 - g. The Contractor shall provide ventilation for airborne particulate evacuation (meeting pertinent safety standards) to optimize visibility for both blast cleaning and inspection of the substrate during surface preparation work.
 - h. If between final surface preparation work and coating system application, contamination of prepared and cleaned metallic substrates occurs, or if the prepared substrates' appearance darkens or changes color, re-cleaning by water blasting, re-blasting and abrasive blast cleaning shall be required until the specified degree of cleanliness is reclaimed.
 - i. The Contractor is responsible for dust control and for protection of mechanical, electrical, and other equipment adjacent to and surrounding the work area.
- C. Solvent Cleaning:
1. Any solvent wash, solvent wipe, or cleaner used, including but not limited to those used for surface preparation in accordance with SSPC SP-1 Solvent Cleaning shall be of the emulsifying type which emits no more than 100 g/l, contains no phosphates, is biodegradable, removes no zinc, and is compatible with the specified primer.
 2. Clean white cloths and clean fluids shall be used in solvent cleaning.
- D. Ferrous Metal Substrates:
1. The profile depth of the surface to be coated shall be measured by Method C of ASTM D4417. Blast particle size shall be selected by the Contractor to produce

the specified surface profile. The solvent in solvent cleaning operations shall be as recommended by the coating manufacturer.

2. Preparation of ferrous metal surfaces shall be based upon comparison with SSPC-VIS1.

3.03 THINNING

- A. Prime coat may be thinned and applied as recommended by the coating system manufacturer, provided the coating as applied complies with prevailing air pollution control regulations.

3.04 APPLICATION

A. Workmanship:

1. Coated surfaces shall be free from excessive runs, sags, drips, ridges, waves, laps, and brush marks. Coats shall be applied to produce an even film of uniform thickness completely coating corners and crevices. Minor and infrequent runs and sags which are within the total specified D.F.T. plus a few mils (no more than 10% more mils than the specified total D.F.T.) will be acceptable. However, frequent runs or sags which exceed these limits or otherwise will be detrimental to coating system performance shall not be accepted.
2. The Contractor's spray equipment shall be designed for application of the materials specified. Compressors shall have suitable traps and filters to remove water and oils from the air. Spray equipment shall be equipped with mechanical agitators, pressure gages, and pressure regulators, and properly sized spray tips.
3. Each coating application be applied evenly and sharply cut to line. Care shall be exercised to avoid overspray or spattering paint on surfaces not to be coated. Glass, hardware, floors, roofs, and other adjacent areas and installations shall be protected by taping, drop cloths, or other suitable measures.
4. Coating applications method shall be as recommended by the coating manufacturer.
5. Allow each coat to cure or dry thoroughly, according to the coating manufacturer's printed instructions, prior to recoating.
6. Vary color for each successive coat for coating systems when possible.
7. When coating complex steel shapes, prior to overall coating system application, stripe coat welds, edges of structural steel shapes, metal cut-outs, pits in steel surfaces, or rough surfaces with the prime coat. This involves applying a separate coat using brushes or rollers to ensure proper coverage. Stripe coat via spray application is not permitted.

B. Coating Properties – Mixing and Thinning:

1. Coatings, when applied, shall provide a satisfactory film and smooth even surface. Glossy undercoats shall be lightly sanded to provide a surface suitable for the proper application and adhesion of subsequent coats. Coating materials shall be thoroughly stirred, strained, and kept at a uniform consistency during application. Coatings consisting of two or more components shall be mixed in accordance with the coating manufacturer's instructions. Where necessary to suit the conditions of the surface, temperature, weather and method of application, the coating may be thinned as recommended by the coating manufacturer immediately prior to use. The VOC of the coating as applied shall comply with prevailing air pollution control regulations. Unless otherwise specified, coatings

- shall not be reduced more than necessary to obtain the proper application characteristics. Thinner shall be as recommended by the coating manufacturer.
2. Mixing of partial "kits" is strictly prohibited unless authorized in writing by the coating manufacturer and the Owner. This prohibition also applies to coatings mixed for touchup or repairs. If authorized to mix partial kits, the Contractor shall utilize containers with appropriate graduated markings/calibrated weight scales.
- C. Environmental Conditions:
1. Provide adequate heat, ventilation, and dehumidification to ensure that the coating manufacturer's environmental requirements are met and to ensure no loss of production days due to failure to meet coating manufacturer's environmental requirements.
 2. Provide sufficient and continuous ventilation and air movement across coated substrates to remove volatile constituents (solvent) throughout the manufacturer's published curing period.
 3. Air and surface temperatures: Prepare surfaces, apply and cure coatings within air and surface temperature range recommended by coating manufacturer.
 4. Relative humidity: Prepare surfaces, apply and cure coatings within relative humidity range in accordance with coating manufacturer's instructions.
 5. Dew Point: Do not apply coatings unless the temperature of the dew point is 5°F or greater than the temperature of the substrate.
 6. Precipitation: Do not apply coatings in rain, snow, fog, or mist.
 7. Wind: Do not spray apply coatings when the wind direction and velocity are such that overspray may result in property damage.
- D. Protection of Coated Surfaces:
1. Items which have been coated shall not be handled, worked on, or otherwise disturbed, until the coating is completely dry and hard. After delivery at the site, and upon permanent erection or installation, shop-coated metalwork shall be recoated or retouched with specified coating when it is necessary to maintain the integrity of the film.
- E. Film Thickness and Continuity:
1. WFT of the first coat of the coating system and subsequent coats shall be verified by the Contractor, during application of each coat.
 2. Coatings shall be applied to the minimum dry film thickness specified. Dry film thickness shall be determined using the appropriate industry standard for the substrate (SSPC-PA 2, SSPC-PA 9, or ASTM D1400). Coatings determined to be above the maximum dry film thickness as indicated or the coating manufacturer's product data sheet, will be removed at the Owner's discretion.
 3. In testing for continuity of coating about welds, projections (such as bolts and nuts), and crevices, the Owner shall determine the minimum conductivity for smooth areas of like coating where the dry mil thickness has been accepted. This conductivity shall be the minimum required for these rough or irregular areas. Pinholes and holidays shall be recoated to the required coverage.
 4. The ability to obtain specified film thickness is generally compromised when brush or roller application methods are used and, therefore, more coats may be needed to be applied to achieve the specified dry film thickness.
- F. Soluble Salt Contamination of Metal Substrates:
1. Contractor shall test in accordance with SSPC Guide 15 metal substrates to be coated that have been exposed to sea water or coastal air or to industrial fallout of particulate or other sources of soluble chlorides (such as waste water

exposure). If testing indicates chloride levels in excess of 25 ppm exist after the surface preparation has been completed. The Contractor shall re-clean and prepare these surfaces until chloride levels are below 25 ppm.

3.05 INSPECTION AND TESTING BY AN INDEPENDENT THIRD PARTY

- A. The Owner reserves the right to engage the services of an independent third party to provide quality control inspection. Third party inspection is in addition to any inspection required to be performed by the Contractor and does not limit the Contractor's responsibility for quality workmanship or quality control as specified.
- B. Third party inspection will be performed in a manner which limits interference / inhibits the Contractor's operations. Whenever feasible, the third party inspections will be performed concurrently with the Contractor's required inspections.
- C. Testing Discrepancies: In the event that discrepancies occur relative to test methods or test results, the findings of the Independent Third Party shall be final. The Contractor shall not be entitled to additional monies for rework/additional work necessary to satisfy the requirements of the specification as a result of the Independent Third Parties findings.

3.06 FINAL INSPECTION

- A. Contractor shall conduct a final inspection to determine whether coating system work meets the requirements of the specifications.
- B. The Owner will subsequently conduct a final inspection with the Contractor to determine the work is in conformance with requirements of the contract documents.
- C. Any rework required shall be marked. Such areas shall be re-cleaned and repaired as specified at no additional cost to the Owner.

3.07 CLEANUP

- A. Upon completion of the work, the Contractor shall remove and dispose of surplus materials, protective coverings, spent abrasive, and accumulated rubbish.
- B. All surfaces shall be thoroughly cleaned and any damage resulting from surface preparation or coating application shall be repaired.

END OF SECTION

SECTION 22 11 00

FACILITY WATER DISTRIBUTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Furnish and install all piping, including fittings, valves, and accessories as shown on the Drawings, described in the Specifications and as required to completely interconnect all piping for a complete and operable systems.
- B. Related Sections:
 - 1. Section 310000: Earthwork

1.02 REFERENCES

- A. American Association of State Highway and Transportation Officials (AASHTO)
- B. American National Standards Institute (ANSI)
- C. American Society of Mechanical Engineers (ASME)
- D. ASTM International (ASTM)
- E. American Water Works Association (AWWA)
- F. NSF/ANSI Standard 61 Drinking Water System Components (NSF 61)

1.03 SUBMITTALS

- A. Submit in accordance with Section 013300.
- B. Shop Drawings:
 - 1. Layouts and schematics: Submit detailed installation drawings of all piping and connected equipment. The drawings shall include each pipe, all fittings, valves, and other appurtenances (Product Review submittal).
 - 2. Submit data to show that the following items conform to the Specification requirements:
 - a. Pipe, fittings, and accessories.
 - b. Flexible couplings and flanged coupling adapters.
 - c. Restrained joints.
 - d. Valves.
 - e. Air release valves.
 - f. Pressure relief valves.
 - g. Pressure reducing valves.
 - h. Flow meter.
 - i. Chemical injection quill.
 - j. Chemical dosing pump.
 - k. Chlorine Analyzer.
 - l. Turbidimeter.
 - 3. Submit certified test reports as required herein and by the referenced standard specifications.

4. Disinfection schedule and procedures including:
 - a. "Normal" disinfection procedure.
 - b. Emergency disinfection procedure for mains and services which must be returned to service immediately.
 - c. Disinfection schedule including length of disruption of service.
 - d. Disinfecting agent(s).
 - e. Method of disposal of chlorinated water.
 5. All items that are submitted for use on water pipelines including, but not limited to, piping and valve linings, solvent cements, welding materials, gaskets and gasket lubricants, and additives in concrete or cement mortar shall (in accordance with Section 64591 of the California Water Works Standards) be NSF certified for use in water systems. Submit proof of NSF certification for each item submitted.
- C. Manuals: The Contractor shall furnish manufacturer's installation and operation manuals, bulletins, and spare parts lists for the following items:
1. All valves 4-inches and larger.
 2. Air release valves.
 3. Pump control valve.
 4. Water meters.
 5. Metering pumps.
 6. Chlorine analyzer.
 7. Turbidimeter.
- D. Affidavits: Submit affidavits from the manufacturer of the following valves and meters:
1. Gate valves.
 2. Air release valves.
 3. Pump control valves.
 4. Water meters.
- E. The preceding submittals shall be in the Product Information Category except where noted.

