



Request for Bids # 24-0201E

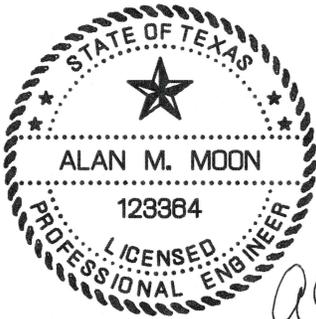
**Gulf Coast Canal
Claybar Siphon**

August 2024

Authority General Office
12777 Hwy. 87 N.
Orange, TX 77632
409.746.2192

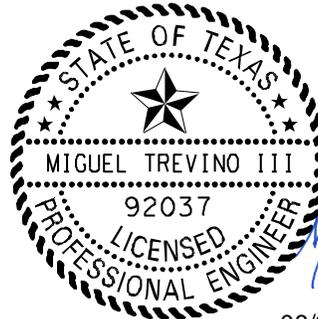
Gulf Coast Division
1922 IP Way
Orange, TX 77632
409.746.2111

CONTRACT DOCUMENTS AND SPECIFICATIONS
FOR CONSTRUCTION OF
GULF COAST CANAL CLAYBAR SIPHON REQUEST FOR BID # 24-0201E
FOR
SABINE RIVER AUTHORITY
IN
ORANGE COUNTY, TEXAS



Alan Moon
8/30/2024

FOR CIVIL ONLY
QUIDDITY ENGINEERING, LLC (F-23290)



Miguel Trevino III
08/30/2024

FOR STRUCTURAL ONLY
QUIDDITY ENGINEERING, LLC (F-23290)

AUGUST 2024
Quiddity Job No. 17314-0004-01



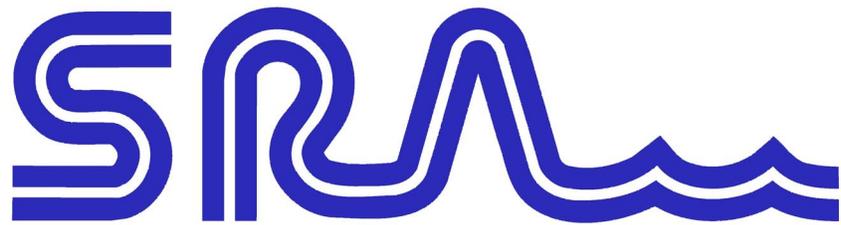


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NOTICE TO BIDDERS

Sabine River Authority of Texas Gulf Coast Canal – Claybar Siphon

General Notice

Sabine River Authority of Texas (Owner) is requesting Bids for the construction of the following Project:

Gulf Coast Canal – Claybar Siphon Project No. RRB 24-0201E

Sealed bids for the construction of the Project will be received **virtually** at **www.CivcastUSA.com**, until **October 9th, 2024 at 2:00 pm** local time. At that time the Bids received will be publicly opened and read at the Sabine River Authority's Gulf Coast Division Office, 12777 TX-87 Orange, TX 77632.

Bids must be submitted and received no later than the opening date and time specified above. Any Bid received later than the specified time will not be considered and will be returned unopened. The SRA is not responsible for ensuring the delivery of Bids to our offices. Bids shall be sealed and clearly marked, "Request for Bid – Gulf Coast Canal – Claybar Siphon".

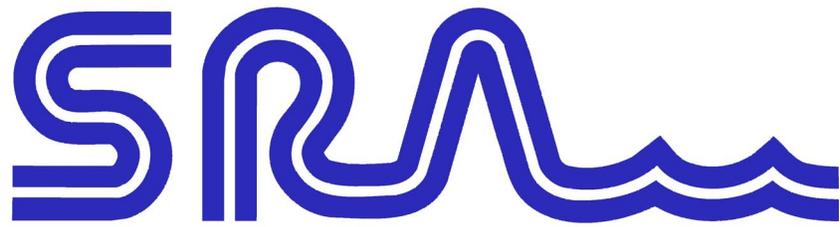
A **mandatory** Pre-Bid Conference between the SRA, prospective bidders, suppliers, etc. will be held on **Wednesday, October 2, 2024 at 2:00 pm** local time at the Sabine River Authority's Gulf Coast Division Office, 1922 IP Way, Orange, TX 77632 to make certain that the scope of work is fully understood. All interested parties are requested to attend.

The Sabine River Authority reserves the right to adopt the most advantageous interpretation of the bids submitted in the case of ambiguity or lack of clearness in stating proposal prices, to reject any or all bids, and/or waive any formalities.

Contract documents may be obtained by downloading (1) from www.sratx.org under doing business "bid opportunities" or (2) from CIVCAST USA Website. Hard copies of plans will not be made available for purchase.

Questions regarding contract documents may be sent via CIVCAST Website or emailed to purchasing@sratx.org.

Dates: September 19, 2024
September 26, 2024



INSTRUCTION to BIDDERS

ARTICLE 1—INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 2—DEFINED TERMS

- 2.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders (refer to the Notice to Bidders).

ARTICLE 3—BIDDING DOCUMENTS

- 3.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 3.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 3.03 Owner has established a Bidding Documents Website (CIVCAST USA) as indicated in the Notice to Bidders. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 3.04 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the notice to bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 3.05 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents, or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Bidding Documents Website or Issuing Office. Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.
- 3.06 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of

the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

ARTICLE 4—QUALIFICATIONS OF BIDDERS

- 4.01 Bidder is to submit the following information with its Bid to demonstrate Bidder's qualifications to perform the Work:
 - A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
 - B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
 - C. Bidder's state or other contractor license number, if applicable.
 - D. Subcontractor and Supplier qualification information.
 - E. Other required information regarding qualifications.
- 4.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 4.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

ARTICLE 5—PRE-BID CONFERENCE

- 5.01 A mandatory pre-bid conference will be held at the time and location indicated in the notice to bid. Representatives of Owner and Engineer will be present to discuss the Project. Proposals will not be accepted from Bidders who do not attend the conference. It is each Bidder's responsibility to sign in at the pre-bid conference to verify its participation. Bidders must sign in using the name of the organization that will be submitting a Bid. A list of qualified Bidders that attended the pre-bid conference are eligible to submit a Bid for this Project, will be made available upon request.
- 5.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions

at the pre-bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 6—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

6.01 *Site and Other Areas*

- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

6.02 *Existing Site Conditions*

A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
 - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner 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.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

6.03 *Site Visit and Testing by Bidders*

- A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
- B. Bidders visiting the Site are required to arrange their own transportation to the Site.
- C. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the following Owner or Engineer contact for visiting the Site: **David Williams – (409) 920-0430**. Bidder must conduct the required Site visit during normal working hours.
- D. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- E. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.
- F. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- G. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

6.04 *Owner's Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

6.05 *Other Work at the Site*

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 7—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

7.01 *Express Representations and Certifications in Bid Form, Agreement*

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should

review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.

- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 8—INTERPRETATIONS AND ADDENDA

- 8.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 8.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. All questions shall be received no later than 5 days prior to the bid opening date. Contact information and submittal procedures for such questions are as follows:
- A. **Questions shall be submitted via CIVCAST USA Website or purchasing@sratx.org.**
- 8.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 8.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 9—BID SECURITY

- 9.01 A Bid must be accompanied by Bid security made payable to Owner. Bidder must meet the following bid security requirements as set forth in Texas Water Code Chapter 49 Subchapter I. If the Bid proposal exceeds \$50,000 up to \$250,000, the Bidder must submit a bid security in the amount of at least two (2%) percent of the amount of the maximum total bid in the form of a certified or cashier's check on a responsible bank in the state. If the Bid exceeds \$250,000, the Bidder must submit a bid bond in the amount of five (5%) percent of the amount of the maximum total bid in the form of an approved Bidder's Bond underwritten by a surety authorized to conduct business in the State of Texas. The surety must also meet the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents
- 9.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.
- 9.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the

Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

- 9.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released after the Contract Award.

ARTICLE 10—CONTRACT TIMES

- 10.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.
- 10.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 11—SUBSTITUTE AND “OR EQUAL” ITEMS

- 11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or “or-equal” items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or “or-equal” item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.
- 11.02 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those “or-equal” or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an “or-equal” or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer prior to the pre-bid meeting. Each such request must comply with the requirements of Paragraphs 7.05 and 7.06 of the General Conditions, and the review of the request will be governed by the principles in those paragraphs. The burden of proof of the merit of the proposed item is upon Bidder. Engineer’s decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all registered Bidders. Bidders cannot rely upon approvals made in any other manner.
- 11.03 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 12—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 12.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective

Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

- 12.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work with the qualifications statement or within 5 days of Owner's request.
- 12.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

ARTICLE 13—PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."
- 13.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.
- 13.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 13.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.

- 13.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 13.06 A Bid by an individual must show the Bidder's name and official address.
- 13.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 13.08 All names must be printed in ink below the signatures.
- 13.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 13.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 13.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 13.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 14—BASIS OF BID

14.01 *Unit Price*

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. In case of discrepancy between the written amounts and figures, the written amounts shall govern.

14.02 *Allowances*

- A. For cash allowances the Bid price must include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

ARTICLE 15—SUBMITTAL OF BID

- 15.01 The Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.
- 15.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or notice to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the notice to bidders.
- 15.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 16—MODIFICATION AND WITHDRAWAL OF BID

- 16.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 16.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 17—OPENING OF BIDS

- 17.01 Bids will be opened at the time and place indicated in the advertisement or notice to bid and, unless obviously non-responsive, read aloud publicly. A summary of the amounts of the base Bids

and major alternates, if any, will be made available to Bidders after the opening of Bids. Bidders and other interested parties may be present at the public bid opening.

ARTICLE 18—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for a period of 60 days as shown in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19—EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.

19.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.

19.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.

19.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.

19.05 *Evaluation of Bids*

A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award. The Owner may consider the following in determining the best value:

- In the comparison of Bids, The amount bid;
- Reputation of the bidder and the bidder's goods or services;
- Quality of the bidder's goods or services;
- Extent to which the goods or services meet the needs of SRA;
- Bidder's past relationship with SRA;
- Total long-term cost to SRA to acquire the bidder's goods or services;
- Bidder's past experience in performing similar work;
- Bidder's financial record indicating the stability of the bidder;
- Bidder's history of successfully completing projects; and
- Any relevant criteria specifically listed in the request for bids or proposals.

B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.

19.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for

those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

- 19.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 20—BONDS AND INSURANCE

- 20.01 Article 6 of the General Conditions and the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.
- 20.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 21—SIGNING OF AGREEMENT

- 21.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 22—SALES AND USE TAXES

- 22.01 Owner is exempt by law from **State of Texas** sales and Use Tax Laws, and Federal Excise Tax on materials and equipment to be incorporated in the Work. Said taxes must not be included in the Bid. Refer to Paragraph SC-7.10 of the Supplementary Conditions for additional information.

ARTICLE 23—CONFIDENTIALITY OF DOCUMENTS

The SRA is subject to the Texas Public Information Act (PIA). Any information submitted to the SRA by the Bidder shall be considered non-confidential and available to the public, except as follows:

In the event a Bidder considers a specific portion of their Bid to be confidential and subject to an exception to disclosure under the PIA, such portion must be clearly identified and marked "CONFIDENTIAL". Do not mark an entire proposal confidential, as this is not in conformance with the PIA and is not acceptable. Only the specific portion or portions of the Bid that the Bidder considers to be confidential pursuant to the PIA should be marked. IF AN ENTIRE BID IS MARKED CONFIDENTIAL, THE SRA WILL NOT TREAT ANY PORTION OF THE BID AS CONFIDENTIAL AND THE BID MAY BE REJECTED AS NON-CONFORMING. The SRA will honor notations of confidentiality in accordance with this paragraph and decline to release such information initially; however, final determination of whether a particular portion of a Bid may in fact be

withheld pursuant to the PIA will be made by the Texas Attorney General or a court of competent jurisdiction.

In the event a public information request is received for a portion of a Bid that has been marked confidential, the SRA will ask the affected Bidder if the information may be released. If the release is agreed to, the SRA shall release the information.

If the release is denied, the matter shall be referred to the Texas Attorney General's Office in accordance with the process set forth in the PIA. The Bidder shall be fully and solely responsible for submitting arguments and evidence within the statutory timeframes to the Texas Attorney General's Office regarding its claim of confidentiality. The SRA will NOT submit arguments on behalf of the Bidder.

The Texas Attorney General's Office shall rule on the matter. In the event that it is determined by opinion of the Texas Attorney General or court of competent jurisdiction that such information may not be withheld, then such information will be made available to the requestor. If it is determined that the information may be withheld, SRA will withhold the information from the requestor.

Pricing information contained in bids or contracts is not considered confidential under the PIA and will be disclosed without making a request to the Texas Attorney General.

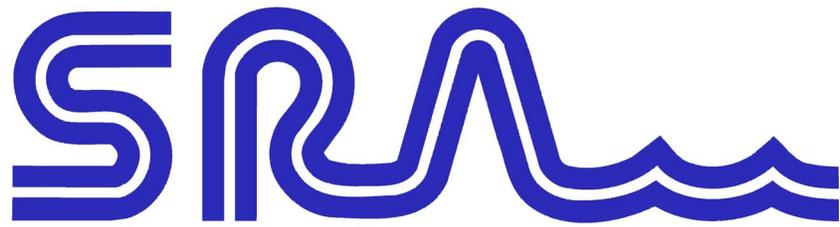
ARTICLE 24—CONFLICT OF INTEREST

Pursuant to Chapter 176 of the Local Government Code, any person or agent of a person who contracts or seeks to contract for the sale or purchase of property, goods, or services with a local government entity (i.e. Sabine River Authority) must disclose in the Conflicts of Interest Questionnaire Form (CIQ) the person's affiliation or business relationship that might cause a conflict of interest with the local government entity. By law, the CIQ must be filed with the SRA Records Management Officer no later than seven (7) days after the date the person begins contract discussions or negotiations with the SRA, or submits an application or response to a Request for Bids, correspondence, or another writing related to a potential agreement with SRA. Updated Questionnaires must be filed in conformance with Chapter 176.

A copy of the CIQ is included. If you have any questions about compliance, please consult your own legal counsel. Compliance is the individual responsibility of each person or agent of a person who is subject to the filing requirement. An offense under Chapter 176 carries a penalty up to a Class A misdemeanor.

ARTICLE 25—EQUAL OPPURTUNITY

Sabine River Authority provides for equal opportunity for all qualified parties including Historically Underutilized Business (HUBs). If your organization or any associated sub-contractor on the project area a certified HUB with the State of Texas, please submit documentation of the certified organization, including description of the work, percentage of the contract expected to be completed by the HB, and the certification number of the HUB.