1.04 QUALITY ASSURANCE

- A. All materials and equipment furnished under this Section shall: (1) be of a manufacturer who has been regularly engaged in the design and manufacture of the materials and equipment for at least 5 years; and (2) be demonstrated to the satisfaction of the Engineer that the quality is equal to the materials and equipment made by those manufacturers specifically named herein, if an alternate product manufacturer is proposed.
- B. Factory Quality Control: The Contractor shall test all products as noted herein and by the reference specifications.
- C. Field Quality Control:
 1. The Owner will:
 - a. Perform bacteriological analysis for pipelines to be disinfected.
 2. The Contractor shall:
 - a. Perform leakage tests.
 - b. Be responsible for the costs of additional inspection and retesting by the Owner resulting from noncompliance.

1.05 POTHOLING (CHECK ON LOCATIONS)

- A. Do not prepare any shop drawings for, or make final order for, or design any pipe materials for any particular section of pipeline until all utilities in that section of pipeline have been exposed, as specified in paragraph 3.02 of Section 310000 and until such time as no interferences are found between said existing utilities and the proposed pipeline alignment. If interferences are found in any particular section of pipeline, do not prepare any shop drawings for, or make final order for, or design any pipe materials for that particular section of pipeline until the pipeline alignment has been modified by the Engineer to eliminate all such interferences.

1.06 CONSTRUCTION SCHEDULING/SEQUENCING

- A. Construction under this Contract involves expansion and/or modification of the existing water system which must continue to provide service during construction.
- B. Connections and utilities changes must be programmed to provide the least possible interruptions of service. Prior to any shutdown, all materials, fittings, supports, equipment and tools shall be on the site and all necessary labor scheduled prior to starting any connection work. The Contractor shall notify the Engineer in writing at least 7 days in advance of any required shutdowns so that affected customers may be notified. In general, shutdowns shall not exceed four hours in duration unless specifically authorized or indicated in the suggested construction sequence. All temporary piping shall be disinfected in accordance with Paragraph 3.08 before being put into service.
- C. All work under this Contract shall be conducted in a manner which will minimize shutdowns, open roadways, or traffic obstructions caused by the construction. Shutdowns causing damage to adjacent public and private property shall not be permitted, and any damage resulting shall be the sole responsibility of the Contractor.
- D. Planned utility service shutdowns shall be accomplished during periods of minimum use. In some cases this will require night or weekend work, which shall be at no additional cost to the Owner. The Contractor shall program his work so that service will be restored in the minimum possible time, and shall cooperate with the Owner in reducing shutdowns of the utility system to a minimum. No utility interruption will be permitted without the prior approval of the Engineer.

1.07 APPURTENANCES

- A. Furnish and install all necessary guides, inserts, anchors and assembly bolts, washers and nuts, hangers, supports, gaskets, couplings and flanges; all other appurtenant items shown on the Drawings, specified or required for the proper installation and operation of the piping; devices included in or on the piping equipment; and piping accessories.

1.08 PIPE SUPPORTS

- A. General:
 - 1. Piping 4 Inches and Larger: Pipe supports are shown on the Drawings for piping 4 inches and larger in diameter, where the piping is shown on layout drawings. Each pipe support used is designed to resist seismic loading except where the support is of the sliding type for thermal expansion. Other supports are provided to resist axial seismic loading of pipes designed for thermal expansion. Pipe

supports that are considered seismic resistant are so noted on the pipe support detail sheets on the Drawings. The location and types of supports and braces are indicative and may be modified by the Contractor to suit field conditions, provided the modified support system conforms to the design criteria stated herein, and receives the favorable review of the Engineer. Where piping is shown schematically only, it shall be the Contractor's responsibility to support all such piping in accordance with the design criteria stated herein and using support details shown on the Drawings. Pipe supports have been designed assuming flanged joints on ductile iron pipe and steel pipe, unless otherwise indicated on the Drawings. If groove type mechanical couplings are used as an alternative, provide additional supports where required, particularly to resist rotation. Shop drawings of these additional supports shall be favorably reviewed by the Engineer prior to installation.

2. Piping Less Than 4 Inches: Pipe supports are generally not shown for piping less than 4 inches in diameter. Where supports are not shown, it shall be the Contractor's responsibility to support all such piping in accordance with the design criteria stated hereinafter and the support details shown on the Drawings. Piping 2-½ inches and larger and all piping for hazardous chemicals shall be supported with pipe supports designed to resist seismic loads. Hazardous chemical piping includes sodium hypochlorite solution. Piping smaller than 2-½ inches with non-hazardous contents may be supported with non-seismic resistant supports.
3. Where not detailed or otherwise indicated, pipe support types and spacing shall be in accordance with the Manufacturer's Standardization Society (MSS) Standard Practice No. SP-58 and No. SP-69, except as superseded by the requirements of these Specifications. Hangers and supports used as components of a fire protection system shall comply with NFPA Standard No. 13 and be listed and labeled by UL and FM.

B. Pipe Support System Design:

1. Design Loads: Pipe suspension shall be such as to prevent excessive stress or excessive variation in supporting force while system is in operation. Pipe supports shall support the sum of the weight of the pipe, fittings, appurtenances, and contents. In addition, the pipe shall be anchored to resist internal pressure forces tending to separate any unrestrained joint at pressures 1-½ times the maximum working pressure for the applicable service.
2. Seismic Loads: Seismic loads, expressed as a percentage of the weight of the contributing length of pipe, fittings, appurtenances, and contents, are 100% in any direction within the horizontal plane of the pipe, and 100% up or down within the vertical plane of the pipe.
3. Location: All piping shall be supported in a manner that will prevent undue strain on any valve, fitting, or piece of equipment. In addition, pipe supports shall be provided at changes in direction or elevation, adjacent to flexible couplings, at all nonrigid joints, at hose bibbs, and where otherwise shown. Where piping connects to equipment, it shall be supported by a pipe support and not by the equipment.
 - a. Maximum support spacing shall conform to the following table:

Pipe Size Inches	Pipe Material	Maximum Spacing Feet
1-inch and smaller	Iron or Steel	6
	Copper	4-1/2
	Plastic	continuous
	Tubing	continuous
1-¼-inch to 2-inch	Iron or Steel	8
	Copper or Plastic	5
2-½-inch to 4-inch	Iron or Steel	10
	Copper or Plastic	6

- b. Branch piping is not considered to provide resistance to seismic forces.
- 4. Thermal Expansion Allowance:
 - a. Provide one rigid pipe support for each straight run of pipe and between each pair of flexible couplings, flexible connectors, or expansion loops for pipes listed below. Provide other supports at the required spacing that allow sliding or rolling, as noted, along the pipe axis:
 - 1) PVC pipe larger than 1-inch in diameter (sliding inside PVC sleeve).
 - b. Provide vertical support only, that is, no lateral support, within 4 feet of an angle or tee for pipes listed above.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Pipe and valve sizes are nominal inside diameter unless otherwise noted.
- B. All materials delivered to the job site shall be new, free from defects, and marked to identify the material, class, and other appropriate data such as thickness for piping.
- C. Acceptance of materials shall be subject to strength and quality testing in addition to inspection of the completed product. Acceptance of installed piping systems shall be based on inspection and leakage and bacteriological tests as specified hereinafter.
- D. Bolts: Unless specified otherwise herein, flange bolts and nuts, coupling bolts and nuts, and other hardware shall be as follows:
 - 1. Electroplated zinc or cadmium steel.
 - 2. Concrete Encased: Steel
 - 3. Buried: Type 304 stainless steel, minimum tensile strength: 60,000 psi.
 - 4. Apply an anti-gauling compound to the threads of stainless steel bolts.
- E. Fusion Epoxy Coating: Materials and application shall be in accordance with AWWA C213, except application shall be by the fluid bed method only unless the greatest dimension of the article to be coated exceeds 10 feet, in which case electrostatic spray method may be used.

2.02 PIPING MATERIALS

- A. Pipe Designation: Piping materials for miscellaneous small piping are designated on the Drawings.
- B. Pipe Systems: Each designation identifies not only the pipe itself, but the entire system as well as including the associated fittings, appurtenances, and installation and test procedures.

- C. CPVC:
1. Pipe: Schedule 80 chlorinated polyvinyl chloride (CPVC), ASTM F441.
- D. Ductile-Iron (DI):
1. Pipe: Ductile-iron, pressure Class 350, AWWA C151.
 2. Joints:
 - a. Flanges: Ductile iron, plain faced, AWWA C115. Submit certification that flanges comply with AWWA C115.
 - b. Mechanical Joints: AWWA C111.
 - c. Gaskets: SBR, NSF 61 certified.
 - d. Restrained joints: Where required by the Drawings, provide restrained joints capable of deflection. Joints shall not separate under an internal pressure of 250 psi. For push-on joints, use Field-Lok gaskets OR TR-FLEX by United States Pipe & Foundry Company; equivalent by American Cast Iron Pipe Company; or equal. For mechanical joints use Megalug Restraints by EBAA Iron, or equal.
 - e. Buried bolts and nuts for flanged joints shall be Type 304 stainless steel.
 3. Fittings: Flanged, AWWA C110 or AWWA C153.
 4. Lining: Standard thickness cement mortar lining for pipe and fittings, AWWA C104. Cement mortar linings shall be seal coated. Alternatively, fittings may be fusion epoxy lined and coated per AWWA C116.
 5. Coating: Buried pipe shall receive asphalt coating per AWWA C151. Exposed pipe requiring protective coating per Section 099600 shall be shipped bare or shall be factory primed compatible with selected field paint system.
 6. Field closure connections for restrained joints: Pipe cut in the field where necessary and when favorably reviewed by the Engineer shall be connected by one of the following methods:
 - a. Series 3800 Mega-Coupling by EBAA Iron, Inc.; or equal.
 - b. Mechanical joint sleeve with two Series 1100 Megalug Restraints by EBAA Iron, Inc., or equal.
 7. Flanged pipe: Where flanges are necessary for connections to equipment or for insulated joints, pipe shall be thickness Class 53, AWWA C115.
 8. Protection: Wrap all below ground ductile iron pipe with polyethylene pipe wrap, Polyethylene encasement, AWWA C105, black. Single-wrap pipe. Double-wrap flanged fittings, mechanical joints, or other appurtenances with significantly different outside diameters from the pipe. Tape to seal seams and overlaps shall be plastic adhesive tape at least 4 mils thick and at least 2 inches wide.
 9. Pipe taps:
 - a. Direct threaded taps are not acceptable. Pipe branch line connections shall be made using service saddles, by using reducing flanges on tees, or by tapping blind flanges on tees.
 - b. Service saddles:
 - 1) Materials: 304 stainless steel with nitril or neoprene gaskets.
 - 2) Type: For ductile-iron pipe 4 inches and less, single strap saddles may be used. For pipe greater than 4-inch, double-strap saddles shall be used.
 - 3) Manufacturers: Smith-Blair Model 315 or 317; equivalent by Mueller; or equal.
- E. Galvanized Steel Pipe:
1. Pipe: Galvanized steel, ASTM A120, Schedule 40.