BID PROPOSAL

BID FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: **Sabine River Authority of Texas: Gulf Coast Division RFB # 24-0201E**
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents. All prices shall be stated in both words and figures; however, do not extend the unit price. If the unit price is extended, the extension shall be ignored in tabulating the bids(*). In case of discrepancy between the written amounts and the figures, the written amounts shall govern.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security;
 - B. Vendor Certification to State Law;
 - C. Conflict of Interest;
 - D. Required Bidder Qualification Statement with supporting data;
 - E. Form W-9;
 - F. Bonding Company Information
 - G. Bid Opening Sheet
 - H. Non-Collusion Affidavit(s)
 - I. Additional Items as stipulated in the request

ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES

3.01 *Unit Price Bids*

A. Bidder will perform the following Work at the indicated unit prices:

BASE BID ITEMS

<u>ITEM NO.</u>	<u>QTY.</u>	<u>UNIT</u>	<u>DESCRIPTION</u>	<u>UNIT AMOUNT</u>	<u>TOTAL PRICE</u>
1.	1	LS	Move-in and start-up, including performance, payment and maintenance bonds for 100 percent (100%) of the contract amount, construction materials, and construction staking, and all necessary permits and fees.		
				<u>DOLLARS</u>	
				<u>CENTS</u>	
Lump Sum				\$ _____	\$ _____
2.	640	LF	84-inch (84") diameter 0.5-inch (1/2") thick Steel Siphon Pipe by open cut construction as shown on the construction drawings (including fittings, bedding, backfill, protective coatings, and testing) Complete in Place.		
				<u>DOLLARS</u>	
				<u>CENTS</u>	
Linear Foot				\$ _____	\$ _____
3.	2	EA	84-inch (84") diameter 0.5-inch (1/2") thick Steel Siphon Pipe 10-foot (10') Stub Outs with welded end caps for future siphon as shown on construction drawings, Complete in Place.		
				<u>DOLLARS</u>	
				<u>CENTS</u>	
Each				\$ _____	\$ _____
4.	2	EA	Furnish and Install 84-inch (84") Temporary Cap for Phase 1 Construction, Complete in Place.		
				<u>DOLLARS</u>	
				<u>CENTS</u>	
Each				\$ _____	\$ _____

5.	4	EA	Furnish and Install 72-inch (72") Plug for abandonment of existing 72-inch (72") Siphon, Complete in Place.		
				<u>DOLLARS</u>	
				<u>CENTS</u>	\$
			Each		\$
6.	1	LS	East Headwall including wingwalls, grating, stop log frames, and excavation, bedding, backfill, Complete in Place.		
				<u>DOLLARS</u>	
				<u>CENTS</u>	\$
			Lump Sum		\$
7.	1	LS	West Headwall including wingwalls, grating, stop log frames, and excavation, bedding, backfill, Complete in Place.		
				<u>DOLLARS</u>	
				<u>CENTS</u>	\$
			Lump Sum		\$
8.	31	CY	Concrete Pipe Saddle, Complete in Place		
				<u>DOLLARS</u>	
				<u>CENTS</u>	\$
			Cubic Yard		\$
9.	1	LS	Phase 1 Temporary Diversion Channel (estimated 1,724 CY excavation, 368 CY fill and compaction) as show on construction drawings, Complete in Place		
				<u>DOLLARS</u>	
				<u>CENTS</u>	\$
			Lump Sum		\$
10.	163	LF	Temporary Sheet Piling as shown on construction drawings, Complete in Place		
				<u>DOLLARS</u>	
				<u>CENTS</u>	\$
			Linear Feet		\$

11.	564	SY	Stone Rip Rap as shown on construction drawings, Complete in Place.		
				<u>DOLLARS</u>	
				<u>CENTS</u>	\$ <u> </u>
			Square Yard		\$ <u> </u>
12.	1,431	CY	Canal Excavation. An estimated volume of 1,431 C.Y. has been calculated as required for cut for proposed canal. No adjustments will be made based on variance of actual quantities.		
				<u>DOLLARS</u>	
				<u>CENTS</u>	\$ <u> </u>
			Cubic Yard		\$ <u> </u>
13.	2,260	CY	Fill and Grading. An estimated volume of 2,260 C.Y. has been calculated as required for fill for proposed canal. No adjustments will be made based on variance of actual quantities.		
				<u>DOLLARS</u>	
				<u>CENTS</u>	\$ <u> </u>
			Cubic Yard		\$ <u> </u>
14.	1	LS	Trench Safety, Complete in Place.		
				<u>DOLLARS</u>	
				<u>CENTS</u>	\$ <u> </u>
			Lump Sum		\$ <u> </u>
15.	0.25	AC	Clearing and Grubbing, Including Removal and Off-Site Disposal, Complete in Place		
				<u>DOLLARS</u>	
				<u>CENTS</u>	\$ <u> </u>
			Acre		\$ <u> </u>
16.	1	LS	Site Restoration to original or better condition, Complete in Place.		
				<u>DOLLARS</u>	
				<u>CENTS</u>	\$ <u> </u>
			Lump Sum		\$ <u> </u>

17.	0.25	AC	Hydromulch seeding and soil stabilization of disturbed areas. Contractor to ensure soil stabilization by whatever means necessary, including use of geotextiles, erosion control blankets, turf reinforcement mats, or straw mulching, Complete in Place.		
				DOLLARS	
				CENTS	
			Acre	\$	\$
18.	1	EA	Fence Gate, Complete in Place		
				DOLLARS	
				CENTS	
			Each	\$	\$
19.	1	LS	Surface water and groundwater control, including well pointing, of the OCDD ditch and SRA canal work area as needed, Complete in Place		
				DOLLARS	
				CENTS	
			Lump Sum	\$	\$
20.	1	LS	Storm Water Pollution Prevention Plan implementation including maintenance, inspections and reporting for all pollution prevention measures as necessary, Complete in Place.		
				DOLLARS	
				CENTS	
			Lump Sum	\$	\$
21.	1,885	SY	Provide and place crushed concrete or rock (1.5" size) and limestone base access road, 4" minimum depth.		
				DOLLARS	
				CENTS	
			Square Yard	\$	\$

22. 2 EA Provide Temporary Low Water Crossing as shown on construction drawings, Complete in Place.

	DOLLARS			
	CENTS	\$	\$	
Each				

SUBTOTAL BASE BID ITEMS: \$ _____

ADDITIVE ALTERNATE BID ITEMS

<u>ITEM NO.</u>	<u>QTY.</u>	<u>UNIT</u>	<u>DESCRIPTION</u>	<u>UNIT AMOUNT</u>	<u>TOTAL PRICE</u>	
23.	1	LS	Demolition and disposal of steel piling headwalls and wingwalls, Complete in Place.			
				DOLLARS		
				CENTS	\$	\$
Lump Sum						

SUBTOTAL ADDITIVE ALTERNATE BID ITEMS: \$ _____

TOTAL BID: \$ _____

B. Bidder acknowledges that:

1. Each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor’s overhead and profit for each separately identified item, and
2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—TIME OF COMPLETION

- 4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 4.02 Bidder agrees that the Work will be substantially complete as indicated in the Agreement, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions.
- 4.03 Bidder agrees that the Work will be substantially complete within the time stipulated in the Agreement and as provided in Paragraph 4.01 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions.
- 4.04 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5—BIDDER’S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 *Bid Acceptance Period*

- A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 *Instructions to Bidders*

- A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 *Receipt of Addenda*

- A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date	Received

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder’s Representations*

- A. In submitting this Bid, Bidder represents the following:
 1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
 2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
 6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and

procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.

7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

Address for giving notices:

Bidder's Contact:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Phone: _____

Email: _____

Address: _____

Bidder's Contractor License No.: (if applicable) _____

BID BOND (PENAL SUM FORM)

Bidder Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: Sabine River Authority of Texas Address <i>(principal place of business)</i> : 12777 Hwy 87 N Orange, Texas 77632	Bid Project <i>(name and location)</i> : Gulf Coast Canal – Claybar Siphon Bid Due Date: October 9, 2024
Bond Penal Sum: Date of Bond:	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
_____ <i>(Full formal name of Bidder)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i>	

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

BID OPENING

In the space provided below, enter your total Base Bid amount for this project. Only this figure will be read publicly at the public bid opening.

It is understood and agreed by the bidder in signing the proposal that the total bid amount entered below is not binding on either the bidder or the Owner. It is further agreed that the official total bid amount for this proposal will be determined by multiplying the unit prices for each unit price pay item by the respective estimated quantities shown in this proposal, and then totaling all of the extended amounts plus the amounts bid for all lump sum items.

Project: Gulf Coast Canal – Claybar Siphon RFB # 24-0201E

Owner: Sabine River Authority of Texas
Orange County, Texas

\$

Total Base Bid Amount

Name of Bidder

ARTICLE 1—GENERAL INFORMATION

1.01 Provide contact information for the Business:

Legal Name of Business:			
Corporate Office			
Name:		Phone number:	
Title:		Email address:	
Business address of corporate office:			
Local Office			
Name:		Phone number:	
Title:		Email address:	
Business address of local office:			

ARTICLE 2—DIVERSE BUSINESS CERTIFICATIONS

2.01 Provide information regarding Business’s Diverse Business Certification, if any. Provide evidence of current certification.

Certification	Certifying Agency	Certification Date
<input type="checkbox"/> Disadvantaged Business Enterprise		
<input type="checkbox"/> Minority Business Enterprise		
<input type="checkbox"/> Woman-Owned Business Enterprise		
<input type="checkbox"/> Small Business Enterprise		
<input type="checkbox"/> Disabled Business Enterprise		
<input type="checkbox"/> Veteran-Owned Business Enterprise		
<input type="checkbox"/> Service-Disabled Veteran-Owned Business		
<input type="checkbox"/> HUBZone Business (Historically Underutilized) Business		
<input type="checkbox"/> Other		
<input type="checkbox"/> None		

ARTICLE 3—CONSTRUCTION EXPERIENCE

3.01 Provide information that will identify the overall size and capacity of the Business.

Average number of current full-time employees:	
Estimate of revenue for the current year:	
Estimate of revenue for the previous year:	

3.02 Provide information regarding the Business’s previous contracting experience.

Years of experience with projects like the proposed project:		
As a general contractor:		As a joint venturer: <input type="text"/>
Has Business, or a predecessor in interest, or an affiliate identified in Paragraph 1.03:		
Been disqualified as a bidder by any local, state, or federal agency within the last 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Been barred from contracting by any local, state, or federal agency within the last 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Been released from a bid in the past 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Defaulted on a project or failed to complete any contract awarded to it? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Refused to construct or refused to provide materials defined in the contract documents or in a change order? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Been a party to any currently pending litigation or arbitration? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Provide full details in a separate attachment if the response to any of these questions is Yes.		

3.03 List all projects currently under contract in Schedule A and provide indicated information.

3.04 List a minimum of three and a maximum of six projects completed in the last 5 years in Schedule B and provide indicated information to demonstrate the Business’s experience with projects similar in type and cost of construction.

3.05 In Schedule C, provide information on key individuals whom Business intends to assign to the Project. Provide resumes for those individuals included in Schedule C. Key individuals include the Project Manager, Project Superintendent, Quality Manager, and Safety Manager. Resumes may be provided for Business’s key leaders as well.

ARTICLE 4—REQUIRED ATTACHMENTS

4.01 Provide the following information with the Statement of Qualifications:

- A. Schedule A (Current Projects) as required by Paragraph 8.03.
- B. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 8.04.
- C. Schedule C (Key Individuals) and resumes for the key individuals listed, as required by Paragraph 8.05.
- D. Financial Statements shall be provided upon request.

This Statement of Qualifications is offered by:

Business: _____
(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(date signed)

(If Business is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address for giving notices:

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address: _____

Phone: _____

Email: _____

Schedule A—Current Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Schedule B—Previous Experience with Similar Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Schedule B—Previous Experience with Similar Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Schedule C—Key Individuals

Project Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
Project Superintendent			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

Safety Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
Quality Control Manager			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

VENDOR COMPLIANCE TO STATE LAW

Chapter 2252.002, of the Texas Government Code applies to the award of government contract to non-resident bidders. This law provides that:

“A government entity may not award a governmental contract to a nonresident bidder unless the nonresident underbids the lowest bid submitted by a responsible resident bidder by an amount that is less than the greater of the amount by which a resident bidder would be required to underbid the nonresident bidder to obtain a comparable contract in the state in which the nonresident’s principal place of business is located

“Nonresident Bidder” refers to a person who is not a resident of Texas

“Resident Bidder” refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

Check the statement that is correct for Bidder.

- Non-resident bidders in _____ (give state), our principal place of business, are required to be _____ percent lower than resident bidders by state law. A copy of the statute is attached.
- Non-resident bidders in _____ (give state), our principal place of business, are not required to underbid resident bidders.
- Our principal place of business or corporate offices is in the State of Texas.

BIDDER:

By: _____

Signature: _____

Title: _____

Address: _____



BONDING COMPANY INFORMATION

The following person, firm, or corporation has agreed to execute the required payment and performance bonds in the event this contract is awarded to the bidder:

Name of Surety: _____

Mailing Address: _____

City, State, Zip: _____

Telephone Number: _____

Is surety authorized to operate in Texas? _____

Is surety aware of size of project? _____

Does surety have adequate authorization and resources to cover bonds for the amount of this contract? _____

Rating from Best's Key Rating Guide _____

Project: **Sabine River Authority**
Gulf Coast Canal – Claybar Siphon

Name of Bidder

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting*, later, for further information.

Note: If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, *Withholding of Tax on Nonresident Aliens and Foreign Entities*).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the instructions for Part II for details),
3. The IRS tells the requester that you furnished an incorrect TIN,
4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or
5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code*, later, and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships*, earlier.

What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code*, later, and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note: ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C corporation, or S corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

IF the entity/person on line 1 is a(n) . . .	THEN check the box for . . .
• Corporation	Corporation
• Individual • Sole proprietorship, or • Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes.	Individual/sole proprietor or single-member LLC
• LLC treated as a partnership for U.S. federal tax purposes, • LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or • LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is not disregarded for U.S. federal tax purposes.	Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation)
• Partnership	Partnership
• Trust/estate	Trust/estate

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 ¹	Generally, exempt payees 1 through 5 ²
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

- A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)
- B—The United States or any of its agencies or instrumentalities
- C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)
- E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)
- F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state
- G—A real estate investment trust
- H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940
- I—A common trust fund as defined in section 584(a)
- J—A bank as defined in section 581
- K—A broker
- L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note: You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note: See *What Name and Number To Give the Requester*, later, for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at www.SSA.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/Businesses and clicking on Employer Identification Number (EIN) under Starting a Business. Go to www.irs.gov/Forms to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to www.irs.gov/OrderForms to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note: Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, 4, or 5 below indicates otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code*, earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), ABLE accounts (under section 529A), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account) other than an account maintained by an FFI	The actual owner of the account or, if combined funds, the first individual on the account ¹
3. Two or more U.S. persons (joint account maintained by an FFI)	Each holder of the account
4. Custodial account of a minor (Uniform Gift to Minors Act)	The minor ²
5. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee ¹
b. So-called trust account that is not a legal or valid trust under state law	The actual owner ¹
6. Sole proprietorship or disregarded entity owned by an individual	The owner ³
7. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor*

For this type of account:	Give name and EIN of:
8. Disregarded entity not owned by an individual	The owner
9. A valid trust, estate, or pension trust	Legal entity ⁴
10. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
11. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
12. Partnership or multi-member LLC	The partnership
13. A broker or registered nominee	The broker or nominee

For this type of account:	Give name and EIN of:
14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
15. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships*, earlier.

*Note: The grantor also must provide a Form W-9 to trustee of trust.

Note: If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records From Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

Victims of identity theft who are experiencing economic harm or a systemic problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at spam@uce.gov or report them at www.ftc.gov/complaint. You can contact the FTC at www.ftc.gov/idtheft or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see www.IdentityTheft.gov and Pub. 5027.

Visit www.irs.gov/IdentityTheft to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

FORM CIQ

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

2 **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information is being disclosed.

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

Yes No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

Yes No

5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

6 Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

Signature of vendor doing business with the governmental entity

Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at <http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm>. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

- (A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
- (B) a transaction conducted at a price and subject to terms available to the public; or
- (C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that

- (i) a contract between the local governmental entity and vendor has been executed;
- or
- (ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that:

- (i) a contract between the local governmental entity and vendor has been executed; or
- (ii) the local governmental entity is considering entering into a contract with the vendor.