2. Fittings: Galvanized malleable iron, screwed, ASTM A197 for materials, ANSI B16.3 150 psi for dimensions (rated 300 psi WOG at 150 degrees F).
 3. Threads: ANSI B2.1.
 4. Unions: Galvanized malleable iron, ASTM A197 for materials and ANSI B16.39 for dimensions, with brass seats.
 5. Thread compound: Permatex No. 2, Crane equivalent, or equal, or teflon tape.
- F. Polyvinyl Chloride Pipe:
1. Pipe: Polyvinyl chloride pressure pipe, cast-iron pipe outside dimensions. Pipe shall be UL listed or Factory Mutual Approved.
 - a. 4-inch through 12-inch: AWWA C900.
 2. Dimension ratio: 25 (Pressure Class 165).
 3. Joints:
 - a. Unrestrained joints: Bell and spigot, gasketed; or twin gasket coupling.
 4. Gaskets: SBR rubber.
 5. Fittings: Fusion epoxy lined and coated push-on cast-iron or ductile-iron AWWA C110 or C153, and fusion epoxy lining and coating. Fusion epoxy lining and coating shall be in accordance with AWWA C116.
- G. CPVC: Pipe: Schedule 80 chlorinated polyvinyl chloride (CPVC), ASTM F441. Pipe shall bear the National Sanitation Foundation (NSF) label.
- H. Polyethylene Tubing:
1. Tube: Flame-resistant polyethylene.
 - a. Flame-Resistance: Comply with UL 94V-2 and ASTM E84 tunnel test.
 - b. Pressure Rating: 150 psi.
 - c. Environmental Stress Crack Resistance: 1,600 hours minimum, ASTM D1693.
 2. Fittings: Barbed or compression.
- I. Stainless Steel Tubing:
1. Tube: Stainless Steel, Type 316, fully annealed ANSI B36.37, ASTM A269.
 - a. Dimensions: 1/4-inch outside diameter x 0.035-inch wall.
Joints: Compression or welded.
 2. Fittings: Same material as tube
 - a. Compression: Imperial; Swagelok; or equal.
 - b. Welded fittings and joints, where used, shall be stress relieved.

2.03 PIPE COUPLINGS

- A. General: For typical pipe joints refer to pipe material specifications. Other joint devices shall be furnished where called for as specified below.
- B. Flexible Couplings and Flange Coupling Adaptors:
1. Sleeve: Cast-iron or fabricated steel.
 2. Followers: Cast-iron, ductile-iron, or steel.
 3. Sleeve bolts: ASTM A325, Type 3; malleable iron; or equivalent, except for buried, which shall be Type 304 stainless steel.
 4. Coating: Fusion epoxy line and coat sleeve and followers.
 5. Pressure rating: The test pressure of the applicable service or 150 psi, whichever is greater.
 6. Performance: Longitudinal movement and angular deflection capabilities shall meet AWWA C-219.

7. Flanged Coupling Adaptor Flanges: Match mating flanges. If required by connecting valve or other device, provide flanges with inside diameter equal to nominal pipe diameter.
8. Buried flexible coupling sleeve: Long barrel; Smith-Blair 442, Dresser Style 40, or equal.
9. Manufacturers:
 - a. Flexible couplings:
 - 1) Connecting pipe with identical outside diameters: Smith-Blair 411, Dresser Style 38, or equal.
 - 2) Connecting pipe with slightly different outside diameters: Smith-Blair 413, Dresser Style 62, or equal.
 - b. Flange coupling adaptors:
 - 1) Connecting new pipe or new pipe to existing non-ferrous pipe: Smith-Blair 912 or 913, Dresser Style 128-W, or equal.
10. Gaskets: SBR rubber.
11. Joint restraint: Provide joint harnesses (tie rod lug or attachment plate assemblies) across flexible couplings and flange coupling adaptors where indicated on the Drawings. For flanged coupling adaptors, anchor studs may be substituted for the harnesses. Design restraint in accordance with AWWA M-11 for 150 psi if size of the rods is not indicated on the Drawings.
12. Protection for buried connectors and adaptors: Double-wrap with polyethylene encasement, AWWA C105 and tape the edges of the encasement with PVC tape.

2.04 VALVES AND ACCESSORIES

A. General Requirements for Valves:

1. All valves of each type shall be the product of one manufacturer.
2. All exposed valves shall be furnished with operators, handwheels, levers, or other suitable type wrench including handles as specified herein or as shown on the Drawings. All buried valves shall be provided with 2-inch-square operating nut and valve boxes.
3. All valves shall be furnished with control assembly, operators, handwheels, levers, or other suitable type wrench including handles as specified herein or as shown on the Drawings.
4. All threaded stem valves shall open by turning the valve stem counter-clockwise.
5. The exterior of all buried valves and valve operators shall be painted with two coats of Tape Coat Mastic; Polygaud CA-14 Mastic; or equal, except where otherwise indicated. Double-wrap all below ground valves with polyethylene pipe wrap, AWWA C105, black.

B. Valves and Accessories:

1. Gate Valves:
 - a. Rating: 200 psi water
 - b. Type: Resilient seated, non-rising stem, AWWA C509, as modified herein
 - c. Connection: Flanged or Mechanical Joint, as shown on the Drawings
 - d. Stem seal: O-ring
 - e. Finish: Fusion epoxy
 - f. Manufacturers: American Series 2500; equivalent by Kennedy; or equal.
2. Check Valves: Swing Check Valves 2-inch through 12-inch:
 - a. Rating: 175 psi

- b. Type: Swing, metal seats, outside spring and lever, AWWA C508.
 - c. Connections: Flanged, 125-pound ANSI.
 - d. Materials: Cast iron, bronze trim.
 - e. Manufacturers: M & H Style 259-02; equivalent by Clow; or equal.
3. Ball Valves through size 4-inch in metal piping:
- a. Rating: 400 psi WOG.
 - b. Type: Lever.
 - c. Connections: Threaded.
 - d. Materials: Bronze body ASTM B584 Alloy 83600 or 84400, chrome-plated ball, teflon seats.
 - e. Manufacturers: Apollo 70-100; Watts B-6000; or equal.
4. Air release valves: Combination air release valves, APCO Model 143C, equivalent by ValMatic, or equal.
- a. Materials: Cast-iron body, Buna-N seat, and stainless steel float.
 - b. Operating pressure: Under 150 psi
5. Combination pump control and pressure relief valve:
- a. Type: Globe style, flanged ends, pilot controlled, solenoid actuated.
 - b. Rating: Class 150.
 - c. Size: as shown on the Drawings.
 - d. Materials: Ductile-iron body, stainless steel trim and pilot, and nylon reinforced synthetic rubber diaphragm.
 - e. Control: Protect pipelines from surges caused by pump start-up, discharge to waste upon start-up, and pressure relief.
 - f. Manufacturer: Cla-Val Model 61-07, or equal.
6. Flow meters:
- a. Type: propeller meter per AWWA C704 meter.
 - b. Manufacturer: McCrometer MW500, equivalent by Controls and Meters, or equal.
7. Chemical Injection Quill
- a. Type: Retractable corporation stop chemical injection quill
 - b. Materials: 316 stainless steel with 316 stainless steel corporation stop
 - c. Pressure rating: 150 psi
 - d. Inlet Connection: 1/2" NPT
 - e. Manufacturer: Neptune CS2-50-316-NL, or approved equal.
8. Valve boxes, adjustable screw type:
- a. Materials: Cast-iron, top and center sections and base and cover.
9. Pressure Gauge Assembly:
- a. Complete assembly shall include isolation valve, pulsation dampeners or snubbers.
 - b. Pressure gauges shall have a dial size not less than 4-1/2 inches, polypropylene case, stainless steel movement, phosphor bronze or stainless steel bourdon tube, 0.5% accuracy (ASME B40.100 Grade 2A), friction mounted adjustable pointer, black figures on white dial, glass or acrylic window. Label face of dial to identify unit of measurement. Process connection size shall be as shown on Drawings. Complete gauge shall be Ashcroft 1279; Trerice Series 450; or equal.
10. Static Mixer
- a. Rating: 150 psi.
 - b. Mixing Elements: 3.
 - c. Material: Schedule 80 PVC
 - d. Connections: 150# Flanges.

- e. Manufacturers: KoFlo; equivalent by Volcrest; or equal.

2.05 CHLORINE ANALYZER

- A. Hach CL17sc Free Chlorine Analyzer, no equal

2.06 TURBIDIMETER

- A. Hach TU5300 sc Low Range Laser Turbidimeter, EPA version, no equal.

2.07 SODIUM HYPOCHLORITE DOSING PUMP

- A. Pump Type: Peristaltic
- B. Motor rating: 120v, 60 Hz, single phase
- C. Flow range: 0.2 to 3.0 Gallons per day
- D. Discharge pressure: up to 100 psi
- E. Manufacturer: Stenner Pump Company model 45MHP2, or approved equal.

2.08 APPURTENANCES

- A. Provide all necessary assembly bolts, washers and nuts, thrust blocks, supports, gaskets, flanges, and all other appurtenant items shown on the Drawings, specified or required for the proper installation and operation of the piping, and devices included in or on the piping, equipment, and piping accessories.

PART 3 - EXECUTION

3.01 PIPING INSTALLATION

- A. General Handling and Placing:
 1. Exercise great care to prevent injury to or scoring of the pipe lining and coating, as applicable, during handling, transportation or storage. Handle fusion epoxy coated pipe in accordance with AWWA C213. Pipe shall not be stored on rough ground and rolling of the pipe on the coating will not be permitted. Repair any damaged pipe sections, specials, or fittings or replace at the direction of the Engineer.
 2. Inspect each pipe, fitting, valve and accessory carefully before installation. Inspect the interior and exterior protective coatings and patch all damaged areas in the field or replaced at the direction of the Engineer.
 3. Place or erect all piping to accurate line and grade and backfill, support, hang, or brace against movement as specified or shown on the Drawings, or as required for proper installation. Remove all dirt and foreign matter from the pipe interior prior to installation and thoroughly clean all joints before joining.
 4. Use reducing fittings where any change in pipe size occurs. Bushings shall not be used, unless specifically noted on the Drawings. Use eccentric reducing fittings wherever necessary to provide free drainage of lines.
 5. Connections between ferrous and non-ferrous metallic piping and accessories shall be made using a dielectric coupling, union, or flange.
- B. General Buried Piping Installation:
 1. Trenching, bedding, and backfill for buried piping shall be as shown on the Drawings and as specified in Section 310000.

2. Where no grade elevations are shown on the Drawings, buried piping shall have at least 3 feet of cover. Where pipe grade elevations are shown on the Drawings, install the pipe with straight grades between the indicated elevations.
 3. Provide each pipe with a firm, uniform bearing for its full length in the trench except at field joints. Do not lay pipe in water or when trench conditions or weather are unsuitable for such work.
 4. Protect buried piping against thrust by use of restrained pipe joints, or thrust blocks if shown on the Drawings. Securely brace all exposed free pipe ends. Cap or plug pipe ends that are left for future connections as shown on the Drawings and in a manner favorably reviewed by the Engineer.
 5. Do not pull bell and spigot, gasketed joints more than 75% of the maximum deflection permitted by the pipe manufacturer.
 6. Snake buried PVC pressure pipe from side to side in the trench in long sweeps.
- C. General Exposed Piping Installation:
1. Unless shown otherwise, install piping parallel to building lines, plumb and level.
 2. Install piping without springing or forcing the pipe in a manner that would set up stresses in the pipe, valves, or connected equipment.
 3. Set all pipe flanges level, plumb, and aligned. All flanged fittings shall be true and perpendicular to the axis of the pipe. All bolt holes in flanges shall straddle vertical centerline of pipes.
 4. Provide valves wherever equipment drain connections are furnished and carry the discharge pipe to the nearest floor drain, drain trench or sump.
- D. Water Main Installation:
1. The Contractor is advised that precautions taken to keep the pipeline clean during construction will facilitate achieving the disinfection requirements of this project with a minimum of effort and expense. Compliance with these suggested minimum procedures will not relieve the Contractor of the disinfection requirements.
 2. Prior to installation, thoroughly clean the interior of each length of pipe and each fitting or valve and inspect to ensure that no foreign material remains. Cover both ends with plastic and do not uncover them until just prior to completing the joint.
 3. Whenever pipe laying is discontinued for short periods, or whenever work is stopped at the end of the day, close the open ends of the pipe with watertight plugs or bulkheads.
 4. Provide adequate trench pumping to ensure against groundwater contacting the inside of the pipeline at any time. Do not lower any pipe or fitting into a trench where groundwater is present and may enter the pipe. When necessary, pump the water from trenches and keep the trench dry until the joints have been completed and the open ends of the pipe have been closed with a watertight plug. Do not remove the plug until the trench has again been pumped dry.
 5. Keep new pipe sections clean and dry.
 6. When making the connection between a new pipeline and an existing pipeline, or when repairing a damaged pipe, take the following extra precautions:
 - a. Clean the exterior of the existing pipeline of all dirt and debris, and spray or swab with a standard 5.25% or stronger chlorine solution (as specified) in the immediate vicinity of the work. Clean equipment and materials, including new pipe and fittings, to be used in making these connections of all dirt and debris and disinfect them. Allow at least 30 minutes contact time for disinfection before the chlorine solution is

diluted or rinsed off. Provide sufficient trench pumps to prevent flooding of the trench.

- b. When an old line is opened, either by accident or by design, the excavation may be wet or badly contaminated from groundwater. Apply liberal quantities of standard chlorine solution or tablets to the open trench areas to lessen the danger from such pollution. Tablets are recommended because they dissolve slowly and continue to release hypochlorite as water is pumped from the excavation. Scatter liberally around and locate the tablets so that flow entering the work site will contact the disinfecting agent. Trench application should be done very carefully to avoid contact by skin and clothing with chlorine solution. Minimally, safety dictates wearing safety goggles and rain gear.
- c. When excavating a leaking or broken pipeline, "valve-off" the system gradually to less than watertightness. This is to prevent causing areas of zero pressure which would allow entry of foreign material. A flow should be maintained which is slightly less than trench pump capability. Once the break is exposed and cleaned to disallow site contamination, the valving can then be made watertight.

E. Installation Specifics:

1. Ductile-Iron Pipe:

- a. Buried pipe shall be installed in accordance with AWWA C600.
- b. Flanged Joints: Flanged joints shall be made up tight with care being taken to avoid undue strain in the flanges, fittings, and other accessories. Bolt holes shall be aligned for each flanged joint. Bolts shall be full-size for bolt holes; use of undersize bolts to make up for misalignment of bolt holes or for any other purpose will not be permitted. Adjoining flange faces shall not be out of parallel to such a degree that the flanged joint cannot be made watertight without overstraining the flange. Replace any flanged pipe or fitting whose dimensions do not allow the making of a proper flanged joint as specified herein by one of proper dimensions. Clean flanges prior to making joints. Buried flanged pipe connections shall be made with the smallest practical "bell" hole. After the joint is completed, take special care to completely fill the "bell" hold under and around the pipe with compacted backfill.

2. CPVC:

- a. Place CPVC pipe within the installation areas at least 24 hours prior to installation to permit temperature equalization.
- b. Cut pipe ends squarely, ream and deburr inside and out, and bevel the ends.
- c. Solvent Weld Joints: Install in accordance with ASME B31.3. Make joints in accordance with ASTM D2855. Follow all of the pipe manufacturer's recommended steps. Handle cements and primers in accordance with ASTM F402.

3. PVC Pipe:

- a. Place PVC pipe within the installation areas at least 24 hours prior to installation to permit temperature equalization.
- b. Cut pipe ends squarely, ream and deburr inside and out.
- c. Solvent Weld Joints: Clean pipe ends and sockets and join in strict conformance with the pipe manufacturer's instructions. Make joints in

accordance with ASTM D2855. Handle solvent cements and primers in accordance with ASTM F402.

- d. Containment fittings for chemical and chemical solution lines shall be installed and tested in accordance with manufacturers' instructions. Install containment pipe with position clips at 3-foot centers and at fittings during installation of carrier pipe. Do not make joints until after successful leak tests of carrier pipes.
4. Polyethylene Tubing a Stainless Steel Tubing: Install in accordance with tube and fitting manufacturers' instructions
5. Galvanized Steel Pipe: Threaded joints shall have connections made metal to metal tight. All burrs shall be removed from ends of pipe, and threads shall be cleaned of all oil and chips. Male threads shall be coated with joint lubricant.
6. Polyvinyl Chloride Pipe: Installation shall conform to AWWA M23, Chapters 6 and 7, as modified herein.

3.02 COUPLING INSTALLATION

- A. Flexible Couplings and Flange Coupling Adaptors: Prior to installation, thoroughly clean oil, scale, rust, and dirt from the pipe to provide a clean seat for the gasket. Care shall be taken that the gaskets are wiped clean before they are installed. If necessary, flexible couplings and flanged coupling adapter gaskets may be lubricated with soapy water or manufacturer's standard lubricant before installation on the pipe ends. Install in accordance with the manufacturer's recommendations. Bolts shall be tightened progressively, drawing up bolt on opposite sides a little at a time until all bolts have a uniform tightness. Workers tightening bolts shall be equipped with torque-limiting wrenches or other favorably reviewed type. Anchor studs on restrained flanged coupling adapters shall be installed so as to lock into holes drilled through pipe wall in accordance with manufacturer's recommendation.
- B. Tie Rods: Except where double-nutting is required, install the nuts snug. Tighten the nuts gradually and equally at opposite sides of the pipe until snug to prevent misalignment and to ensure that all rods carry equal loads. If double-nutting is required, double-nut each end of each tie rod. The space between the pairs of nuts shall be ½-inch greater than the distance between the lugs. Provide double-nutting at buried locations and where otherwise required on the Drawings.

3.03 INSTALLATION OF VALVES AND ACCESSORIES

- A. Wrap buried valve bodies as specified for flexible couplings and flanged coupling adapters.
- B. Use reducing fittings where any change in pipe size occurs between valves or accessories and the attached pipeline. Bushings shall not be used, unless specifically noted on the Drawings. Use eccentric reducing fittings wherever necessary to provide free drainage of lines.

3.04 INSTALLATION OF TURBIDIMETER, CHLORINE ANALYZER AND SODIUM HYPOCHLORITE DOSING PUMPS

- A. Coordinate locations of each pump, turbidimeter, and analyzer with the owner.
- B. Securely mount each piece of equipment securely to the wall of the existing building, in a manner acceptable to the engineer.
- C. Connect potable water supplies to the chlorine analyzer and turbidimeter.

- D. Connect drain lines from the chlorine analyzer and turbidimeter to existing drains with an acceptable air gap.
- E. Connect dosing pump tubing to existing sodium hypochlorite tank as directed by the engineer.
- F. Connect turbidimeter to existing sc200 controller.
- G. Install and test each item of equipment as recommended by the manufacturer.

3.05 FIELD QUALITY CONTROL

- A. The Owner will:
 - 1. Inspect field welds and test the welds if it is deemed necessary.
 - 2. Perform bacteriological analysis for pipelines to be disinfected.
- B. Factory Quality Control: The Contractor shall test all products as required herein and by the reference specifications.
- C. The Contractor shall:
 - 1. Perform leakage tests.
 - 2. Be responsible for the costs of additional inspection and retesting by the *Owner* resulting from non-compliance.