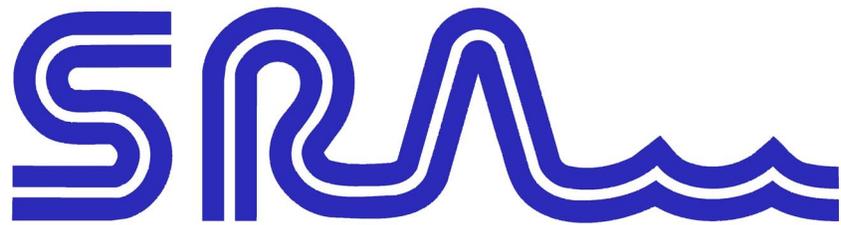
Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

- (1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);
- (2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or
- (3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

- (1) the date that the vendor:
 - (A) begins discussions or negotiations to enter into a contract with the local governmental entity; or
 - (B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or
- (2) the date the vendor becomes aware:
 - (A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);
 - (B) that the vendor has given one or more gifts described by Subsection (a); or
 - (C) of a family relationship with a local government officer.



STANDARD FORM OF AGREEMENT (CONTRACT)

AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between **Sabine River Authority of Texas**, a Texas governmental entity (“Owner”) and _____ (“Contractor”).

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

The replacement of the existing siphon crossing of Orange Country Drainage District Drainage Ditch. Project includes earthwork and the installation of 2-84” siphons, headwalls, wingwalls, control gates, and stormwater pollution prevention in Orange, Texas.

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows:

Sabine River Authority
Gulf Coast Division
Claybar Siphon
RFB # 24-0201E

ARTICLE 3—ENGINEER

3.01 The Owner has retained **Quiddity Engineering, LLC** (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.

ARTICLE 4—CONTRACT TIMES

4.01 *Time is of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.03 *Contract Times: Days*

A. The Work will be substantially complete within **240** consecutive calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of

the General Conditions within **270** consecutive calendar days after the date when the Contract Times commence to run.

4.05 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
1. *Substantial Completion:* Contractor shall pay Owner **\$500** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
 2. *Completion of Remaining Work:* After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner **\$500** for each day that expires after such time until the Work is completed and ready for final payment.
 3. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

ARTICLE 5—CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:
- A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6—PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment within 30 days of receiving engineer approved pay request, as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit

Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract and Texas Water Code Chapter 49.276 .
 - a. **90%** percent of the value of the Work completed (with the balance being retainage).
 - b. **90%** percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 *Consent of Surety*

- A. Owner will not make final payment or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

6.05 *Interest*

- A. All amounts not paid when due will bear interest at the lowest amount allowed by law.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
 1. This Agreement.
 2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
 3. General Conditions.
 4. Supplementary Conditions.
 5. Specifications as listed in the table of contents of the project manual (copy of list attached).
 6. Drawings (not attached but incorporated by reference) consisting of **eighteen (18)** sheets with each sheet bearing the following general title: **Claybar Siphon**.
 7. Addenda (numbers X to X, inclusive).

8. Exhibits to this Agreement (enumerated as follows):
 - a. **Contractors Bid (C-410)**
10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
 - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 Contractor's Representations

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
 6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures

of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.

7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

Owner:

Sabine River Authority of Texas
(typed or printed name of organization)

By: _____
(individual's signature)

Date: _____
(date signed)

Name: David Montagne
(typed or printed)

Title: General Manager
(typed or printed)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Address for giving notices:

Sabine River Authority of Texas

PO Box 579

Orange Texas, 77631

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

Phone: _____

Email: _____

Contractor:

(typed or printed name of organization)

By: _____
(individual's signature)

Date: _____
(date signed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

(If [Type of Entity] is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Address for giving notices:

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

Phone: _____

Email: _____

License No.: _____
(where applicable)

State: _____

NOTICE TO PROCEED

Owner: Sabine River Authority of Texas Owner's Project No.: 24-0201E
Engineer: _____ Engineer's Project No.: 17314-0004-01
Contractor: _____ Contractor's Project No.: _____
Project: Claybar Siphon
Contract Name: _____
Effective Date of Contract: _____

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on **[date Contract Times are to start]** pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

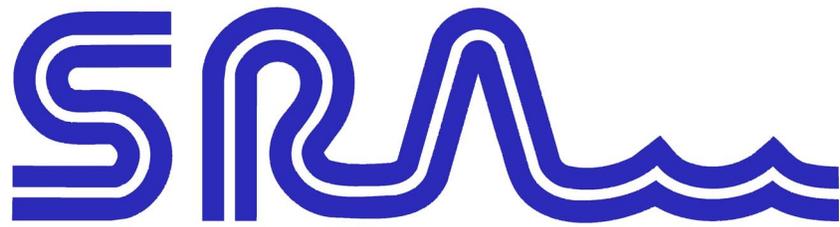
In accordance with the Agreement:

The number of days to achieve Substantial Completion is **205** consecutive calendar days from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of **[date, calculated from commencement date above]**; and the number of days to achieve readiness for final payment is **235** consecutive calendar days from the commencement date of the Contract Times, resulting in a date for readiness for final payment of **[date, calculated from commencement date above]**.

Before starting any Work at the Site, Contractor must comply with the following:

Notify Owner and Engineer Project Representative and Project Manager when work will begin.

Owner: Sabine River Authority of Texas
By (signature): _____
Name (printed): _____
Title: _____
Date Issued: _____
Copy: Engineer



PERFORMANCE and PAYMENT BONDS

PERFORMANCE BOND

<p>Contractor</p> <p>Name: _____</p> <p>Address <i>(principal place of business)</i>: _____</p>	<p>Surety</p> <p>Name: _____</p> <p>Address <i>(principal place of business)</i>: _____</p>
<p>Owner</p> <p>Name: Sabine River Authority of Texas</p> <p>Mailing address <i>(principal place of business)</i>: 12777 Highway 87 N Orange, Texas 77632</p>	<p>Contract</p> <p>Description <i>(name and location)</i>: Sabine River Authority, Gulf Coast Division Gulf Coast Canal – Claybar Siphon</p> <p>Contract Price: _____</p> <p>Effective Date of Contract: _____</p>
<p>Bond</p> <p>Bond Amount: _____</p> <p>Date of Bond: _____ <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i></p> <p>Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16</p>	
<p>Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.</p>	
Contractor as Principal	Surety
_____ <i>(Full formal name of Contractor)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<p><i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i></p>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
 - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

- 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
 - 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
 - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
 - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such

statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

- 14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
 - 14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
 - 14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
 - 14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
16. Modifications to this Bond are as follows: **[None]**

PAYMENT BOND

<p>Contractor</p> <p>Name: _____</p> <p>Address (<i>principal place of business</i>): _____</p>	<p>Surety</p> <p>Name: _____</p> <p>Address (<i>principal place of business</i>): _____</p>
<p>Owner</p> <p>Name: Sabine River Authority of Texas</p> <p>Mailing address (<i>principal place of business</i>): 12777 Highway 87 N Orange, Texas 77632</p>	<p>Contract</p> <p>Description (<i>name and location</i>): Sabine River Authority, Gulf Coast Division Gulf Coast Canal – Claybar Siphon</p> <p>Contract Price: _____</p> <p>Effective Date of Contract: _____</p>
<p>Bond</p> <p>Bond Amount: _____</p> <p>Date of Bond: _____ <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i></p> <p>Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 18</p>	
<p>Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.</p>	
Contractor as Principal	Surety
_____ <i>(Full formal name of Contractor)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<p><i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i></p>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
 - 5.1. Claimants who do not have a direct contract with the Contractor
 - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2. Pay or arrange for payment of any undisputed amounts.
 - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. Definitions
 - 16.1. *Claim*—A written statement by the Claimant including at a minimum:
 - 16.1.1. The name of the Claimant;
 - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
 - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 - 16.1.4. A brief description of the labor, materials, or equipment furnished;

- 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 - 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 - 16.1.7. The total amount of previous payments received by the Claimant; and
 - 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic’s lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of “labor, materials, or equipment” that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor’s subcontractors, and all other items for which a mechanic’s lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
 - 16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
 - 16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
 18. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner: Sabine River Authority of Texas Owner's Project No.: 24-0201E
Engineer: Quiddity Engineering, LLC. Engineer's Project No.: 17314-0004-01
Contractor: Contractor's Project No.:
Project: Claybar Siphon
Contract Name:

This Preliminary Final Certificate of Substantial Completion applies to:

All Work The following specified portions of the Work:

[Describe the portion of the work for which Certificate of Substantial Completion is issued]

Date of Substantial Completion: **[Enter date, as determined by Engineer]**

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work must be as provided in the Contract, except as amended as follows:

Amendments to Owner's Responsibilities: None As follows:

[List amendments to Owner's Responsibilities]

Amendments to Contractor's Responsibilities: None As follows:

[List amendments to Contractor's Responsibilities]

The following documents are attached to and made a part of this Certificate:

[List attachments such as punch list; other documents]

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Engineer

By (*signature*): _____

Name (*printed*): _____

Title: _____

NOTICE OF ACCEPTABILITY OF WORK

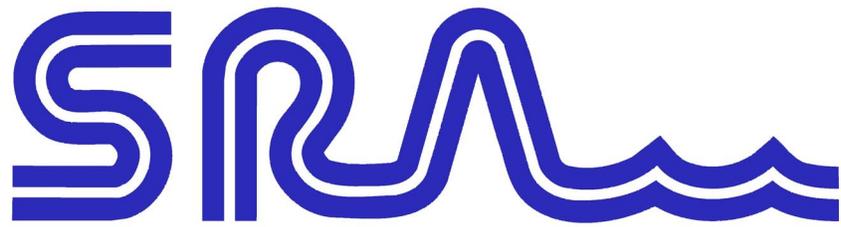
Owner: Sabine River Authority of Texas Owner's Project No.: 24-0201E
Engineer: Quiddity Engineering, LLC Engineer's Project No.: 17314-0004-01
Contractor: Contractor's Project No.:
Project: Claybar Siphon
Contract Name:
Notice Date: Effective Date of the Construction Contract:

The Engineer hereby gives notice to the Owner and Contractor that Engineer recommends final payment to Contractor, and that the Work furnished and performed by Contractor under the Construction Contract is acceptable, expressly subject to the provisions of the Construction Contract's Contract Documents ("Contract Documents") and of the Agreement between Owner and Engineer for Professional Services dated **[date of professional services agreement]** ("Owner-Engineer Agreement"). This Notice of Acceptability of Work (Notice) is made expressly subject to the following terms and conditions to which all who receive and rely on said Notice agree:

1. This Notice has been prepared with the skill and care ordinarily used by members of the engineering profession practicing under similar conditions at the same time and in the same locality.
2. This Notice reflects and is an expression of the Engineer's professional opinion.
3. This Notice has been prepared to the best of Engineer's knowledge, information, and belief as of the Notice Date.
4. This Notice is based entirely on and expressly limited by the scope of services Engineer has been employed by Owner to perform or furnish during construction of the Project (including observation of the Contractor's Work) under the Owner-Engineer Agreement, and applies only to facts that are within Engineer's knowledge or could reasonably have been ascertained by Engineer as a result of carrying out the responsibilities specifically assigned to Engineer under such Owner-Engineer Agreement.
5. This Notice is not a guarantee or warranty of Contractor's performance under the Construction Contract, an acceptance of Work that is not in accordance with the Contract Documents, including but not limited to defective Work discovered after final inspection, nor an assumption of responsibility for any failure of Contractor to furnish and perform the Work thereunder in accordance with the Contract Documents, or to otherwise comply with the Contract Documents or the terms of any special guarantees specified therein.
6. This Notice does not relieve Contractor of any surviving obligations under the Construction Contract, and is subject to Owner's reservations of rights with respect to completion and final payment.

Engineer

By *(signature)*: _____
Name *(printed)*: _____
Title: _____



GENERAL CONTRACT CONDITIONS

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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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 (the "Indemnified Parties"), 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 laws of the State of Texas, which the Project is located.

18.08 *Assignment of Contract*

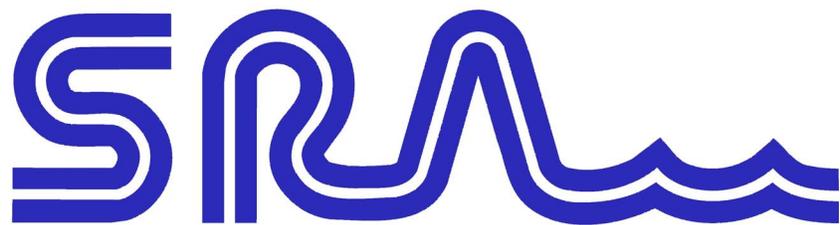
- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may 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 CONDITIONS

SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

SC1.01 – Add the following:

51. Working Day- Any day in which weather or other conditions, not under the control of the CONTRACTOR, will permit construction of the principal units of work for a period of not less than 7 hours between 7:00 am and 6:00 pm. Saturdays, Sundays, and legal holidays will not be counted as a work day if not worked. If the CONTRACTOR works any of these days, he will be charged a working day. Work will not be permitted on Saturdays, Sundays, or legal holidays without the prior written approval of the OWNER.

52. Calendar Day – Every day of the month including Saturday, Sunday, legal holidays, rain days, or other adverse weather days.

ARTICLE 2—PRELIMINARY MATTERS

2.01 Add the following:

D. Texas Ethics Commission – Contractor and Owner shall complete all documentation required to conform with HB 1295 including but not limited to Form 1295 “Certificate of Interested Parties”.

E. Prohibition on Boycotting Israel – In accordance with Section 2270.002 of the Texas Government Code, Contractor hereby represents and warrants that Contractor: 1) Does not boycott Israel; and 2) will not boycott Israel during the term of this contract.

F. Prohibition on Boycotting Power Companies – In accordance with Section 2274.001 of the Texas Government Code, Contractor hereby represents and warrants that Contractor: 1) Does not boycott power companies and 2) will not boycott power companies during the term of this contract.

G. Prohibition on Companies that discriminate against firearm and ammunition industries - In accordance with Section 2274.002 of the Texas Government Code, Contractor hereby represents and warrants that Contractor: 1) Does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and 2) Will not discriminate during the term of the contract against a firearm entity or firearm trade association.

H. Posting of certain information at Commercial Building Construction Site Required – In accordance with Section 116.001 of the Texas Government Code, Contractor hereby represents and warrants that Contractor: 1) As soon as practicable after beginning construction of a commercial building project located in this state, the developer of the project shall visibly post the following information at the entrance to the construction site: a) the name and contact information of the developer; and b) a brief description of the project.

2.02 *Copies of Documents*

SC-2.02 Amend the first sentence of Paragraph 2.02.A. to read as follows:

Owner shall furnish to Contractor [3] printed copies of the Contract Documents (including one fully signed counterpart of the Agreement). Electronic portable document format (PDF) shall be available upon request.

ARTICLE 4—NO CHANGES

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

5.03 *Subsurface and Physical Conditions*

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.D:

- E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

Geotechnical Engineering Report	6/13/2022	GB-1, GB-2

- F. The following table lists the 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 specifically identifies the Technical Data upon which Contractor may rely:

Gulf Coast Canal State Claybar Siphon Construction Drawings	August 2024	Construction Drawings
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- G. Contractor may request from Engineer copies of reports and drawings identified in SC-5.03.E and SC-5.03.F that were not included with the Bidding Documents.

5.06 *Hazardous Environmental Conditions*

SC-5.06 Add the following new paragraphs immediately after Paragraph 5.06.A.3:

- 4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

N/A	N/A	N/A

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

N/A	N/A	N/A

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

SC-6.01 Add the following paragraphs immediately after Paragraph 6.01.A:

1. *Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC® C-610, Performance Bond (2010, 2013, or 2018 edition). Performance Bond: By State statute, local governments must require a performance bond from all contractors where such contracts involve construction, alteration, or repair of buildings or other public works projects in excess of \$100,000.00. Such bonds must be executed by a corporate surety authorized to do business in the State of Texas in accordance with Article 7.19-1 Bond of Surety Company; Chapter 7 of the Insurance Code, must be for not less than one-hundred percent (100%) of the contract price, and remain in effect for one year beyond the date of acceptance by the Owner. Performance bonds are conditioned upon “the faithful performance of the work in accordance with the drawings, specifications, and contract documents”. These are in effect performance guarantees to assure completion of construction. These bonds are solely for the protection of the Owner. (Texas Government Code 2253.021)

2. *Required Payment Bond Form:* The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2010, 2013, or 2018 edition). Payment Bond: A payment bond is one executed in connection with a contract (construction, alteration, or repair) to assure payment as required by law to all persons supplying labor and materials in the execution of work provided for in the contract. These bonds are required solely for the protection of all such claimants. These, like performance bonds, must be issued by a State approved corporate surety in accordance with Article 7.19-1 Bond of Surety Company; Chapter 7 of the Insurance Code, must also be for not less than one hundred percent (100%) of the contract price, and remain in effect for one year beyond the date of acceptance by the Owner. The \$25,000.00 State requirement (i.e., all contracts over that amount will require the Owner to have one hundred percent (100%) payment bonds) is also the same. (Texas Government Code 2253.021)

6.03 *Contractor’s Insurance*

Add the following language to 6.03.A.

- a) The Contractor shall not commence work under this contract until he has obtained all the insurance required under this paragraph and such insurance has been approved by the Owner.
- b) *Worker’s Compensation Insurance:* The Contractor shall procure and shall maintain during the life of this Contract Worker's Compensation Insurance, including employer liability insurance and coverages for occupational illness or disease with an available limit of at least \$1,000,000 per occurrence for all of its employees to be engaged in work at the site of the project under this Contract and, in case of any such work sublet, the Contractor shall require the subcontractor similarly to provide Worker's Compensation Insurance for all of the employees to be engaged in

such work unless such employees are covered by the protection afforded by the Contractor's Worker's Compensation Insurance.

- c) Commercial General Liability Insurance: including products/completed operation and broad form property damage limits with an available limit of at least \$1,000,000 per occurrence with a \$2,000,000 aggregate. The policy shall not exclude coverage for explosion, collapse or underground hazards, and pollution, or shall be endorsed for explosion, collapse or underground hazards, and pollution.
- d) Automobile Liability Insurance: including use of all owned, non-owned and hired vehicles with an available limit of not less than: Bodily Injury \$1,000,000 each person, \$1,000,000 each occurrence: Property Damage \$1,000,000 each occurrence, combined limit \$2,000,000.
- e) Longshoremen's and Harborworkers' Compensation Act insurance: to the extent required under such Act with regard to the work to be performed under the Contract.
- f) Excess liability insurance or Umbrella insurance: over all of the foregoing primary policies with an available limit of at least \$5,000,000.00 which follows form on Contractor's other policies.
- g) Owner and Engineer shall be listed as additional insured on all insurance, except for Worker's Compensation and Employer's Liability insurance. Contractor shall provide a waiver of subrogation in favor of the Sabine River Authority on all policies.
- h) Proof of Insurance: The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations covered, effective dates and date of expiration of policies. Such certificates shall also contain substantially the following statement: "The insurance covered by this certificate will not be canceled or materially altered, except after ten (10) days written notice has been received by the Owner."

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.10 Taxes

SC-7.10 Add a new paragraph immediately after Paragraph 7.10.A:

- A. Owner is exempt by law from **State of Texas** sales and Use Tax Laws, and Federal Excise Tax on materials and equipment to be incorporated in the Work. Said taxes must not be included in the Bid.
 - 1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.
 - 2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

SC-7.18 Add a new paragraph immediately after Paragraph 7.1B:

C. NOTWITHSTANDING ANYTHING IN PARAGRAPH 7.18.A TO THE CONTRARY, IN THE EVENT A CLAIM ARISES FROM BODILY INJURY (INCLUDING, WITHOUT LIMITATION, SICKNESS OR DISEASE) OR DEATH SUFFERED OR SUSTAINED BY AN EMPLOYEE OF CONTRACTOR OR ANY OF ITS AGENTS OR ITS SUBCONTRACTORS OF ANY TIER, THEN, TO THE FULLEST EXTENT PERMITTED BY LAW, CONTRACTOR AGREES TO INDEMNIFY AND SAVE HARMLESS THE INDEMNIFIED PARTIES, FROM AND AGAINST ANY AND ALL SUCH CLAIMS, WHICH ANY AND ALL OF THEM MAY HEREAFTER SUFFER, INCUR, BE RESPONSIBLE FOR OR PAY OUT, EVEN IF THE CLAIM WAS CAUSED, OR WAS ALLEGED TO BE CAUSED, IN WHOLE OR IN PART, BY THE NEGLIGENCE, FAULT, OMISSION, STRICT LIABILITY, STRICT PRODUCTS LIABILITY, OR NEGLIGENCE PER SE, OF THE INDEMNIFIED PARTIES, IT BEING THE EXPRESS INTENT OF OWNER AND CONTRACTOR THAT CONTRACTOR SHALL BE OBLIGATED TO INDEMNIFY THE INDEMNIFIED PARTIES IN THE MANNER PROVIDED IN THIS PARAGRAPH 7.18.C EVEN FOR THE CONSEQUENCES OF THE INDEMNIFIED PARTIES' OWN NEGLIGENCE, FAULT, OMISSION, STRICT LIABILITY, STRICT PRODUCTS LIABILITY, OR NEGLIGENCE PER SE, WHETHER OR NOT IT IS OR IS ALLEGED TO BE THE SOLE OR A CONCURRING CAUSE OF THE LOSSES GIVING RISE TO THE INDEMNIFIED CLAIMS.

ARTICLE 8—OTHER WORK AT THE SITE

8.02 Coordination

SC-8.02 Add the following new Paragraph 8.02.C immediately after Paragraph 8.02.B:

- C. Owner intends to contract with others for the performance of other work at or adjacent to the Site.
 - 1. The following specific matters are to be covered by such authority and responsibility:
 - a. Sabine River Authority – Construction Management
 - b. Quiddity Engineers – Resident Project Representative
 - c. Terracon – Construction Materials Testing

ARTICLE 10—ENGINEERS STATUS DURING CONSTRUCTION

10.03 Resident Project Representative

SC-10.03 Add the following new subparagraph immediately after Paragraph 10.03.A:

- 1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor's safety meetings).
- 2. *Safety Compliance:* Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.
- 3. *Liaison*

- a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.
4. *Review of Work; Defective Work*
- a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Observe whether any Work in place appears to be defective.
 - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.
5. *Inspections and Tests*
- a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.
 - b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
6. *Payment Requests: Review Applications for Payment with Contractor.*
7. *Completion*
- a. Participate in Engineer's visits regarding Substantial Completion.
 - b. Assist in the preparation of a punch list of items to be completed or corrected.
 - c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
 - d. Observe whether items on the final punch list have been completed or corrected.
- D. The RPR will not:
1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
 2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
 3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.
 5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.

6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 15 PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

SC 15.01.D.1. Replace paragraph in its entirety with the following:

Payment shall be made within 30 days of presentation of the application for Payment to the 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.

ARTICLE 17 FINAL RESOLUTIONS OF DISPUTES

Add the following to 17.01

- C. All disputes arising under this Contract or its interpretation except those disputes covered by FEDERAL LABOR STANDARDS PROVISIONS whether involving law or fact or both, or extra work, and all claims for alleged breach of contract shall, within ten (10) days of commencement of the dispute, be presented by the Contractor to the Owner for decision. Any claim not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten (10) days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt of the Owner.
- D. The Contractor shall submit in detail his claim and his proof thereof.
- E. If the Contractor does not agree with any decision of the Owner, he shall in no case allow the dispute to delay the work but shall notify the Owner promptly that he is proceeding with the work under protest.
- F. Venue for disputes shall lie exclusively in Orange County, Texas and none other.

ARTICLE 18 MISCELLANEOUS

Add the following Section

18.11 Contractors Field Office

The contractor shall furnish and maintain, during construction of the Improvements embraced in this Contract adequate facilities on the Project area or adjacent thereto for the use of the Local Public Agency and its Engineers as described below:

1. Engineers Field Office: Office is not required for this project.

WORK CHANGE DIRECTIVE NO.: [Number of Work Change Directive]

Owner: Sabine River Authority of Texas

Owner's Project No.:

Engineer:

Engineer's Project No.:

Contractor:

Contractor's Project No.:

Project:

Contract Name:

Date Issued:

Effective Date of Work Change Directive:

Contractor is directed to proceed promptly with the following change(s):

Description:

[Description of the change to the Work]

Attachments:

[List documents related to the change to the Work]

Purpose for the Work Change Directive:

[Describe the purpose for the change to the Work]

Directive to proceed promptly with the Work described herein, prior to agreeing to change in Contract Price and Contract Time, is issued due to:

Notes to User—Check one or both of the following

Non-agreement on pricing of proposed change. Necessity to proceed for schedule or other reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price: \$ _____ **[increase] [decrease] [not yet estimated].**

Contract Time: _____ days **[increase] [decrease] [not yet estimated].**

Basis of estimated change in Contract Price:

Lump Sum Unit Price Cost of the Work Other

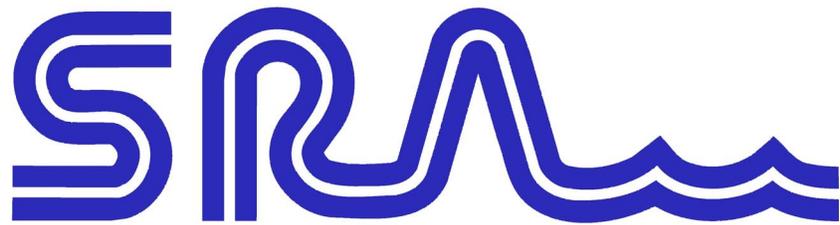
Recommended by Engineer

Authorized by Owner

By:

Title:

Date:



WAGE RATE DETERMINATION

"General Decision Number: TX20240053 01/05/2024

Superseded General Decision Number: TX20230053

State: Texas

Construction Type: Heavy

Counties: Hardin, Jefferson and Orange Counties in Texas.

HEAVY CONSTRUCTION PROJECTS (Including Water and Sewer Lines and Excluding Industrial and Processing Plants, and Refineries)

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	<ul style="list-style-type: none">. Executive Order 14026 generally applies to the contract.. The contractor must pay all covered workers at least \$17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	<ul style="list-style-type: none">. Executive Order 13658 generally applies to the contract.. The contractor must pay all covered workers at least \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.

Dump.....\$ 10.00 **

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$17.20) or 13658 (\$12.90). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular

rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010

08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor

200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

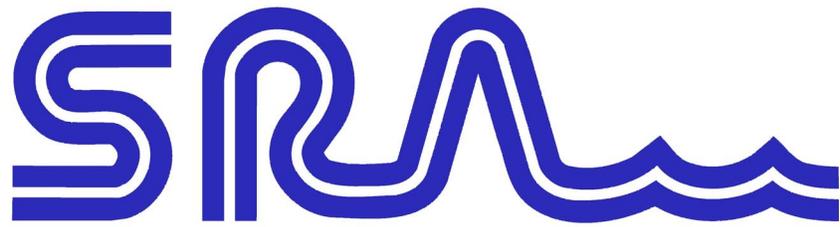
3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"



TECHNICAL SPECIFICATIONS

**TECHNICAL SPECIFICATIONS
FOR CONSTRUCTION OF
GULF COAST CANAL – CLAYBAR SIPHON
FOR
SABINE RIVER AUTHORITY
IN
ORANGE COUNTY, TEXAS**

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TECHNICAL SPECIFICATIONS

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03100-1

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03200-1

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03300-1

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03350-1

DIVISION 9 - COATING

Protective Coating (Steel Pipes)

09920-1

SECTION 01010
SUMMARY OF WORK

PART 1 – DESCRIPTION

- A. The Work. The work consists of providing the necessary labor, materials, equipment, and supervision to construct the Gulf Coast Canal – Claybar Siphon Project RFB # 24-0201E, which includes two (2) 84-inch (84”) steel siphon pipes by open cut under Orange County Drainage District (OCDD) County Line Ditch, including concrete headwalls, wingwalls, and realignment of the canal to the new siphon locations. The project also includes all necessary trenching, dewatering, clear and grubbing, temporary cofferdams, hauling, embankment, erosion control, site restoration, and incidental items necessary for the construction of the proposed facilities as shown in the plans and document in the specifications.
- B. Contractor shall install 84-inch (84”) siphons by means of the diversion plan outlined in the Construction Drawings. Contractor will need to divert the OCDD County Line Ditch east to install Phase 1 of the west side of the dual 84-inch (84”) siphons. After the west side installation of the 84-inch (84”) siphon is complete the County Line Ditch will have to be diverted west to install the east section of the 84” siphon. After siphon piping has been installed, backfilled and tested and the OCDD County Line Ditch has been reconstructed to existing or better conditions, the Contractor may begin work on the headwalls, wingwalls, and regrading of the SRA canal. The OCDD County Line Ditch should remain active at all times throughout construction.
- C. The existing SRA canal siphon crossing of the County Line Ditch must remain in service at all times. Only after the new siphons, headwalls, wingwalls, and canal excavation has been completed and tested, can the water in the canal be transferred to the new crossing. After transferring the water to the new crossing, the existing crossing shall be plugged, existing headwalls removed, and backfilled as shown on the plans.
- B. The Project Site. The project is located *2 miles west of the intersection of State Highway 87 and Woodland Ridge Dr*, outside the City of Orange ETJ, in Orange County, Texas.
- C. The Owner.

Sabine River Authority
12777 Hwy. 87 N.
Orange, Texas 77632
Attention: Mr. David Williams
Telephone: (409) 746-2192
- D. The Engineer.

Quiddity Engineering, LLC
3100 Alvin Devane Blvd, Suite 150
Austin, Texas 78741
Attention: Mr. Alan Moon, P.E.
Telephone: (713) 353-7231

PART 2 – WORK SEQUENCE

Within 10 days from the date of the Notice to Proceed, the Contractor shall submit a construction schedule to the Engineer for approval. The schedule shall be in the form of a Gantt Chart (bar chart) and shall indicate the order in which the work is to be performed. The sequence and interdependence of all major activities must be shown.

The schedule shall be drawn to a calendar time scale. The commencement and completion dates for each activity shall be shown, as well as the duration in calendar days, for each activity. The schedule shall show not only the activities for actual physical construction of the project, but also the activities such as the Contractor's submittal of shop drawings and the Engineer's review and approval of the shop drawings. Failure to include any element of work required to complete the project within the scheduled contract time shall not release the Contractor from his obligation to complete the work in accordance with the contract documents.

The existing raw water canal crossing County Line Ditch must remain fully operational at all times until the new proposed raw water canal crossing has been installed and tested. Contractor shall sequence work accordingly.

The Contractor shall update the construction schedule monthly to reflect the progress of the work. The updated schedules shall be submitted to the Engineer for approval. Monthly partial payments will be dependent upon submission of an updated construction schedule satisfactory to the Engineer.