3.06 CLEANING

- A. Prior to testing, the inside of each completed pipeline shall be thoroughly cleaned of all dirt, loose scale, sand and other foreign material. Cleaning shall be by sweeping, flushing with water internal cleaning device or "pig" or blowing with compressed air, as appropriate for the size and type of pipe. Flushing shall achieve a velocity of at least 3 feet per second. The Contractor shall install temporary strainers, temporarily disconnect equipment or take other appropriate measures to protect equipment while cleaning piping. Cleaning shall be completed after any pipeline repairs.

3.07 FIELD TESTING

- A. General: Perform leakage tests on all pipe installed in this project. Furnish all equipment, material, personnel, test media and supplies to perform the tests and make all taps and other necessary temporary connections. The test pressure, allowable leakage and test medium shall be as specified. Test pressure shall be measured at the highest point on the line, except that pressure at lowest point shall not exceed pipe manufacturer's rated test pressure, unless specifically noted otherwise. Perform leakage tests on all piping at a time agreed upon and in the presence of the Engineer.
- B. Buried Piping: Perform the leakage test for buried piping after all pipe is installed and backfilled. However, preliminary tests may be conducted prior to backfill. If preliminary tests are conducted, provide any necessary temporary thrust restraint.
- C. Accessories: It is the responsibility of the Contractor to block off or remove equipment, valves, gauges, etc., which are not designed to withstand the full test pressure.
- D. Testing Apparatus: Provide pipe taps, nozzles and connections as necessary in piping to permit testing including valves to isolate the new system, addition of test media, and draining lines and disposal of water, as is necessary. Plug these

openings in a manner favorably reviewed by the Engineer after use. Provide all required temporary bulkheads.

- E. Correction of Defects: If leakage exceeds the allowable, repair or replace the installation and repeat leakage tests as necessary until conformance to the leakage test requirements specified herein have been fulfilled. All visible leaks shall be repaired even if the pipeline passes the allowable leakage test.
- F. Reports: Keep records of each piping test, including:
 - 1. Description and identification of piping tested.
 - 2. Test pressure.
 - 3. Date of test.
 - 4. Witnessing by Contractor and Engineer.
 - 5. Test evaluation.
 - 6. Remarks, to include such items as:
 - a. Leaks (type, location).
 - b. Repairs made on leaks.
 - 7. Submit test reports to the Engineer.
- G. Venting: Where not shown on the Drawings, the Contractor may install valved "TEES" or corporation stops and saddles at high points on piping to permit venting of air. Valves shall be capped after testing is completed.
- H. Testing Specifics:
 - 1. Water Transmission Mains including PVC and ductile iron:
 - a. Method: AWWA C600, as modified herein.
 - b. Duration: Four hours.
 - c. Pressure: 150 psi measured at lowest point of section of pipeline being tested.
 - d. Medium: Potable water.
 - e. Allowable Leakage: Leakage shall be defined as the quantity of test medium that must be added to the section of pipeline being tested to maintain the specified test pressure for the specified test duration. Maximum allowable leakage shall be as specified in AWWA C600.
 - f. Presoaking for PCCP and WSP: Fill piping at least 4 hours before beginning test.
 - 2. Galvanized Steel:
 - a. Duration: Four hours.
 - b. Pressure: 150 psi.
 - c. Medium: Water.
 - d. Allowable Leakage: None.

3.08 DISINFECTION OF POTABLE WATER SYSTEMS

- A. Disinfect all water mains and interconnected piping after testing and before being placed into service to ensure their bacteriological safety. Disinfection shall be accomplished under the supervision of the Contractor by a person skilled and experienced in the operation of water systems. Following disinfection and flushing, the Owner will take water samples for bacteriological analysis of the water. If the specified bacteriological requirements are not satisfied, the disinfection procedure must be repeated until the requirements are met.
- B. Mains:
 - 1. Standard: AWWA C651 as amended herein.

2. Forms of Chlorine: Sodium hypochlorite or calcium hypochlorite.
 3. Method: Continuous-Feed.
- C. Small Pipelines (less than 4-inch):
1. Preparation: Provide the system with a 1-inch minimum service cock or valve or other means to inject chlorine solution at a point within 2 or 3 feet of its junction with the supply source. When system is complete thoroughly flush it by fully opening every outlet until clear water flows from all of them.
 2. Disinfecting Agent: Sodium hypochlorite or calcium hypochlorite in sufficient quantities to produce chlorine concentration of at least 50 parts per million in the system.
 3. Disinfecting Procedure:
 - a. Connect a hand-operated pump, or other means of injecting the disinfecting agent, to 1-inch minimum service cock or valve or other injection device. Pump must provide a pressure greater than that of supply of system.
 - b. With system completely full of water and supply valve open, proceed to adjust every outlet of system so that a trickle of water flows from each.
 - c. Inject disinfectant slowly and continuously at an even rate, not in slugs, until a test at each outlet shows a free chlorine residual concentration of at least 50 parts per million.
 - d. Close all outlets and valves, including valve connecting to supply line and 1-inch minimum service cock on solution injection connection. Maintain condition for 24 hours. After 24 hours, test for residual chlorine at each outlet. The free residual chlorine concentration indicated should be not less than 10 ppm. If the indicated free chlorine concentration is less than 10 ppm, the disinfection procedure must be repeated until an approved result is obtained.
 4. When the above procedure has been completed to the satisfaction of the Engineer, flush out entire system with fresh water until tests at all outlets show a residual of not more than 0.5 ppm.
- D. Chlorine Residual Testing: AWWA C651, Appendix A, DPD Drop Dilution Method, except where otherwise specified. Testing shall be performed by the Contractor.
- E. Bacteriological Analyses of Water: After the completion of disinfecting procedure, including the final flushing as described heretofore, the Engineer will obtain water samples from this system for bacteriological analyses. Requirements for satisfactory disinfection of water supply are that bacteriological analyses (Heterotrophic plate count) indicate that water samples are negative for coliformnerogenes organisms, and that total plate count is less than 100 bacteria per cubic centimeter. If bacteriological analyses do not satisfy the above requirements, then disinfection procedure must be repeated until these requirements are met.
- F. Disposal of Disinfection Solution: Dechlorinate and dispose of disinfection solution in accordance with applicable regulations and Section 011100. Take care to assure that chlorinated water is not spilled in drains.

END OF SECTION

SECTION 31 00 00

EARTHWORK

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Perform all excavation, shoring, dewatering, backfilling, compaction and grading necessary or required for the construction of the work as covered by these Specifications and indicated on the Drawings. The excavation shall include, without classification, the removal and disposal of all materials of whatever nature encountered, including water and all other obstructions that would interfere with the proper construction and completion of the required work.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM).
- B. State of California, Department of Transportation, Standard Specifications 2015 (Standard Specifications).
- C. State of California, Department of Transportation, Manual of Test (California Test).

1.03 SUBMITTALS

- A. Submit in accordance with Section 013300.
- B. Submit the following under the Product Review category.
 - 1. Sheeting and Shoring Plan: Refer to paragraph 1.08.
 - 2. Potholing Report as described in Paragraph 3.02.
 - 3. Test Results: Submit test results for import materials. Tests shall be performed within 60 days of the submission. All material furnished and all work performed shall be subject to rigid inspection, and no material shall be delivered to the site until it has been favorably reviewed by the Engineer, or used in the construction work until it has been inspected in the field by the Engineer.

1.04 QUALITY ASSURANCE

- A. Source Quality Control: Test import materials proposed for use to demonstrate that the materials conform to the specified requirements. Tests shall be performed by an independent testing laboratory.
- B. Field Quality Control:
 - 1. The Engineer will:
 - a. Review materials proposed for use.
 - b. Observe foundations, site grading and borrow operations.
 - c. Observe placement and compaction of fill.
 - d. Review results of independent testing laboratory tests.
 - 2. The Contractor shall hire an independent laboratory approved by the Engineer to perform the following tasks:
 - a. Test materials proposed for use and submit results to the Engineer.

- b. Test soils during placement of fill as directed by the Engineer and submit results to the Engineer.
- 3. Contractor shall:
 - a. Excavate holes for in-place soil sampling.
 - b. Test soils during placement of fill to verify conformance with material requirements defined herein.
 - c. Be responsible for costs of additional inspection and re-testing resulting from non-compliance.

C. Testing Methods:

- 1. Specific Gravity: ASTM D854
- 2. Laboratory Compaction: ASTM D1557, Method A or C.
- 3. In-place Density: ASTM D1556 or ASTM D2922.
- 4. Particle Size Analysis of Soils: ASTM D422.
- 5. Plastic Limit and Plasticity Index: ASTM D4318.
- 6. Soil Classification: ASTM D2487.
- 7. In-place Moisture Content: ASTM D3017.

D. Definitions

- 1. Relative Compaction: In-place density divided by the maximum dry density laboratory compaction expressed as percentage.
- 2. Rock Excavation: Excavation of solid ledge rock that, in the opinion of the Engineer, requires for its removal drilling and blasting, wedging, sledging, barring or breaking up with power-operated tools. The term "Rock Excavation" indicates a method of removal and not a geological formation.

1.05 EXPLOSIVES

- A. Do not use explosives unless specifically authorized, in writing, by the Engineer.

1.06 SUBSURFACE INVESTIGATIONS

- A. No geotechnical investigations for design purposes for this project were made
- B. The bidders may make additional subsurface investigations at the site prior to the bidding of the project. Prior to making any drillings or excavations, the bidder shall secure permission from the Owner.

1.07 REFERENCE SPECIFICATIONS

- A. Whenever the words "Standard Specifications" are referred to, the reference is to the State of California, Department of Transportation, Standard Specifications 2015 edition.