PART 3 – PROGRESS REPORTING

Monthly progress meetings shall be held on dates mutually agreed to by the Engineer and the Contractor. These meetings may be held at the project site or the Engineer's office as determined by the Engineer. Items to be discussed at this meeting include progress of the work, upcoming work items, status of submittals, monthly pay estimates, etc.

3.1 USE OF PREMISES

Construction equipment and temporary storage of materials may be placed on Owner's property with approval from the Owner and/or as shown on the plans. The Contractor shall **NOT** use any private property during construction unless the Contractor has obtained written permission from the property owner. The Contractor is responsible for obtaining an agreement with other property owners at no additional cost to the project. Any agreements shall be submitted to the Owner for their records.

Any damage to the existing facilities and/or utilities is to be restored and made operable within a 24-hour time frame at no additional cost to the Owner and/or the owner of the facility and/or utilities.

3.2 OWNER OCCUPANCY

During construction, the Owner must be able to use the existing facilities as much as possible without interruption. If the Owner occupies a part of the project, the one-year maintenance period of that part does not begin. The one-year maintenance period begins only after the Engineer has issued a Certificate of Substantial Completion.

3.3 DISPOSAL OF EXCESS MATERIAL

The Contractor must haul off all excess material to be disposed legally (unless explicitly noted otherwise on construction drawings). No material will be allowed to be disposed of at Owner's facilities without prior approval. It is the responsibility of the Contractor to properly transport and dispose any hazardous material.

3.4 WORKING HOURS

Working hours shall be 7:00 a.m. to 6:00 p.m. Monday through Friday. The Contractor shall request approval of the Engineer a minimum of 48-hours prior to working on weekends and/or holidays.

3.5 AREA CLEANLINESS

The project site and the surrounding subdivision streets affected by the Work must be returned to original condition or better upon completion. The streets and sidewalks or land shall be cleaned daily. Should the Owner or Engineer instruct the Contractor to clean the streets and sidewalks, the Contractor shall do so by the end of the same working day. If the Contractor fails to clean the streets and sidewalks by the end of the same working day, the Owner may hire a separate Contractor to clean the streets and sidewalks. The amount of that street cleaning may be deducted from the next Pay Estimate due to the Contractor.

3.6 SAFETY

The Contractor shall be responsible for the safety of himself, his employees, subcontractor, and all persons on the construction site. The Contractor shall be responsible for compliance with all requirements of the Occupational Safety and Health Administration, as well as all other applicable State and local safety laws, codes, rules, or requirements.

3.7 PERMITS

Permits, fees, and licenses necessary for the execution of the Work shall be obtained and paid for by the Contractor.

3.8 COORDINATION

The Contractor is responsible for all coordination with all utility companies, pipeline companies, ambulance, police, and fire departments during construction.

The Contractor shall contact the Engineer at least 48 hours prior to commencement of on-site construction.

The Contractor shall contact the Engineer at least 48 hours prior to any concrete placement.

The Contractor shall give a minimum of 48-hour advance notice before working on weekends or holidays.

The Contractor shall give a minimum 72-hour advance notice of any shut-down in operations of the Owner's facilities.

3.9 - ACCESS

Access to the site is allowed only from existing roads and gates as shown on the construction drawings.

END OF SECTION

**SECTION 01300
SUBMITTALS**

PART 1 – PRIOR TO BEGINNING WORK

Submit the following items with the signed agreement form as a prerequisite to starting the work. Prepare the number of copies which the Contractor requires for distribution plus three (3) copies to be distributed by the Engineer. For structural shop drawings and calculations, provide one (1) extra copy for distribution by the Engineer. The location of information concerning each submittal is referenced. Failure to make any required submittal in acceptable form within the time frame specified may be grounds for withholding payment.

- A. Performance Bond. Bidding Documents, Contract Forms, General and Supplementary Conditions.
- B. Labor and Material Payment Bond. Bidding Documents, Contract Forms, General and Supplementary Conditions.
- C. Certificate of Insurance. General and Supplementary Conditions.
- D. List of Subcontractors. General and Supplementary Conditions.
- E. Schedule of Values. General Conditions and as specified in the section on Schedule of Values.
- F. Material and Equipment List. Supplementary Conditions and specification sections.
- G. Construction Schedule. General Conditions and as specified in the section on Construction Schedule.

PART 2 – DURING CONSTRUCTION

During the progress of the work make the following submittals in a timely manner to prevent any delay in the work.

- A. Work Schedules. Submit progress schedules monthly as an evidence that the project will be ready for occupancy by the date of substantial completion. Four (4) copies are required.
- B. Shop Drawings, Product Data, and Samples. Submit, in accordance with the section on Shop Drawings, Product Data and Samples included in Division 1, General Requirements.

DIVISION 1 – GENERAL REQUIREMENTS

During Construction

- List of Subcontractors
- Construction Schedule
- Schedule of Values
- Pre-Construction Photos
- Testing Laboratory Reports

DIVISION 2 – SITE WORK

Sitework

- OCDD Ditch By-Pass Plan
- Steel Sheet Piling

- Steel Pipe for Siphons
- Temporary Siphon Cap
- Concrete Pipe Saddle
- Temporary Low Water Crossing
- Well Pointing
- Drainage Ditch Diversion Plan
- Headwall Grating
- Hydromulch Seeding
- Fence Gate

DIVISION 3 – CONCRETE

- Shop Drawings
 - Manufacturer’s certificate for Reinforcing Steel
 - Concrete Design Mixture
 - Curing Method
- C. Mill Certificates. Submit mill certificates on the following items as required by the specifications sections.
1. Reinforcing Steel: Division 3 - Concrete
 2. Division 5 - Metals
 3. Tanks and Welded Steel: Division 15 - Mechanical
- E. Application for Payment. Submit applications for partial payment as specified in the General and Supplementary Conditions and within the time specified in the agreement.
- F. Change Order Proposal. A proposal for change order may be submitted to the Engineer whenever a need arises. The request must be in writing and must include sufficient information to assess the need for a change in the work, the contract time, or the contract sum.

PART 3 – PROJECT CLOSEOUT

With a written notice of completion submit the following items in the proper form as a condition of final acceptance of the work:

- A. Project Record Documents. Submit in accordance with the section on Project Record Documents included in Division 1, General Requirements.
- B. Guarantees, Warranties and Bonds. As required in the General and Supplementary Conditions and listed in various sections of the specifications.
- C. Spare Parts and Maintenance Materials. As specified in various sections of the specifications.
- D. Operation and Maintenance Manual. Prepare four (4) copies of an Operation and Maintenance Manual for the project.
 1. Each copy shall be bound in standard-size, black, three (3) ring binder(s).
 2. Provide index tabs for each portion of the manual, with a minimum of one (1) tab for each item of equipment in the List of Equipment Manufacturers and one (1) tab for electrical and motor control center facilities.
 3. Provide "pouch" enclosures with three (2) ring binder edging to secure any drawings which are made a part of the manual.

END OF SECTION

SECTION 01340
SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 – GENERAL

- A. Submit shop drawings, product data, and samples required by specification sections.
- B. Shop drawings, product data, and samples are not considered a part of contract documents.
- C. Schedule submissions at least 15 days before reviewed submittals will be needed.

PART 2 – CONTRACTOR RESPONSIBILITIES

- A. Review shop drawings, product data and samples prior to submission. Verify:
 - 1. Field measurements
 - 2. Field construction criteria
 - 3. Catalog numbers and other data
 - 4. Conformance with submission requirements
- B. Coordinate each submittal with contract documents and work schedules to prevent any delay in the work.
- C. Contractor's responsibility for errors and omissions is not relieved by the Engineer's review of submittals.
- D. At time of submission, and in writing, notify the Engineer of submittal deviations from contract documents. Contractor's responsibility for deviations from contract documents is not relieved by the Engineer's review of submittals unless the Engineer gives written acceptance of specific deviations.
- E. Begin no work related to submittals until return of submittals with the Engineer's stamp and initials or signature indicating review.
- F. Distribute copies after the Engineer's review.

PART 3 – ENGINEER'S DUTIES

- A. Review submittals with reasonable promptness to prevent any delay in the work. Review for conformance with:
 - 1. Design concept of project
 - 2. Contract documents
- B. Review of a separate item does not constitute review of an assembly in which the item functions.
- C. Return to Contractor those submittals, which do not meet the requirements and require correction and resubmission.
- D. Affix stamp and initials or signature certifying review of submittal.
- E. Return reviewed submittals to Contractor for distribution.

PART 4 – PREPARATION REQUIREMENTS

4.1 SHOP DRAWINGS

- A. Preparation by a qualified detailer is required.
- B. For Mechanical and Electrical work use the same sheet size as contract drawings.
- C. Where necessary for clarity, identify details by reference to sheet and detail numbers on contract drawings.
- D. Include on the drawing all information required for submission or submit transmittal letter containing required information.
- E. Prepare the number of copies, which the Contractor requires for distribution, plus three (3) copies to be distributed by the Engineer. For electrical and structural shop drawings, provide one (1) extra copy for distribution by the Engineer.

4.2 PRODUCT DATA

- A. Modify the manufacturer's standard schematic drawings to delete or supplement information as applicable.
- B. For manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other descriptive data:
 - 1. Clearly mark each copy to identify pertinent materials, products, or models.
 - 2. Show dimensions and clearances required.
 - 3. Show performance characteristics and capacities.
 - 4. Show wiring diagram and controls.
- C. Include on the data all information required for submission or submit transmittal letter containing required information.
- D. Prepare the number of copies, which the Contractor requires for distribution, plus three (3) copies to be retained by the Engineer. For electrical and structural product data, provide one (1) extra copy for distribution by the Engineer.

4.3 SAMPLES

- A. Submit office samples of sufficient size and quantity to clearly illustrate:
 - 1. Functional characteristics of project or materials with integrally related parts and attachment devices.
 - 2. Full range of color samples.
- B. Erect field samples and mock-ups at the project site in an acceptable location. Construct each sample complete, including work of all trades required in finished work.
- C. Include in transmittal letter all information required for submission.
- D. Prepare the number of samples specified.

PART 5 – SUBMISSION REQUIREMENTS

- A. Accompany submittals with a transmittal letter in duplicate.
- B. Include the following information for each submittal:
 - 1. Date and revision dates
 - 2. Project title and number
 - 3. The names of the
 - a. Engineer
 - b. Contractor
 - c. Subcontractor
 - d. Supplier
 - e. Manufacturer
 - 4. Identification of project or material
 - 5. Relation to adjacent structure or materials
 - 6. Field dimensions clearly identified as such
 - 7. Specification section number
 - 8. Applicable standards, such as ASTM number or Federal Specification
 - 9. A blank space on each shop drawing, approximately 5" x 5", for the Engineer's stamp.
 - 10. Identification of deviations from contract documents
 - 11. Contractor's stamp, initialed or signed, certifying review of submittal, verification of field measurements and compliance with contract documents.
- C. Submit all required shop drawings, product data and samples for the following work at one time. Suitably organize and index 8½" x 11", 11" x 17" and other compatibly sized material in the three (3) ring binder. Larger shop drawings may be submitted together either rolled or folded. Include an index.
 - 1. Mechanical: Division 15
 - 2. Electrical: Division 16

PART 6 – RESUBMISSION REQUIREMENTS

6.1 SHOP DRAWINGS

- A. Revise initial drawings as required and resubmit as specified for initial submittal.
- B. Indicate on drawings any changes, which have been made other than those, requested by the Engineer.

6.2 PRODUCT DATA AND SAMPLES

Submit new data and samples as required for initial submission.

PART 7 – DISTRIBUTION AFTER REVIEW

- A. Distribute copies of shop drawings and product data which carry the Engineer's stamp to:
 - 1. Contractor's file
 - 2. Job site file
 - 3. Record document file
 - 4. Other prime contractors

5. Subcontractors
6. Supplier
7. Fabricator

B. Distribute samples as directed. After review, samples may be used in construction.

END OF SECTION

SECTION 01370
SCHEDULE OF VALUES

PART 1 – GENERAL

1.1 SCOPE

This section includes requirements for the preparation and submittal of a Schedule of Values, including procedures to breakdown the Work into a sufficient quantity of individual line items to serve as an accurate basis for the Progress Payment Requests.

1.2 RELATED SECTIONS

All sections of the contract documents and technical specifications are related sections. Failure to review contract documents and technical specifications does not relieve the Contractor of complying with all requirements therein.

1.3 PREPARATION

A. Subdivide the Schedule of Values into major items based the numbered Bid Items on the Bid Form. This may include lump sum and unit cost Bid Items.

1. For Lump Sum Bid Items:
 - a. Unless specified in subsection 2.1(e) below, subdivide into logical portions of the Work, such as major work items or work in contiguous construction areas.
 - i. At a minimum, itemize separate line item costs for work required by each section of the specifications.
 - ii. Use the Construction Schedule as a guide to subdivide the Bid Items into individual line items. Directly correlate the line items in the Schedule of Values with tasks in the Construction Schedule.
 - iii. Contractor may be required to breakdown costs to list major products or operations for each line item which has an installed value of more than \$1,000.00, as directed by the Engineer.
 - b. In order to be paid for materials on hand, provide a separate column in the Schedule of Values where the Progress Payment Application may include cost for materials or equipment purchased and stored onsite, but not yet installed, as provided for in the General Conditions and Special Conditions of the Contract. Contractor must indicate which line item in the payment application the materials on hand invoice submitted shall be recommended from. No recommendation will be considered without indication of an applicable line item.
 - c. Where submittal of operation and maintenance data, or testing and startup are required, include separate line items as follows:
 - i. Testing and startup valued at 5% of the of the related equipment, materials, and installation for that piece of equipment.
 - ii. Submittal of operation and maintenance manuals valued at 5% of the sum of the related equipment, materials, installation, and testing and start-up for that piece of equipment.
 - d. Separate site work items from major process area or building components. This includes separate line items for:
 - i. Each major run of piping
 - ii. Each duct bank
 - iii. Below ground versus above ground conduit and wire
 - e. Separate rehabilitation or improvement work from new construction

- f. Breakdowns that appear to be “front-loaded” by the Engineer shall be rejected.
 - 2. For Unit Price Bid Items:
 - a. Show the line item value of the unit cost allowance as a product of the unit cost multiplied by the quantity indicated on the Bid Form.
 - b. Items will be paid based on actual quantity complete and installed.
- C. Make sum of total costs for all items listed in the schedule equal to the total contract sum.
- D. The Schedule of Values, when reviewed by the Engineer and Owner, shall be used as the basis of recommending and approving payments along with establishing percentages of Work complete, and may be used to adjust the contract if any part of the Work is deleted.
- E. The following template shall be used, as a minimum, by the Contractor for the preparation of the Schedule of Values:
 - 1. No specific template is provided.

1.4 SUBMITTAL

- A. Within ten (10) calendar days of the Notice to Proceed, Contractor shall submit to the Engineer a Schedule of Values for review and approval.
- B. Submit an electronic (.pdf) Schedule of Values in accordance with the procedures outlined in Section 01300 – Submittals.
- C. The Schedule of Values must be submitted by the Contractor and approved by the Engineer prior to the cutoff date for the first Progress Payment Request. If the Schedule of Values is not approved by this date, then Progress Payment Request will not be processed or approved.
- D. Should the Schedule of Values be returned “Revise & Resubmit”, resubmittal is due within five (5) calendar days of the receipt of the rejected Schedule of Values. Resubmit revised Schedule of Values in the same manner as the original Schedule of Values.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

**SECTION 01410
LABORATORY SERVICES**

PART 1 – GENERAL

1.1 PAYMENT

- A. The Owner will employ and pay for services of an independent testing laboratory to perform specified testing. The Owner shall approve testing laboratory.
- B. Employment of a testing laboratory in no way relieves the Contractor of his obligation to perform the work according to the contract documents.

1.2 RELATED WORK

- A. General Conditions of the Contract for Construction. Inspections and testing required by laws, ordinances, rules and regulations, or orders of public authorities are the responsibility of the Contractor.
- B. Specification Sections. Contained in the various specification sections are requirements for certification of products, testing, adjusting and balancing of equipment, and other tests and standards.
- C. Division 2, Site Work. Subsurface exploration.

1.3 WORK INCLUDED

Testing is required in accordance with standard Embankment, Excavation, Trenching and Backfill for Utilities, and Structural Excavation and Backfill Specifications.

PART 2 – TESTING LABORATORY

2.1 QUALIFICATIONS

- A. Standards.
 - 1. Meet "Recommended Requirements for Independent Laboratory Qualification," latest edition, published by American Council of Independent Laboratories.
 - 2. Meet basic requirements of ASTM E-329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction."
 - 3. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during most recent tour of inspection, with memorandum of remedies of any deficiencies reported by inspection.

2.2 DUTIES

- A. Cooperate with the Engineer and Contractor and provide qualified personnel promptly on notice.

- B. Perform specified inspections, sampling and testing of materials and methods of construction:
 - 1. Comply with specified standards, ASTM, other recognized authorities, and as specified.
 - 2. Ascertain compliance with requirements of the contract documents.
- C. Promptly notify the Engineer and Contractor of irregularities or deficiencies of work which are observed during performance of services.
- D. Promptly prepare and distribute reports of inspections and tests as follows:
 - 1. Engineer: Two (2) copies
 - 2. Contractor: One (1) copy
 - 3. Owner: One (1) copy
- E. Include the following information for each test as well as additional data specified in the applicable section:
 - 1. Date of Test
 - 2. Location of Test
 - 3. Specified Standards
 - 4. Test Results
 - 5. Remarks

2.3 LIMITS OF AUTHORITY

The laboratory is not authorized to:

- A. Release, revoke, alter, or enlarge on requirements of the contract documents.
- B. Approve or accept any portion of the work.
- C. Perform any duties of the Contractor.

PART 3 – CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel, provide access to the work, or to manufacturer's operations.
- B. Provide to laboratory, preliminary representative samples of materials to be tested, in required quantities.
- C. Furnish labor and equipment:
 - 1. To provide access to the work to be tested.
 - 2. To obtain and handle samples at the site.
 - 3. To facilitate inspections and tests.
 - 4. For laboratory's exclusive use for storage and curing of test samples.
- D. Notify the laboratory at least 48 hours in advance of operations to allow for his assignment of personnel and scheduling of tests.
- E. Arrange with the laboratory and pay for additional samples and tests required for the Contractor's convenience.

END OF SECTION

SECTION 01420
RESIDENT PROJECT REPRESENTATIVE SERVICES

PART 1 – GENERAL

1.1 SCOPE

This section summarizes the duties, responsibilities, and limitations of authority of the Resident Project Representative (RPR) in connection with his observation of the work.

1.2 AUTHORITY

- A. The definition of the Engineer's duties provides authority for observation of the work.
- B. The RPR's authority to require special inspection or testing in connection with rejected work is also provided in the General Conditions. Furthermore, the provisions that, upon request by the Contractor, the RPR observe and accept or reject any material furnished are also granted in the General Conditions.
- C. The provision for removing work for observation by the RPR is set forth in the General Conditions in the paragraph concerning uncovering of work.

PART 2 – DEFINITIONS

- A. RPR. A representative of the Engineer or Owner will be assigned authority to observe the work.
- B. Working Day. RPRs are generally not required to work on Saturdays, Sundays, or legal holidays. If the Contractor plans work on a Saturday or legal holiday, prior arrangements should be made for a RPR not later than two (2) days prior to the Saturday or legal holiday.
- C. Unobserved Work. Any work performed on a Saturday, Sunday, or legal holiday without benefit of an observation by RPR may require removal and replacement if so directed by the RPR. Removal and replacement will be completed at no additional cost to the Owner.

PART 3 – DUTIES OF THE FIELD PROJECT REPRESENTATIVE

- A. Assist the Contractor's superintendent in understanding the intent of the contract documents.
- B. Conduct on-site observations of the work in progress as a basis for determining conformance of work, materials, and equipment with the contract documents.
- C. Consider and evaluate suggestions or recommendations which may be submitted by the Contractor to the Engineer and report them with recommendations for the Engineer's final decision.
- D. Be alert to the construction schedule and to conditions which may cause delay in completion, and report same to the Engineer.
- E. Maintain liaison with the Contractor and all Subcontractors on the project only through the Contractor's superintendent.

- F. Attend conferences held at the project site as directed by the Engineer. Report to the Engineer the results of such meetings.
- G. Advise the Engineer in advance of the schedules of tests and observe that tests at the project site, which are required by the contract documents, are actually conducted. Observe, record, and report to the Engineer all details relative to the test procedure.
- H. If inspectors representing local, state, or federal agencies having jurisdiction over the project visit the site, accompany such inspectors during their trips through the project. Record and report to the Engineer's office the results of these inspections.
- I. Receive samples, which are required, to be furnished at the site; record date received, from whom, and notify the Engineer of their readiness for examination; record Engineer's approval or rejection; and maintain custody of approved samples.
- J. Review applications for payment submitted by the Contractor and forward them with recommendations to the Engineer for disposition.
- K. After substantial completion, check each incomplete or defective item as it is corrected.
- L. If a situation arises during construction which requires that work be rejected, report such situation immediately to the Engineer.
- M. The field project representative shall not:
 - 1. Authorize deviations from the contract documents.
 - 2. Personally conduct any tests.
 - 3. Enter into the area of responsibility of the Contractor's superintendent.
 - 4. Expedite the work for the Contractor.
 - 5. Advise on or issue directions relative to any aspect of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the work.
 - 6. Authorize or suggest that the Owner occupy the project, in whole or in part, prior to substantial completion.
 - 7. Issue a recommendation for payment.

END OF SECTION

SECTION 01500
TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

The facilities and controls specified in this section are considered minimum for the project. After obtaining approval, the Contractor can provide additional facilities and controls which he deems necessary for proper execution of the work and to meet his responsibilities for protection of persons and property.

PART 2 – BUILDINGS

- A. Field Office. A temporary field office is not required.
- B. Storage. Provide watertight storage facilities of suitable size with floor above ground level for all materials susceptible to weather damage. Storage of other materials on blocks off the ground is acceptable. Place materials to permit easy access for inspection and identification.
- C. Other Buildings. The location or building of structures or the erection of tents or other forms of protection are allowed as approved.

PART 3 – UTILITIES

- A. Job Telephone. A telephone is not required.
- B. Temporary Connections. Temporary connections for electricity, gas, and other services are not required. The cost of connection and use is paid by the Contractor.
- C. Existing Utilities. Connections for water and sewer are not required. The cost of connection and use is paid by the contractor.

PART 4 – SANITATION

Provide and maintain sanitary conveniences to satisfy requirements of local or state health authorities, ordinances, and laws. Obtain approval for location, secluded from public view. Provide a self-contained, above-ground, temporary toilet facility which is sealed and leak-proof.

PART 5 – ACCESS ROADS AND PARKING

Access and parking at the site is not limited by provisions other than those explained under USE OF PREMISES under SUMMARY OF WORK.

PART 6 – REMOVAL OF TEMPORARY FACILITIES AND CONTROLS

Prior to substantial completion, remove all temporary buildings, storage facilities, sanitary conveniences, and signs. Disconnect all temporary utility connections. Clear the area of unnecessary safety items and temporary controls. Remove or restore, as required, all temporary roads and parking areas. Clean up the entire area as specified in the section on Cleaning and Adjusting.

END OF SECTION

**SECTION 01710
CLEANING AND ADJUSTING**

PART 1 – GENERAL

1.1 RESPONSIBILITY

- A. The Contractor is responsible for cleaning and adjusting the work. If the Contractor fails to clean and adjust the work, the Owner may do so and charge the resulting costs to the Contractor.
- B. Detailed cleaning and adjusting requirements for specific trades or work are specified in sections pertaining to that trade or work.

1.2 REQUIREMENTS OF REGULATORY AGENCIES

- A. Fire Protection. Store volatile waste in covered metal containers and remove from premises daily.
- B. Pollution Control. Conduct cleaning and disposal operations in compliance with local ordinances and antipollution laws.
 - 1. Remove waste materials, rubbish, and debris from the site and legally dispose at public or private dumping areas off the project site.
 - 2. Disposal of volatile fluid wastes and other chemical wastes in storm or sanitary sewer systems or into streams or waterways is not permitted.
- C. Safety Standards. Maintain the project in accordance with safety and insurance standards.

PART 2 – PRODUCTS

Use only cleaning materials recommended by the manufacturer of the surface to be cleaned. Employ cleaning materials as recommended by the cleaning material manufacturer.

PART 3 – EXECUTION

3.1 DURING CONSTRUCTION

- A. Oversee cleaning and insure that the premises are maintained free from accumulations of waste material and rubbish. Do not allow waste materials, rubbish, and debris to accumulate and become unsightly or create a hazard. Provide containers and locate on site for collection of waste material, rubbish and debris.
- B. At reasonable intervals during progress of the work, collect and dispose of waste material, rubbish, and debris. Handle waste in a controlled manner. Do not drop or throw materials from heights.

3.2 FINAL CLEANING AND ADJUSTING

- A. Use experienced workmen or professional cleaners for final cleaning.
- B. Remove grease, dust, dirt, stains, paint, oil, labels, fingerprints, and other foreign materials from interior and exterior surfaces. Repair, patch, and touch-up marred surfaces to match adjacent finishes.
- C. Broom clean paved surfaces; rake clean other surfaces of grounds.
- D. If installed features of the work fail to operate or operate improperly, make the necessary adjustments to permit and insure proper operation. Remove and repair or replace maladjusted items if necessary for proper adjustment.
- E. Remove all waste material and rubbish from the project area, as well as all tools, construction equipment, machinery, surplus materials, and temporary facilities.
- F. Immediately prior to acceptance or occupancy, conduct a final inspection of exposed interior and exterior surfaces to verify that the work is properly cleaned. Maintain cleaning until the premises are occupied by the Owner.
- G. Clean and service all air filters and pipe strainers. Replace disposable air filters if dirty.

3.3 ADJACENT AREAS

To the Owner's satisfaction, clean or repair adjacent areas affected by the construction. Remove dust and debris in the adjacent area. Repair, patch, and touch-up marred surfaces to match adjacent finishes.

END OF SECTION

**SECTION 01720
PROJECT RECORD DOCUMENTS**

PART 1 – GENERAL

Prepare and maintain record documents for the project to accurately reflect the construction as built. Documents must be submitted at work completion as a condition of final acceptance.

PART 2 – MAINTENANCE OF RECORD DOCUMENTS

- A. Maintain at the job site, one (1) copy of:
 - 1. Contract drawings
 - 2. Complete set of specifications
 - 3. Addenda
 - 4. Reviewed shop drawings
 - 5. Change orders and field orders
 - 6. Other contract modifications
 - 7. Field test records
 - 8. Correspondence

- B. Store record documents in an approved location apart from documents used for construction. Do not use record documents for construction purposes. Provide files and racks for orderly storage. Maintain documents in clean, dry, legible condition. Make documents available at all times for inspection by the Engineer.

PART 3 – MARKING DEVICES

Mark all changes with red pencil.

PART 4 – RECORDING

- A. Keep record documents current. Do not permanently conceal any work until required information has been recorded.

- B. Label each document "PROJECT RECORD" in two-inch (2") high printed letters. Legibly mark contract drawings to record actual construction:
 - 1. Depths of various elements of foundation in relation to survey data.
 - 2. Horizontal and vertical location of underground and underslab utilities and appurtenances referenced to permanent surface improvements.
 - 3. Location of internal utility and appurtenances referenced to permanent surface improvements.
 - 4. Field changes of dimension and detail.
 - 5. Changes made by change order or field order.
 - 6. Details not on original contract drawings.

- C. Legibly mark specifications and addenda to record:
1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 2. Changes made by change order or field order.
 3. Other matters not originally specified.
- D. Legibly annotate the following shop drawings to record changes made after review:
1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 2. Changes made by change order or field order.
 3. Other matters not originally specified.

PART 5 – SUBMITTAL

- A. At project completion, deliver record documents to the Engineer. Place all letter-sized material in a three (3) ring binder, neatly indexed. Bind contract drawings and shop drawings in rolls of convenient size for ease of handling.
- B. Accompany the submittal with a transmittal letter in duplicate, containing:
1. Date
 2. Project title and number
 3. Contractor's name and address
 4. Title number of each record document
 5. Certification that each document as submitted is complete and accurate.
 6. Signature of Contractor

END OF SECTION

**SECTION 02102
CLEARING AND GRUBBING**

PART 1 – GENERAL

1.1 SCOPE

Clearing and grubbing consists of removal and disposal of trees, stumps, brush, roots, vegetation, logs, rubbish, and other objectionable matter within designated areas.

1.2 PAYMENT

Clearing and grubbing will be paid at the lump sum price bid for the work..

PART 2 – PRODUCTS

The Contractor may use equipment and materials necessary to properly complete clearing and grubbing. Obtain approval for equipment and materials before beginning clearing and grubbing.

PART 3 – EXECUTION

3.1 CLEARING

Remove stumps, roots, rubbish, or other objectionable matter from the designated areas. Trees within 10 feet of drainage easements and within back slopes for interceptor ditches may be removed where required for construction operations.

3.2 GRUBBING

Remove stumps and roots within pavement section to depth of two-feet (2') below finish subgrade elevation. For areas outside pavement section, remove stumps and roots to depth of two-feet (2') below finished surface of required cross-section.

3.3 PRESERVATION

Protect trees left within street right-of-ways and designated for preservation. Take special care not to damage trees designated for preservation which are outside limits of clearing and grubbing.

3.4 REMOVING MATERIAL

Unless otherwise specified, all cleared and grubbed material becomes property of the Contractor to be removed from the work site or disposed of in a manner not to damage the Owner.

END OF SECTION

**SECTION 02110
DEMOLITION**

PART 1 – GENERAL

1.1 DESCRIPTION

The work includes demolition of materials and equipment. Demolition work includes removal of the following items:

- A. General Work Items and Utilities.
1. Existing Headwalls and Wingwalls

1.2 PAYMENT

Demolition will be paid at the lump sum price bid for the work.

PART 2 – PRODUCTS

Obtain approval for equipment and materials before beginning demolition.

Material utilized to fill voids created by demolition activities shall be Select Fill, conforming to technical specifications.

PART 3 – EXECUTION

3.1 PROTECTION OF PERSONS AND PROPERTY

- A. Provide protection of persons and property, including safe working conditions throughout work progress.
- B. Minimize the spread of dust and flying particles. Execute demolition in a manner to prevent damage from falling debris or other sources to Owner's property or adjacent property.
- C. Do not interfere with use of adjacent buildings; maintain free and safe access at all times. Guard against movement or settlement of adjacent buildings. The Contractor is responsible for safety and integrity of adjacent structures and, consequently, is liable for any movement or settlement and any resulting injuries or damage. Provide proper bracing and shoring necessary for support. If safety of adjacent buildings appears to be endangered, cease operations. Do not resume demolition until proper protective measures have been taken.

3.2 BLASTING

Blasting is not permitted on this project.

3.3 FIRES

Fires are not permitted on this project.