1.08 ADDITIONAL SAFETY RESPONSIBILITIES

- A. The Contractor shall select, install and maintain shoring, sheeting, bracing, and sloping as necessary to maintain safe excavations. The Contractor shall be responsible for ensuring such measures: (1) comply fully with 29 CFR Part 1926 OSHA Subpart P Excavations and Trenches requirements, (2) provide necessary support to the sides of excavations, (3) provide safe access to the Engineer's sampling and testing within the excavation, (4) provide safe access for backfill,

compaction, and compaction testings, and (5) otherwise maintain excavations in a safe manner that shall not endanger property, life, health, or the project schedule. All earthwork shall be performed in strict accordance with applicable law, including local ordinances, applicable OSHA, CalOSHA, California Civil Code, and California Department of Industrial Safety requirements.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Crushed Rock: Class 2, 3/4-inch maximum aggregate base, Standard Specifications Section 26.
- B. Pipe Bedding Materials:
 - 1. Sand: Standard Specifications, Paragraph 19-3.025B.
 - 2. Permeable Material: Standard Specifications, Paragraph 68-1.025 Class I, Type A.
 - 3. Pea Gravel: River-run, rounded pea gravel with a maximum dimension no larger than 1/2-inch, and with no more than 10% passing the No. 200 sieve. The material shall have a durability index of 40 or higher.
- C. Imported Backfill: Imported nonexpansive soil with liquid limit no greater than 40% and a plasticity index no greater than 15%, free from clods or rocks larger than 2 inches in greatest dimension, and free from organic material.
- D. Native Backfill: Native soil prepared as necessary to be free from clods or rocks larger than 2 inches in greatest dimension, and free from organic material.
- E. Water: The water used shall be reasonably free of objectionable quantities of silt, oil, organic matter, alkali, salts and other impurities. Water quality must be acceptable to the Engineer.
- F. Warning Tape: 3-inch-wide, inert, fade-resistant plastic film resistant to acids, alkalis, and other components likely to be encountered in soil. Tape shall be blue, imprinted with "CAUTION WATER MAIN BELOW", REEF Industries Terra Tape; equivalent product by Seton; or approved equal.

PART 3 - EXECUTION

3.01 CONTROL OF WATER

- A. All excavations shall be kept free from water and all construction shall be in the dry.
 - 1. It should be presumed the presence of groundwater will require dewatering operations. Furnish, install, maintain, and operate all necessary pumping and other equipment for dewatering all excavations. At all times have on the project sufficient pumping equipment for immediate use, including standby pumps for use in case other pumps become inoperable.
 - 2. Provide a sufficient number of pumps so as to hold the groundwater level at an elevation of not less than 1 foot below the lowest elevation of the pipe, duct or other material to be placed.
 - 3. Dispose of water in such a manner as to cause no injury or nuisance to public or private property, or be a menace to the public health.

4. The dewatering operation shall be continuous, so that the excavated areas shall be kept free from water during construction, while concrete is setting and achieves full strength, and until backfill has been placed to a sufficient height to anchor the work against possible flotation.
 5. Continue dewatering during backfilling operations such that the groundwater is at least 1 foot below the level of the compaction effort at all times. No compaction of saturated materials will be allowed.
 6. Dewatering devices must be adequately filtered to prevent the removal of fines from the soil.
 7. The Contractor shall be responsible for any damage to the foundations or any other parts of existing structures or of the new work caused by failure of any part of the Contractor's protective works. After temporary protective works are no longer needed for dewatering purposes, they shall be removed by the Contractor.
 8. Dispose of any dewatered water to the onsite infiltration basin.
- B. The Contractor shall be responsible for furnishing temporary drainage facilities to convey and dispose of surface water falling on or passing over the site.

3.02 EXISTING UTILITIES

- A. General: Known existing utilities and pipelines are shown on the Drawings in their approximate location. The Contractor shall exercise care in avoiding damage to all utilities as he will be held responsible for their repair if damaged. There is no guarantee all utilities or obstructions are shown, or locations indicated are accurate. Utilities include piping, conduits, wire, cable, ducts, manholes, pull boxes and the like, located at the project site.
- B. Check on Locations (Potholing): Contact all affected utility owners and request them to locate their respective utilities prior to the start of "potholing" procedures. The utility owner shall be given 7 days written notice prior to commencing potholing. If a utility owner is not equipped to locate its utility, the Contractor shall locate it.
- C. Clearly paint the location of all affected utility underground pipes, conduits and other utilities on the pavement or identify the location with suitable markers if not on pavement. In addition to the location of metallic pipes and conduits, non-metallic pipe, ducts and conduits shall also be similarly located using surface indicators and detection tape if present and shall then be similarly marked.
- D. After the utility survey is completed, commence "potholing" to determine the actual location and elevation of all utilities where crossings, interferences, or connections to new pipelines or other facilities are shown on the Drawings, marked by the utility companies, or indicated by surface signs. Prior to the preparation of piping shop drawings, or the excavating for any new pipelines or structures, the Contractor shall locate and uncover these existing utilities to a point 1 foot below the utility. Submit a report identifying each underground utility and its depth and location. Any variation in the actual elevations and the indicated elevations shall be brought to the Engineer's attention.
- E. Excavations around underground electrical ducts and conduits shall be performed using extreme caution to prevent injury to workmen or damage to electrical ducts or

conduits. Similar precautions shall be exercised around gas lines, telephone and television cables. Backfill after completing potholing.

- F. Interferences: If interferences occur at locations other than shown on the Drawings, the Contractor shall notify the Engineer, and a method for correcting said interferences shall be supplied by the Engineer. Payment for interferences that are not shown on the plans, nor which may be inferred from surface indications, shall be in accordance with the provisions of the General Conditions, Article 11. If the Contractor does not expose all required utilities prior to shop drawing preparation, he shall not be entitled to additional compensation for work necessary to avoid interferences, nor for repair to damaged utilities.
- G. Any necessary relocations of utilities, whether shown on the Drawings or not, shall be coordinated with the affected utility. The Contractor shall perform the relocation only if instructed to do so in writing from the utility and the Engineer.
- H. Shutdowns: Planned utility service shutdowns shall be accomplished during period of minimum use. In some cases this may require night or weekend work. Such work shall be at no additional cost to the Owner. Program work so that service will be restored in the minimum possible time, and shall cooperate with the utility companies in reducing shutdowns of utility systems to a minimum.
 - 1. Disconnections: No utility shall be disconnected without prior written approval from the utility owner. When it is necessary to disconnect a utility, the Contractor shall give the utility owner not less than 72 hours notice when requesting written approval. The Contractor shall program his work so that service will be restored in the minimum possible time.
- I. Overhead Facilities: There are existing overhead electric and telephone transmission lines at the site. These overhead utilities are not shown on the Drawings. Extreme caution shall be used when working in the vicinity of overhead utilities so as to prevent injury to workmen or damage to the utilities. The Contractor shall be required to comply with the applicable provisions of the California Construction Safety Orders when working anywhere on this project.

3.03 GENERAL CONSTRUCTION REQUIREMENTS

- A. Site Access: Access to the site will be over public and private roads. Exercise care in the use of such roads and repair at own expense any damage thereto caused by Contractor's operations. Such repair shall be to the satisfaction of the Owner or agency having jurisdiction over the road. Take whatever means are necessary to prevent tracking of mud onto existing roads and shall keep roads free of debris.
- B. Barriers: Barriers shall be placed at each end of all excavations and at such places along excavations as may be necessary to warn all pedestrian and vehicular traffic of such excavations.
- C. Demolition of Pavement: Where trenching or excavation occurs in paved areas, the pavement shall be scored and broken ahead of the trenching or excavation operation. The extent of paving removed shall be limited to the minimum necessary for the excavation.

- D. Dust Control: Take proper steps to control dust. The Engineer shall determine if sufficient dust control measures are being implemented.
- E. Storage of Materials: Neatly place excavated materials far enough from the excavation to prevent stability problems. Keep the materials shaped so as to cause the least possible interference with plant operations and drainage.
- F. Existing Facilities: Maintain access to existing facilities to permit continued operation. Maintain access for fire fighting equipment and to fire hydrants.

3.04 COMPACTION

- A. Add water to the backfill material or dry the material as necessary to obtain moisture content within 2% of optimum. Employ such means as may be necessary to secure a uniform moisture content throughout the material of each layer being compacted.
- B. After the material has been moisture conditioned, compact it with compaction equipment appropriate for the use to achieve specified compaction.
- C. If the backfill material becomes saturated from rains or any other source because it was not compacted to the specified density or was not backfilled and compacted to surface grade, through negligence or otherwise, remove the faulty material and replace it with suitable material compacted to the specified density. No additional payment will be made for doing such work or removal and replacement.
- D. Compaction of embankment and backfill materials by flooding, ponding or jetting is not permitted.
- E. When densities of compacted materials do not meet the requirements, remove and/or recompact the material until the requirements are met. The Contractor will be backcharged the cost of retesting all failing tests, including the initial retest. Such backcharges will be deducted from the Contractor's Progress Payments.
- F. Material Requirements
 - 1. Pipe Bedding Material: Compact to a minimum 90 percent of maximum density, in accordance with AASHTO T-99 unless otherwise specified or shown on the Drawings.
 - 2. Pipe Zone Material: Compact by hand methods under the haunches of the pipe and in areas not accessible to mechanical tampers unless otherwise specified or shown on the Drawings.
 - 3. Imported Backfill: Compact to a minimum 95 percent of maximum density, in accordance with AASHTO T-99 unless otherwise specified or shown on the Drawings.
 - 4. Native Backfill: Compact to a minimum 90 percent of maximum density, in accordance with AASHTO T-99 unless otherwise specified or shown on the Drawings.
 - 5. Foundation Stabilization: Compact to a minimum 95 percent of maximum density, in accordance with AASHTO T-99 unless otherwise specified or shown on the Drawings.

6. Structural Fill: Compact to a minimum 95 percent of maximum density, in accordance with AASHTO T-99 unless otherwise specified or shown on the Drawings.

G. Testing Frequency:

- a. Trench Backfill: Test every 200 feet of trench.
- b. Earthwork: Test every 500 square feet for each 2 feet of fill.
- c. Structural Backfill:
 - 1) Sub-base: Test every 200 square feet.
 - 2) Base:
 - i. Test every 200 square feet of building footprint, with no less than 2 tests per structure.
 - ii. Test every 200 cubic yards of material placed within 10 feet around the building.