3.4 UTILITY SERVICES

- A. Interruption. When temporary interruption of utility service to an occupied building is required by the work, properly coordinate the outage to prevent untimely or damaging interruptions.

3.5 GENERAL WORK ITEMS

- A. Operational procedures are at the Contractor's option but must not interfere with the execution of other work. Materials or equipment designated for reuse or salvage will be carefully removed, transported and stored in approved storage areas.
- B. Structures. Remove structures as indicated on construction drawings.
- C. Contractor shall exercise extreme care to not damage, compromise, or otherwise affect any existing structure or feature which is not designated for dismantling or removal under this Project. If any feature, or part thereof, not specifically designated in the Plans for dismantling and removal under this Project is damaged, the Contractor shall IMMEDIATELY contact the Owner for direction on how to proceed. Any damages shall be restored to the satisfaction of the Owner without additional cost to the Owner. Owner, may at his discretion, chose to make necessary repairs, for which the Contractor shall be financially responsible.
- D. Any concrete structure designated for partial removal shall be sawcut to fully separate the portion to be removed from the portion to remain. In-situ breaking or “sledging” of any concrete prior to removal shall not be permitted. Concrete may be cut into smaller, more manageable pieces for handling and removal.
- E. Contractor shall provide not less than 3 working days notice to the Owner prior to commencement of any isolation or re-flooding activities within the canal or existing structure.

3.6 REMOVAL AND DEPOSITION

- A. Concrete, steel, and timbers removed as part of the project will immediately become the property of the Contractor. Contractor shall be responsible for removal and disposal of all materials demolished and removed as part of the project.
- B. Any temporary storage or stock piling of materials or structure removed in conjunction with this project shall be maintained within the approved project limits and done in a neat and orderly manner. If, at any time, in the opinion of the Owner, the temporary storage is deemed a nuisance, hazard, or threat to human health or safety or to the operation of the Canal, to the adjacent property, or to the general public, then Contractor shall immediately remove any objectionable material from the construction site.
- C. Contractor shall comply with all applicable local, State, and Federal regulations in disposal of all materials.

END OF SECTION

**SECTION 02212
EMBANKMENT**

PART 1 – GENERAL

1.1 DESCRIPTION

Embankment work consists of placing and compacting approved materials to required lines, grades and cross sections.

1.2 PAYMENT

Embankment will be measured by the cubic yard of compacted fill in place. Measurement will be by the method of average end areas based on cross sections taken at completion of work. Payment will be on a cubic yard basis.

PART 2 – PRODUCTS

Specific products are not required. Use equipment and materials necessary to properly complete embankment work.

PART 3 – EXECUTION

3.1 EXCAVATED MATERIALS

Suitable materials from excavation operations may be used for embankment. Suitable materials are those free of vegetation, humus or debris.

3.2 BORROW

If excavated material is not available in sufficient quantities for embankment work, obtain additional material from designated or approved sources. Such borrow material shall have a plasticity index between 15 – 38. Between 60% – 85% of the material shall pass a No. 200 sieve.

3.3 PREPARATION

To prepare for embankment work, strip the area of vegetation, humus or other debris. Dispose of strippings with other waste materials.

3.4 CONSTRUCTION

- A. Do not conduct placement operations during inclement weather or when existing ground or fill materials exceed 3 percent of optimum moisture content. Contractor may manipulate wet material to facilitate drying by disking or windrowing.
- B. Do not place embankment fill until density and moisture content of previously placed material comply with specified requirements.

- C. Scarify areas to be filled to minimum depth of 4-inch (4") to bond existing and new materials. Mix with first fill layer.
- D. Spread fill material evenly from dumped piles or windrows, into horizontal layers approximately parallel to finished grade. Place to meet specified compacted thickness. Break clods and lumps and mix materials by blading, harrowing, disking or other approved method. Extend each layer across full width of fill.
- E. Each layer shall be homogeneous and contain uniform moisture content before compaction. Mix dissimilar abutting materials to prevent abrupt changes in composition of fill.
- F. Construct embankments in successive horizontal layers, uniform as to material, moisture and density. Where pneumatic rolling equipment is used, layer thickness must not exceed six-inches (6") before compaction. For tamped rolling equipment, layer thickness must not exceed eight-inches (8"). A layer thickness greater than twelve-inches (12") prior to compaction is not permitted, regardless of compaction methods or requirements.
- G. Construct to lines and grades shown on Drawings.

3.5 COMPACTION

Compact to the required density by blading, rolling and sprinkling. Use mechanical tamps to obtain the required density in areas inaccessible to other equipment. Unless otherwise specified, place embankment at -3% to +5% of optimum moisture content. Compact to a minimum density of 95 percent (95%) using AASHTO Standard Method T-99.

END OF SECTION

SPECIFICATION 02220
EXCAVATION, TRENCHING AND BACKFILLING FOR SIPHONS

PART 1 – GENERAL

1.1 SCOPE

This section provides for excavation, trenching and backfilling for siphon pipes, and other utility systems and appurtenances.

1.2 RELATED WORK

- A. Division 2, Site Work.
1. Cement-Sand Backfill
 2. Trench Safety System

1.3 MEASUREMENT AND PAYMENT

No separate payment will be made for work performed under this section. Include the cost of such work in contract prices for the items listed in the bid form and specified in other sections of this work.

No separate payment will be made for performing Critical Location exploratory excavation. Include cost in unit price for installed underground piping, sewer, conduit, or duct work.

PART 2 – PRODUCTS

2.1 CEMENT-SAND BACKFILL

Prepare cement-sand backfill as specified in the section on Cement-Sand Backfill, Division 2, Site Work.

2.2 BANK SAND

Obtain bank sand from an approved source. Use sand that is free from clay lumps, organic and other deleterious material, and having a plasticity index (PI) of four (4) or less.

PART 3 – EXECUTION

3.1 EXCAVATION

- A. Procedure. Excavate to indicated or specified depths.
1. During excavation, pile material suitable for backfilling in an orderly manner far enough from the bank of the trench to avoid overloading, slides or cave-ins.
 2. Remove any waste as indicated or directed including all excavated materials not required or suitable for backfill.
 3. Grade as necessary to prevent surface water from flowing into trenches or other excavations. Remove any water accumulating in trenches or other excavations, using pumping or other approved means.

4. Excavate by open cut with trenching machine or backhoe. Where machines other than ladder or wheel type trenching machines are used, do not use excavated material composed of large chunks or clods for back-fill, but dispose of such material and provide other suitable material for backfill without additional expense.

B. Trench Excavation.

1. Dig the trench the proper width for laying pipe, as shown. Trench width in the pipe zone shall not exceed pipe O.D. plus 24 inches. Cut banks of pipe trench as nearly vertical as practical. Remove stones as necessary to avoid point-bearing. Over excavate wet or unstable soil from the trench bottom to permit construction of a more stable bed for pipe.
2. Backfill the trench to the proper grade with granular material.
3. Be careful not to over excavate. Accurately grade the trench bottom to provide uniform bearing and support for each section of pipe on undisturbed soil at every point along its entire length, except where necessary to excavate for bell holes and for proper sealing of pipe joints. Dig bell holes and depressions for joints after the trench bottom has been graded. Make bell holes and depressions for joints no deeper, longer or wider than needed to make the joint properly.

- C. Sheeting and Bracing. Install in trenches and other excavations with vertical sides, sheeting and bracing necessary to support the sides. Sheeting may be pulled after excavation has been backfilled, but not without approval.

- D. Siphon Pipe Bedding. Excavate approximately eighteen inches (18") around installed siphon to allow room for adequate compaction. Excavations shall be sloped to comply with construction drawings with all construction safety requirements. Prior to placement in the excavation, the siphon's orientation shall be confirmed. Provide bedding as shown on the drawings. After placement, verify to ensure that siphon is level. Any over-depth excavation below such appurtenances not directed will be considered unauthorized and will be refilled with sand, gravel or concrete, as directed, at no additional cost.

3.3 PROTECTION OR REMOVAL OF UTILITY LINES

Existing utility lines shown on drawings or known to the Contractor prior to excavation and that are to be retained, as well as utility lines constructed during excavation operations must be carefully protected and satisfactorily repaired if damaged. Any damage to lines not shown should be reported immediately. When utility lines that are to be removed are encountered, notify the Engineer so that measures can be taken to avoid interruption of services.

3.4 BACKFILLING

- A. Criteria. Do not backfill trenches until the utility systems that are installed to conform to specified requirements of the appropriate sections. Backfill trenches to ground surface with selected material as specified for embankments under applicable sections in Division 2, Site Work. Reopen trenches improperly back-filled to depth required for proper compaction. Refill and recompact as specified, or otherwise correct the condition in an approved manner. Compaction shall be by mechanical means. Water tamping is not allowed.

B. Open Areas.

1. In the pipe zone, deposit backfill material in layers no thicker than six-inches (6"). Compact to 95 percent (95%) AASHTO Density, Test Method T-99 at minus three percent (-3%) to plus five percent (+5%) of

optimum moisture content, until there is a cover of not less than one-foot (1') over utility lines. Use selected backfill material of optimum moisture content. Take special care not to damage pipe wrapping or coating.

2. Above the pipe zone, deposit backfill in 12-inch (12") layers. Compact each layer to 90 percent (90%) AASHTO Density, Test Method T-99, at minus three percent (-3%) to plus five percent (+5%) of optimum moisture content.

C. Pavement Sections.

1. In the pipe zone, deposit cement-sand backfill in layers six inches (6") or thinner. Compact each layer to 95 percent (95%) of AASHTO Density, Test Method T-99, at minus three percent (-3%) to plus five percent (+5%) of optimum moisture content.
2. Above the pipe zone, deposit cement-sand backfill in 12-inch (12") layers and compact to 95 percent (95%) AASHTO Density, Test Method T-99 at minus three percent (-3%) to plus five percent (+5%) of optimum moisture content. Place compacted cement-sand to within one-foot (1') of proposed subgrade. Cure cement-sand layer at least three (3) days before placing pavement on top of it.

3.5 CRITICAL LOCATION INVESTIGATION

- A. Horizontal and vertical location of various underground lines shown on Drawings, including but not limited to waterlines, gas lines, storm sewers, sanitary sewers, telecommunication lines, electric lines or power ducts, pipelines, concrete and debris, are based on best information available but are only approximate locations. At Critical Locations shown on Drawings, perform vacuum excavation to field verify horizontal and vertical locations of such lines within zone of 2 feet vertically and 4 feet horizontally of proposed work.
1. Minimum of 7 days prior to manufacturing pipe and prior to beginning pipeline excavation or excavation for auger pit or tunnel shaft, Contractor shall properly locate and identify all existing utilities in proximity to the proposed utility construction. Contractor shall confirm existing utility locations. Use extreme caution and care when uncovering utilities designated by the indication of a Critical Location.
 2. Notify Owner's Representative in writing immediately upon identification of obstruction or any unidentified obstruction. In event of failure to identify obstruction in minimum of 7 days, Contractor will not be entitled to extra cost for downtime including, but not limited to, payroll, equipment, overhead, demobilization and remobilization, until 7 days has passed from time the Owner's Representative is notified of obstruction.
- B. Notify involved utility companies of date and time that investigation excavation will occur and request that their respective utility lines be marked in field. Comply with utility or pipeline company requirements that their representative be present during excavation. Provide Owner's Representative with 48 hours notice prior to field excavation or related work.
- C. Survey vertical and horizontal locations of obstructions relative to project baseline and datum. Submit to Owner's Representative for approval, horizontal and vertical alignment dimensions for connections to existing lines, tied into project baseline, signed and sealed by R.P.L.S.

END OF SECTION

**SECTION 02221
CEMENT-SAND BACKFILL**

PART 1 – GENERAL

1.1 SCOPE

This section provides for the use of cement-sand as bedding material under siphons and concrete structures.

1.2 RELATED WORK

- A. Division 2, Site Work.
 - 1. Raw Water Conveyance
 - 2. Concrete Structures

1.3 PAYMENT

No separate payment will be made for work or materials performed under this section.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Sand. Use clean durable sand containing not more than the following:
 - 1. Deleterious materials.
 - a. Clay lumps, ASTM C-142; less than 0.5 percent (0.5%)
 - b. Lightweight pieces, ASTM C-123; less than five percent (5.0%)
 - c. Organic impurities, ASTM C-40; shall not show a color darker than the standard color
 - d. Other deleterious materials such as coal, shale, coated grains of soft flakey particles; less than two percent (2.0%)
 - 2. Plasticity index shall be four (4) or less when tested in accordance with ASTM D-43 and ASTM D-424.
 - 3. Gradation Requirements.

	<u>% Retained</u>
$\frac{3}{8}$ -inch sieve	0%
$\frac{1}{4}$ -inch sieve	0% - 5%
10-mesh sieve	5% - 35%
20-mesh sieve	15% - 55%
40-mesh sieve	35% - 85%
60-mesh sieve	60% - 95%
100-mesh sieve	80% - 97.5%
200-mesh sieve	95% - 100%
270-mesh sieve	100%
 - 4. Color test ASTM C40-73. Color not darker than standard color.
- B. Portland Cement. Furnish Portland cement to conform with ASTM C-150, Type I.
- C. Water. Water shall be reasonably clean and free from injurious amounts of oil, acid, alkalies, salt, organic matter, or other deleterious material.

2.2 PROPORTIONING AND MIXING

Add not less than 1½ sacks of Portland cement to stabilize one (1) cubic yard of sand mixture. Add required amount of water and mix thoroughly in an approved pug-mill type mixer. Stamp batch ticket with the time of loading. Material not in place within three (3) hours after loading will be rejected.

2.3 TESTING

Upon request of the Engineer, the Contractor or his supplier will furnish samples of the sand and cement for testing before and/or during project construction. Samples shall be submitted two (2) days prior to stabilized sand being delivered to the project site. If the material source is changed during project construction, new samples shall be submitted.

PART 3 – EXECUTION

3.1 BEDDING PROCEDURES

- A. Place cement-sand in a trench or excavation prepared for sewer pipe to the depth shown on the drawings.
- B. After bedding material is in place, set pipes in position to grade.
- C. Add additional cement-sand material around pipe, filling to at least six-inches (6") above pipe crown. Place cement-sand material at optimum moisture content, and in layers not to exceed six-inches (6") measured loose.
- D. Compact with mechanical hand tamps to at least 95 percent (95%) of AASHTO Density, Test Method T-99.

3.2 FOUNDATIONS

Use cement-sand for stabilizing below the foundation for siphons. Backfill to a minimum of six-inches (6") above the largest pipe crown. With "AA" bedding, continue cement-sand backfill to within one-foot (1') of the finished pavement surface.

3.3 BACKFILL PROCEDURES

- A. Place cement-sand in trenches as backfill. Backfill to within one-foot (1') of the subgrade with the cement-sand.
- B. Place cement-sand material at optimum moisture content in layers not to exceed 12-inches (12"), measured loose.
- C. Compact with mechanical hand tamps to at least 95 percent (95%) of prescribed AASHTO Density, Test Method T-99.

3.4 PERFORMANCE

The sand-cement mixture shall produce a minimum unconfined compressive strength of 100 pounds per square inch (100 psi) in 48 hours when compacted to 95 percent (95%) of ASTM D-698 without additional moisture control, cured (ASTM C-31, Item 9), and tested in accordance with ASTM C-31.

END OF SECTION

SECTION 02222
STRUCTURAL EXCAVATION AND BACKFILL

PART 1 – GENERAL

1.1 DESCRIPTION

This section describes the excavation for all structures, the backfilling around completed structures and the disposal of all excess excavated material. All operations required for the proper completion of the excavation work, including sheeting, shoring, bracing, dewatering of excavations, and compaction of backfill are included under this section.