3.05 TRENCH EXCAVATION

- A. Excavation for pipe and other utilities such as duct banks shall be in open cut. The trench shall be as wide as necessary for sheeting and bracing and the proper performance of the work up to the maximum width permitted by the typical cross-sections shown on the Drawings. The bottom of the trench shall be constructed to the grades and shapes indicated on the Drawings. Should the Contractor desire to use other equivalent methods, he shall submit his method of construction to the Engineer for favorable review prior to its use.
- B. Take care not to overexcavate. Accurately grade the bottom of the trenches to provide uniform bearing and support for each section of the pipe or conduit at every point along its entire length, except for the portions of the pipe sections where it is necessary to excavate for bell holes and for the proper sealing of pipe joints, and as hereinafter specified. Dig bell holes and depressions for joints after the trench bottom has been graded. In order to rest the pipe on the bedding for as nearly its full length as practicable, bell holes and depressions shall be only of such length, depth and width as required for properly making the joint. Remove stones as necessary to avoid point bearing.
- C. Backfill and compact overexcavations in accordance with the requirements of Section 3.04. There shall be no additional payment to the Contractor for over-excavations not directed by the Engineer. Remove unsatisfactory material encountered below the grades shown as directed by the Engineer and replace with bedding material. Payment for removal and replacement of such unsatisfactory material directed by the Engineer shall be made in accordance with the provisions of the General Conditions.
- D. Grade trenches so that they are uniformly sloped between the pipe elevations shown on the Drawings. If no elevations are shown on the Drawings, provide 3 feet of minimum cover. Comply with the minimum and maximum trench widths shown on the Drawings. Notify the Engineer if the trench width exceeds the maximum allowable width for any reason.
- E. For all piping or conduits to be placed in any excavated and backfilled area, such as at vaults, or for building connections, the backfill shall be first compacted to a level at least 3 feet from the top of the piping or conduit elevation and then retrenched to pipe grade.

- F. Provide ladders for access to the trench by construction and inspection personnel.

3.06 EXCAVATION FOR STRUCTURES

- A. All excavation for structures shall be done to the dimensions and levels indicated on the Drawings or specified herein. Excavate to such width outside the lines of the structure to be constructed as may be required for proper working methods, the erection of forms and the protection of the work.
- B. Take care to preserve existing foundation surfaces in an undisturbed condition. If the Contractor overexcavates or disturbs the foundation, without written authorization of the Engineer, he shall replace such foundations with concrete fill or other material approved by the Engineer in a manner that will show by test an equal bearing value with the undisturbed foundation material. No additional payment will be made for the added quantity of concrete fill or other material used because of overexcavation.
- C. Inspection of Excavation: Notify the Engineer when excavation for the structure is complete. No forms, reinforcing steel, concrete, or precast structure shall be placed until the excavation has been inspected by the Engineer.
- D. Where unsatisfactory material is encountered below the grades shown for structural excavations, it shall be removed and replaced with crushed rock as directed by the Engineer and compacted. Payment for removal and replacement of such unsatisfactory material directed by the Engineer shall be made in accordance with the provisions of the General Conditions.

3.07 SUPPORT OF EXCAVATIONS

- A. Adequately support excavation for trenches and structures to meet all applicable requirements in the current rules, orders and regulations. Excavation shall be adequately shored, braced and sheeted so that the earth will not slide or settle and so that all existing structures and all new pipe and structures will be fully protected from damage. Keep vehicles, equipment, and materials far enough from the excavation to prevent instability.
- B. Take all necessary measures to protect excavations and adjacent improvements from running, caving, boiling, settling, or sliding soil. Attention is directed to Section 832 of the Civil Code of the State of California relating to lateral subadjacent supports, and wherever structures or improvements adjacent to the excavation may be damaged by such excavation, the Contractor shall comply with this law.
- C. The support for excavation shall remain in place until the pipeline or structure has been completed. During the backfilling of the pipeline or structure, the shoring, sheeting and bracing shall be carefully removed so that there shall be no voids created and no caving, lateral movement or flowing of the subsoils.

3.08 TRENCH BACKFILL

- A. Place bedding and backfill materials true to the lines, grades, and cross-sections indicated on the Drawings and compacted to the degree specified on the Drawings.

Place bedding and backfill materials in horizontal lifts not to exceed 6 inches in thickness measured before compaction. The difference in level on either side of a pipe shall not to exceed 4 inches.

- B. Backfill material shall not be placed over the pipe or conduit until after the joints have been completed and inspected by the Engineer.
- C. It shall be incumbent upon the Contractor to protect the pipe or conduit from damage during the construction period. It shall be his responsibility to repair broken or damaged pipe at no extra cost to the Owner. Carefully place backfill around and over the pipe. Tamping of backfill over the pipe shall be done with tampers, vibratory rollers and other machines that will not injure or disturb the pipe.
- D. Do not allow construction traffic over the pipe trench until the trench backfill has been brought back even with existing adjacent grade.

3.09 STRUCTURAL BACKFILL

- A. Crushed Rock Subgrade: Place a layer of rock, compacted in accordance with the requirements of Section 3.04, under structures to the lines, grades and minimum thicknesses shown on the Drawings. Unless shown specifically otherwise in the Drawings, do not use rock as backfill above the elevation of the highest base slab of the structure.
- B. Backfill Adjacent to Structures:
 - 1. Backfill shall be native backfill compacted in accordance with the requirements of Section 3.04 unless otherwise specified or shown on the Drawings.
 - 2. Do not place backfill against structures until the concrete has been patched and cured.
 - 3. Do not place backfill against structures until at least 28 days after the concrete was placed, or until the concrete has achieved a strength of at least 2,500 psi, whichever is earlier.
 - 4. Place backfill in uniform, level layers, not exceeding 8 inches thick measured before compaction. Bring backfill up uniformly on all sides of the structure, and on both sides of buried walls.

3.10 FINISH GRADING

- A. Except where shown otherwise in the Drawings, restore the finish grade to the original contours and to the original drainage patterns. Grade surfaces to drain away from structures. The finished surfaces shall be smooth and compacted.

3.11 DISPOSAL OF EXCAVATED MATERIAL

- A. Dispose of unsuitable material or excavated material in excess of that needed for backfill or fill offsite in accordance with the requirements of Section 013100.

END OF SECTION

SECTION 31 10 00

SITE CLEARING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Site preparation shall consist of all clearing, grubbing, stripping, and related work necessary to prepare the project site for construction operations.
 - 2. No open burning of debris, lumber, or other scrap will be permitted.
 - 3. Trees and vegetation to be left standing shall be protected from damage incident to site preparation and construction operations by the erection of barriers or by such other means as the circumstances require.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

3.01 CLEARING

- A. Clearing shall consist of the felling, trimming and cutting of trees, and the removal of downed timber, shrubs, grasses, debris and rubble from the project site which will obstruct or otherwise impede construction operations.

3.02 GRUBBING

- A. Grubbing shall consist of the removal and disposal of stumps, roots larger than 3 inches in diameter, and matted roots from the construction area. This material, together with logs and other organic debris, shall be excavated and removed to a depth of not less than 18 inches below the original surface level of the ground in areas indicated as construction areas under this Contract, such as areas for structures, pavement, fills. Depressions made by grubbing shall be filled with structural backfill material and compacted to make the surface conform with the original adjacent surface of the ground, unless further excavation is required. Grub borrow areas to the extent necessary to obtain material free of stumps and roots.

3.03 STRIPPING

- A. Strip the upper 6 inches of soil containing vegetation and root matter from all areas to receive fill and from all areas to be excavated.

3.04 DISPOSAL

- A. Strippings: Stockpile stripped material and use it to restore the site.
- B. Dispose of remaining vegetation and debris in a legal manner.

END OF SECTION

SECTION 32 31 13

CHAIN LINK FENCE AND GATES

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes materials applicable for commercial/industrial and security chain link fence and gates.
 - 1. Galvanized steel coated chain link fabric
 - 2. Galvanized steel framework and fittings
 - 3. Swing gate
 - 4. Installation

1.02 REFERENCES

- A. ASTM A392 Specification for Zinc-Coated Steel Chain-Link Fence Fabric
- B. ASTM A491 Specification for Aluminum-Coated Steel Chain-Link Fabric
- C. ASTM A780 Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
- D. ASTM A824 Specification for Metallic-Coated Steel Marcellled Tension Wire for Use with Chain Link
- E. ASTM F552 Standard Terminology Relating to Chain Link Fencing
- F. ASTM F567 Standard Practice for Installation of Chain Link Fence
- G. ASTM F626 Specification for Fence Fittings
- H. ASTM F668 Specification for Polymer Coated Chain Link Fence Fabric
- I. ASTM F900 Specification for Industrial and Commercial Swing Gates
- J. ASTM F934 Specification for Standard Colors for Polymer-Coated Chain Link
- K. ASTM F1043 Specification for Strength and Protective Coatings of Metal Industrial Chain Link Fence Framework
- L. ASTM F1083 Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures
- M. ASTM F1345 Specification for Zinc-5% Aluminum-Mischmetal Alloy-Coated Steel Chain-Link Fence Fabric
- N. ASTM F1664 Specification for Poly (Vinyl Chloride) (PVC) and Other Conforming Organic Polymer-Coated Steel Tension Wire Used with Chain-Link Fence

1.03 SUBMITTALS

- A. Submit in accordance with Section 013300.
- B. Product Data:
 - 1. Shop drawings, including:
 - a. Site plan showing layout of fence with dimensions.
 - b. Locations of gates and opening size.
 - c. Elevation of fence and gates.
 - d. Details of attachments and footings.
 - 2. Certifications, including:
 - a. Manufacturer's material certifications in compliance with current ASTM specifications.

1.04 QUALITY ASSURANCE

- A. Provide products of a manufacturer who has been regularly engaged in the design and manufacture chain link fence products with at least 5 years experience.
- B. Fence contractor: Company with demonstrated successful experience installing similar projects and products in accordance with ASTM F567 and have at least 5 years experience.
- C. Tolerances: Current published edition of ASTM specifications tolerances apply. ASTM specification tolerances supersede any conflicting tolerance.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver products to site per contract requirements.
- B. Storage: Store and protect products off the ground.

PART 2 - PRODUCTS

2.01 CHAIN LINK FABRIC

- A. Steel Chain Link Fabric: 2-inch mesh, 9 gauge, 84 inches high per ASTM A392, knuckle selvage top and twist selvage bottom.

2.02 STEEL FENCE FRAMEWORK

- A. Round steel pipe and rail: ASTM F1043 Group IA Heavy Industrial Fence Framework, schedule 40 Regular Grade galvanized pipe per ASTM F1083. Exterior hot dipped zinc coating minimum average 1.8 oz./ft², interior hot dipped zinc coating minimum average 1.8 oz./ft².
 - 1. Line post: 2 7/8-inch O.D., 5.80 lb./ft.
 - 2. End/Corner/Terminal post: 2 7/8-inch O.D., 5.80 lb./ft.
 - 3. Top, brace, bottom, and intermediate rails: 1 5/8-inch O.D., 2.27 lb./ft.

2.03 TENSION WIRE

- A. Metallic Coated Steel Marcellled Tension Wire: 7 gauge (0.177 in.) marcellled wire complying with ASTM A824.
 - 1. Type I Aluminum-Coated (Aluminized) 0.40 oz./ft².

2.04 FITTINGS

- A. Tension and Brace Bands: Galvanized pressed steel complying with ASTM F626, minimum steel thickness of 12 gauge (0.105 in.), minimum width of 3/4 in. and minimum zinc coating of 1.20 oz./ft².
- B. Terminal Post Caps, Line Post Loop Tops, Rail and Brace Ends, Boulevard Clamps, Rail Sleeves: In compliance to ASTM F626, pressed steel galvanized after fabrication having a minimum zinc coating of 1.20 oz./ft².
- C. Truss Rod Assembly: In compliance with ASTM F626, 3/8 in. diameter steel truss rod with a pressed steel tightener, minimum zinc coating of 1.2 oz./ft², assembly capable of withstanding a tension of 2,000 lbs.
- D. Tension Bars: In compliance with ASTM F626. Galvanized steel one-piece length 2 in. less than the fabric height. Minimum zinc coating 1.2 oz. /ft².
 - 1. Bars for 2-inch mesh shall have a minimum cross section of 3/16 in. by 3/4 in.

2.05 TIE WIRE AND HOG RINGS

- A. Tie wire and hog rings per ASTM F626.

2.06 SWING GATES

- A. Swing Gates: single opening 4 ft. by 7 ft. high. Galvanized steel welded fabrication in compliance with ASTM F900. Gate frame members 1.660 in. O.D. Frame members spaced no greater than 8 ft. apart vertically and horizontally. Welded joints protected by applying zinc-rich paint in accordance with ASTM A780. Positive locking gate latch fabricated of 5/16 in. thick by 1 3/4 in. pressed steel galvanized after fabrication. Galvanized malleable iron or heavy gauge pressed steel post and frame hinges. Match gate fabric to that of the fence system.

2.07 SLATS

- A. Privacy Slats: Plastic fencing slats manufactured from 97 percent recycled plastic containing 97 percent post-consumer recycled plastic, green in color.

2.08 CONCRETE

- A. Concrete for post footings shall have a minimum 28-day compressive strength of 2,500 psi.

PART 3 - EXECUTION

3.01 CLEARING FENCE LINE

- A. Surveying, clearing, grubbing, grading, and removal of debris for the fence line or any required clear areas adjacent to the fence is included in the earthwork contractor's contract under the provisions of Specifications Section 310000.

3.02 FRAMEWORK INSTALLATION

- A. Posts: Posts shall be set in 3 1/2 in. O.D. galvanized steel post casing to permit removal of fence posts by lifting. Post casing shall be set plumb in concrete footings in accordance with ASTM F567. Minimum footing depth, 36 in.
- B. Top Rail: The rail shall be secured to the terminal post by a brace band and rail end. Bottom rail or intermediate rail shall be field cut and secured to the line posts using boulevard bands or rail ends and brace bands.
- C. Terminal Posts: End, corner, pull and gate posts shall be braced and trussed. The horizontal brace rail and diagonal truss rod shall be installed in accordance with ASTM F567.
- D. Tension Wire: Shall be installed 4 in. up from the bottom of the fabric. Fences without top rail shall have a tension wire installed 4 in. down from the top of the fabric. Tension wire to be stretched taut, independently and prior to the fabric, between the terminal posts and secured to the terminal post using a brace band. Secure the tension wire to the chain link fabric with a 9 gauge hog rings 18 in. on center and to each line post with a tie wire.

3.03 CHAIN LINK FABRIC INSTALLATION

- A. Chain Link Fabric: Install fabric to outside of the framework. Attach fabric to the terminal post by threading the tension bar through the fabric; secure the tension bar to the terminal post with tension bands and 5/16 in. carriage bolts spaced no greater than 12 in. on center. Chain link fabric to be stretched taut free of sag. Fabric to be secured to the line post with tie wires spaced no greater than 12 in. on center and to rail spaced no greater than 18 in. on center. Secure fabric to the tension wire with hog rings spaced no greater than 18 in. apart. Pre-formed 9 gauge galvanized steel power-fastened tie wire shall be wrapped 360 degrees around the post or rail and fabric picket, twist the two wire ends together three full turns per ASTM F567. Excess wire shall be cut off and bent over to prevent injury. The installed fabric shall have a ground clearance on no more than 2 in.

3.04 GATE INSTALLATION

- A. Swing Gates: Installation of swing gates and gateposts in compliance with ASTM F567. Direction of swing shall be outward. Gates shall be plumb in the closed position having a bottom clearance of 3 in. grade permitting. Hinge and latch offset opening space from the gate frame to the post shall be no greater than 3 in. in the closed position.

3.05 NUTS AND BOLTS

- A. Bolts: Carriage bolts used for fittings shall be installed with the head on the secure side of the fence. All bolts shall be peened over to prevent removal of the nut.

3.06 ELECTRICAL GROUNDING

- A. Grounding: Grounding of the fence and gates is not required.

3.07 CLEAN UP

- A. Clean Up: The area of the fence line shall be left neat and free of any debris caused by the installation of the fence.

END OF SECTION

SECTION 33 11 37

SUBMERSIBLE VERTICAL TURBINE WELL PUMPS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Furnish complete, tested and operating, the equipment as shown on the Drawings, and as specified herein.
- B. Work Included in This Section:
 - 1. Submersible vertical turbine type pump assembly for installation in a well casing complete with electric submersible motor, power cable, intake screen, pump bowls, column, discharge head and pump appurtenances as shown on the Drawings and specified herein.

1.02 SUBMITTALS

- A. Shop Drawings: Submit Shop Drawings in the Product Review category for favorable review of the Pumps. Include sufficient data to show equipment conforms to Specification requirements, including prototype pump performance curves and motor data. Submit all items of equipment in a complete initial package.
- B. Performance Testing: Certified non-witnessed factory performance tests in accordance with Hydraulics Institute Standards are required for the pump. Obtain favorable review from the Engineer prior to shipment of the pumps.
- C. Manuals: Furnish manufacturer's installation, lubrication, operation and maintenance manuals, bulletins, and parts lists.
- D. Affidavits: Furnish affidavits from the manufacturer stating that the equipment has been properly installed, adjusted and tested and is ready for full time operation.

1.03 QUALITY ASSURANCE

- A. All equipment furnished under this Section shall: (1) be of a single manufacturer who has been regularly engaged in the design and manufacture of the equipment for at least five years; and (2) be demonstrated to the satisfaction of the Owner the quality is equal to equipment made by those manufacturers specifically named herein.
- B. All pumps furnished under this Specification Section shall be of a single pump manufacturer.

1.04 SEISMIC CERTIFICATION

- A. Seismic anchorage certifications and descriptions shall not be required.

PART 2 - PRODUCTS

2.01 SUBMERSIBLE TURBINE TYPE PUMPS

A. General: Provide a submersible vertical turbine type pump for this project.

B. Pump Schedule: The required pump characteristics shall be as follows:

Shallow Aquifer Well Pump	
Design Operating Point	100 gpm @ 262 ft TDH
Maximum Operating Point	200 gpm @ 145 ft TDH ± 20 ft
Minimum Operating Point	20 gpm @ 330 ft TDH ± 20 ft
Speed	3450 rpm
Maximum Motor Horsepower	15 HP
Minimum Pump Efficiency	
@ Design Operating Point	68 Percent
Motor Data (speed/phase/volts)	3450, 3 phase, 480v
Minimum Motor Efficiency	82%

C. Pump Types:

1. All pumps shall be liquid lubricated submersible vertical turbine type pumps including bowl assembly, column, line shaft and guides, pump suction barrel, well seal, discharge head and submersible electric motor.
2. Manufacturers:
 - a. Manufacturer – Grundfos 150S150-6, or approved equal

D. Pump Construction:

1. Bowl Assembly:
 - a. Provide pump bowls of 304 stainless steel.
 - b. The impeller shaft shall be of Type 416 stainless steel (not less than 12% chrome content) and shall be supported by bronze and/or neoprene bearings located on both sides of each impeller.
 - c. The impellers shall be of the enclosed type and shall be of bronze, of heavy construction, accurately fitted, statically and dynamically balanced. The impellers shall be preadjusted at the factory.
2. Discharge Column Assembly:
 - a. The total length of the discharge column shall be as shown on the Drawings. The pipe shall be furnished in interchangeable sections and shall be connected with threaded sleeve type couplings.
 - b. The line shafting shall be Type 416 stainless steel.
 - c. The line shaft bearing assembly shall be bronze and/or neoprene. The maximum bearing span shall be 5 feet.
3. Discharge Head: Cast iron or fabricated steel consisting of a discharge tee having above ground flanged end discharge outlet for connections to flanged pipe, as specified in Section 221100, and as shown on the Drawings. Provide base plate machined for sanitary well seal. Pump packing and water seal shall be suitable for clean water use, as recommended by the pump manufacturer.

E. Motors: Provide vertical motor for submerged service. Motors shall be non-overloading throughout the pump's operating range. Motors for adjustable speed

pumps shall be suitable for operation with an adjustable frequency controller as specified on the Drawings over the specified speed range.

- F. Data Plates: Mount a data plate on each pump unit. Data plates shall contain the manufacturer's name, pump size and type, serial number, speed, impeller diameter, capacity and head rating, and other pertinent data. Attach a special data plate to the pump frame that contains identification of frame and bearing numbers.
- G. Special Tools: Furnish a full set of manufacturer's special tools that are necessary for the replacement of parts and the adjustment of the equipment.

2.02 PUMP CONTROLS

- A. Control of the pumps shall be as specified on the Drawings.
- B. It is essential that the pumps provided are capable of complete and stable operation over the entire range of the pump curve, from maximum flow rate operating point all the way to shut off.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install equipment in strict conformance with manufacturer's installation instructions. Check pump and motor alignment according to the Standards of the Hydraulics Institute after pump and motor have been installed.

3.02 FIELD SERVICE

- A. The manufacturer shall provide a competent field service Engineer to thoroughly check and inspect the pumps after installation, place the pumps in operation and make necessary adjustments, and instruct plant personnel in proper operating and maintenance procedures.

3.03 FIELD TESTING

- A. Perform field testing, observed by the Engineer, to demonstrate that the installed pump equipment provides the hydraulic performance determined by factory tests and that the equipment runs smoothly and is free from excessive noise and vibrations. Hydraulic Institute vibration limits shall govern.

END OF SECTION