1.2 REFERENCE STANDARDS

Perform all work in this section in accordance with applicable sections of the following standards, except as modified in this specification.

- A. American Society of Testing and Materials (ASTM).
- B. American Association of State Highway and Transportation Officials (AASHTO).

1.3 PAYMENT

No separate payment will be made. Include cost of work in other related bid prices.

1.4 PROTECTION

Before the start of earthwork operations, adequately protect existing structures, utilities, trees and shrubs and other permanent objects. Costs resulting from damage to permanent facilities due to negligence or lack of adequate protection will be charged to the Contractor. The Contractor will also be charged for damage to facilities scheduled for later removal or demolition if the damage sufficiently impairs proper operation to the extent that temporary replacement or repair is required.

PART 2 – PRODUCTS

2.1 REGULAR BACKFILL

Where no other backfill is specified, use suitable soils from the excavation as backfill material.

2.2 SAND BACKFILL

Where sand backfill is specified, use reasonably clean bank sand from an approved source. The sand must be free from large lumps of clay, rubbish, organic matter or other deleterious substance. Not more than 12 percent (12%) by weight shall pass the 200 mesh sieve and the plasticity index shall not exceed 4.0.

2.3 CEMENT-STABILIZED SAND BACKFILL

- A. Prepare a mixture of sand, cement and water.

B. Use washed river sand free from large clay lumps or appreciable amounts of other foreign materials. The sand must not be darker than the standard color when subjected to a color test in accordance with ASTM C-40.

C. Required gradation of sand:

<u>Screen Size</u>	<u>Percent Retained</u>
3/8 -inch screen	0 Percent
1/4 -inch screen	0 Percent - 5 Percent
20 mesh screen	15 Percent - 50 Percent
100 mesh screen	80 Percent - 100 Percent

D. Use Type I cement conforming to ASTM C-150.

E. Mix in a pug mill using not less than 1½ sacks of cement per cubic yard of mixture with sufficient water to hydrate the cement.

PART 3 – EXECUTION

3.1 EXCAVATION

Excavation work shall be unclassified and includes removal of all types of materials encountered without exception. Make excavations to lines and grades indicated on drawings. Complete excavations within the tolerances specified. Perform all work in conformity with the rules and regulations of the Federal Occupational Safety and Health Act.

A. Shoring, Bracing and Dewatering. Provide shoring, bracing and dewatering of excavations required to properly and safely complete the work as shown. Construct shoring and bracing to prevent the excavation from extending beyond specified or indicated limits and to protect workmen. Keep excavations dewatered by drainage, pumps or well points as necessary while work is in progress. Dewatering methods are subject to approval. Remove shoring, bracing and sheathing as excavations are backfilled in a manner to prevent injurious caving.

B. Pipe Trenches. Excavate by open cut methods. Make and maintain the sides of the trench as nearly vertical as practical. Provide shoring to maintain the sides of the trench in a vertical position and to protect workmen. Complete and shape the trench to provide free working space and to permit thorough tamping of backfill around the pipe. Grade trench bottoms accurately to provide uniform bearing on firm soil along the entire length of each pipe section. Remove rubbish, rock or debris encountered at grade to at least six-inches (6") below the bottom of the pipe. Reshape and compact the trench bottom. Working space measured from the outside of the pipe to the side of the trench must be at least six-inches (6") but not more than 24-inches (24"). Provide bell holes where required for making proper connections at joints.

C. Structures Other Than Pipes.

1.

- a. Wherever practicable cut all footing excavations to neat lines with a tolerance of minus one-inch (1") or plus three-inches (3") and place concrete to bear against earth sides.
- a. Cut all excavations a sufficient distance from walls, shafts or similar elements of structures to allow for placing and removing forms and for inspection.
- b. Make no excavation beyond a vertical plane three-feet (3') outside of footing lines or wall lines except as shown or specifically authorized.

2. Carry all excavations to the elevations shown and to deeper levels as directed when suitable foundation soils are not encountered at plan depth. Remove all pockets of soft or otherwise unstable soils and replace with concrete or with suitable well compacted soil as directed.
3. Fill all unauthorized excessive excavation with concrete at no change in the contract sum.
4. Protect all open excavations from rainfall or excessive drying. Provide pumps and other equipment as required to keep excavations reasonably free of water at all times and completely free of water during placement of concrete.
5. Do not remove the last four-inch (4") depth of excavation for slabs or footing until reinforcing steel and concrete are ready to be placed.
6. For footings founded on rock, hard shale or similar material, remove all loose material. Clean and cut to a firm surface either level, stepped or serrated as directed. Clean out seams and fill with concrete at the time footing concrete is placed.

3.2 BACKFILL

Complete backfill to the surface of natural ground or to the lines and grades shown on drawings. Except where special materials are requested, use suitable soils from the excavation as backfill material. Do not use peat or other organic matter, silt, muck, debris or similar materials. Deposit backfill in uniform layers and compact each layer as specified.

- A. Backfill at Structures. Place backfill as promptly as practicable after completion of each structure or portion of a structure. Do not however, place backfill against concrete walls or similar structures until concrete has been cured at least seven (7) days. Remove concrete forms before starting backfill and remove shoring and bracing as the work progresses. Take care to prevent any wedging action of backfill against the structure. Step cut or serrat the slopes bounding the excavation as required to prevent wedging.
- B. Backfilling of Pipe Trenches.
 1. Do not start backfilling until all pipe joints have been inspected and approved. Remove shoring and bracing before backfilling or as backfilling progresses. When specifically approved, shoring and bracing may be cut off 18 inches below the ground line and left in place.
 2. Place initial backfill in equal layers along both sides of the pipe and carefully tamp to form a uniform bedding. Continue in this manner until the pipe is covered.
- C. Compacting Backfill. Place material in uniform layers of prescribed maximum thickness and wet or dry the material to approximately optimum moisture content. Compact with power-driven hand tampers to the prescribed density.
 1. Regular Backfill. Place in eight-inch (8") maximum layers, loose measure. Compact to not less than 95 percent (95%) of maximum dry density as determined by AASHTO Standard Method T-99.
 2. Sand Backfill and Filter Material Backfill. Place in six-inch (6") maximum layers, loose measure. Compact to not less than 95 percent (95%) of maximum dry density as determined by AASHTO Standard Method T-99.
 3. Cement Stabilized Sand Backfill. Place in eight-inch (8") maximum layers. Compact to not less than 95% of maximum dry density as determined by AASHTO Standard Method T-99.

3.3 DISPOSAL OF EXCESS MATERIAL

Dispose of excess or unsuitable material from the excavation off the job site.

END OF SECTION

**SECTION 02225
CHANNEL EXCAVATION**

PART 1 – GENERAL

1.1 DESCRIPTION

Work under this item shall include excavation of the channel including raw water canal and all other related work as shown on the plans or indicated in the specifications.

1.2 MEASUREMENT AND PAYMENT

- A. Channel excavation will be measured in its original position by the method of average end areas.
- B. Payment will be based on the unit price per cubic yard, as bid, and such payment will be full compensation for furnishing all labor, supervision, supplies, materials, and equipment required to complete the work including all items of excavation, disposal, haul, spreading, grading and dressing as specified.

PART 2 – PRODUCTS

- A. Specific products are not required. Use equipment and materials necessary to properly complete work described in this section.
- B. Obtain approval for equipment and materials before beginning disposal of channel excavation.

PART 3 – EXECUTION

3.1 EXCAVATION

The Contractor shall complete the excavation for the rectified channel and new channel in accordance with grades, bottom widths and side slopes shown on the plans or as altered by the Engineer.

3.2 DESIGNATED FILL AREAS

The Contractor shall fill and grade the designated areas as shown on the plans. The earth material in the fill areas will be spread in approximately eight-inch (8") layers and compacted by suitable rolling equipment to AASTO T-99 95 percent (95%) Standard Proctor Density. The earth material placed in the fills will be watered to obtain the proper moisture content for compaction. Normally use of a bulldozer alone is not adequate to obtain 95% Proctor.

3.3 DISPOSAL OF EXCAVATED MATERIAL

The Contractor shall be responsible for disposal of all excavated material not used for backfill or grading berm areas as specified.

3.4 CHANNEL COMPLETION

Prior to final inspection by the Engineer, the Contractor shall remove all silt from the bottom of the channel and shall drag the slopes and berm to provide a smooth surface.

END OF SECTION

**SECTION 02226
TRENCH SAFETY SYSTEM**

PART 1 – GENERAL

1.1 SCOPE

This section provides for the installation and maintenance of a trench safety system that meets the minimum requirements of OSHA Safety and Health Regulations, Part 1926, subpart P.

1.2 RELATED WORK

- A. Division 2, Site Work
1. Raw Water Conveyance
 2. Cement-Sand Backfill
 3. Concrete Construction for Structures

1.3 MEASUREMENT AND PAYMENT

- A. All work performed under this section will be paid for at the lump sum price bid for the work. Price shall include all required materials, installation, maintenance, and removal of the trench safety system.

1.4 QUALITY ASSURANCE

- A. Trench safety system shall meet the current standards established by the Occupational Safety and Health Administration (OSHA) Safety & Health Regulations, Part 1926, Subpart P - Excavations, Trenching and Shoring.
- B. The Engineer's Field Representative will inform the Contractor, the Owner and/or OSHA should the Representative observe actions not in accordance with OSHA regulations. Any construction not in accordance with OSHA regulations may not be eligible for payment, and any delays in construction to bring the project within OSHA regulations will not be the responsibility of the Owner or the Engineer.

1.5 RESPONSIBILITY

Contractor has the sole and exclusive responsibility for the sufficiency of the trench excavation safety systems utilized. The Contractor shall specifically agree that neither the Owner nor the Engineer has such responsibility, and Contractor will not rely on the Owner or the Engineer or any of their representatives for inspection, design, supervision, construction or any other aspect of trench excavation safety protection.

END OF SECTION

**SECTION 02227
WASTE MATERIAL DISPOSAL**

PART 1 – GENERAL

1.1 DESCRIPTION

Waste material disposal consists of disposal of trees, stumps, logs, brush, roots, grass, vegetation, humus, rubbish and other objectionable matter from operations such as clearing and grubbing, excavation and grading. Unless otherwise specified, the Contractor is responsible for removal and disposal of waste material.

1.2 PAYMENT

No separate payment will be made. Include cost of work in contract bid prices.

PART 2 – PRODUCTS

- A. Specific products are not required. Use equipment and materials necessary to properly complete disposal of waste materials.
- B. Obtain approval for equipment and materials before beginning disposal of waste materials.

PART 3 – EXECUTION

All waste material becomes the property of the Contractor and is to be removed from the worksite and legally disposed of in a manner not to damage the Owner. All rules of the Texas Commission on Environmental Quality, Texas Air Control Board, and U.S. Environmental Protection Agency shall be followed in the disposal of waste material.

If regulations require, provide "cradle-to-grave" documentation of the disposal including manifests.

3.1 DISPOSAL AREA

- A. Strip the disposal area of vegetation, humus or other debris. Strippings become property of Contractor to be disposed of with other waste materials.
- B. Protect trees designated for preservation. Take special care not to damage trees designated for preservation which are outside limits of waste disposal areas.

3.2 COMPACTION AND GRADING

Compact waste materials to the density of the surrounding area. Shape the area for proper drainage. Place excess topsoil on waste material in an even layer not greater than three-inches (3") thick and grade smooth.

END OF SECTION

SECTION 02228
RIP-RAP

PART 1 – GENERAL

1.1 SCOPE

This section specifies furnishing and installing graded and broken concrete or stone rip-rap.

1.2 RELATED WORK

- A. Division 2, Site Work
1. Embankment
 2. Channel Excavation

1.3 MEASUREMENT AND PAYMENT

- A. Measurement. Measurement will be made either in linear feet along the channel centerline or in square yards for the area to receive rip-rap as otherwise specified on drawings.
- B. Payment. Payment will be made at the contract unit price bid for rip-rap. Separate bids may be established for each different channel cross-section, or for individual areas to receive rip-rap.

PART 2 – MATERIALS

2.1 BROKEN CONCRETE

Provide evenly graded 80 to 150 pound blocks or as otherwise specified on drawings. Blocks shall be a minimum six-inches (6") thick and maximum twelve-inches (12") thick with no exposed steel or re-bars.

2.2 STONE

Stone for rip-rap shall be well rounded and meet the same size requirements as for broken concrete rip-rap.

2.3 FILTER FABRIC

Furnish a non-degradable filter fabric for erosion protection such as Amoco 1198, Mirafi 700X or approved equal.

PART 3 – EXECUTION

3.1 SLOPE PROTECTION

The sloped surface to receive rip-rap shall be prepared as described in the specification entitled "Channel Excavation" and the plans.

3.2 FILTER FABRIC INSTALLATION

Heavy duty, woven filter fabric shall be laid on the finished grade in all areas designated to receive rip-rap including the toe walls and thickened edges. Rolled fabric shall be unrolled perpendicular to the channel centerline and be overlapped a minimum of four-feet (4') in the direction of water flow. Fabric shall be held securely in place without wrinkles or gaps until rip-rap is installed. The fabric shall be securely toed-in at the top of the sloped area and toed-in or toe-wrapped at the bottom of the slope.

3.3 RIP-RAP INSTALLATION

- A. Provide a minimum 18-inch (18") mat thickness.
- B. Increase the mat thickness at toe of slope as indicated on the plans or as directed by the Engineer.
- C. The maximum slope to receive broken concrete or stone rip-rap shall be two (2) horizontal to one (1) vertical.
- D. There should be no back dumping of rip-rap from slope top or bottom onto filter fabric. Rip-rap should be carefully placed by clam shell or bucket directly to the point of installation.
- E. Placement of rip-rap should proceed upward from the bottom to the top of the prepared slope.

END OF SECTION

SECTION 02500
RAW WATER CONVEYANCE STEEL SIPHONS

PART 1 – GENERAL

1.1 SCOPE

This Item shall govern for furnishing and installing the steel pipes utilized for the construction of the freshwater supply pipe crossing a drainage way.

1.2 RELATED WORK

- A. Division 2, Site Work
1. Excavation, Trenching and Backfilling for Utilities
 2. Cement-Sand Backfill
 3. Concrete Structures
 4. Concrete Construction for Structures

1.3 MEASUREMENT AND PAYMENT

- A. Measurement of the Item, "Steel Pipe" will be measured per pipe by the linear foot unless otherwise noted on the plans or general notes.
- B. The work performed in accordance with this Item will be paid for at the unit price bid for "Steel Pipe" of the diameter specified. This price shall be full compensation for furnishing all labor, materials, equipment and incidentals required to complete the work as specified.
- C. No direct payment will be made for valves, fittings, thrust blocking, excavation, backfill, compaction and other miscellaneous work and materials necessary for proper construction of a water conveyance system. These are included in the contract prices of the various component parts.

1.4 QUALITY ASSURANCE

- A. Experience:
1. Pipe must be the product of one manufacturer with not less than five (5) years of successful experience manufacturing pipe of the type and size indicated. Pipe manufacturing operations (pipe, fittings, lining, and coating) must be performed at one location unless otherwise acceptable to the Engineer.
 2. Furnish an affidavit that the pipe, specials, fitting, and appurtenances furnished comply with all provisions of this Section and applicable ASTM and AWWA Standards.

1.5 SUBMITTALS

- A. Conform to requirements of Specification 01300 Submittals
- B. Manufacturer's product data sheets, shop drawings, specifications, and other data, showing complete details of the fabrication and construction of each size and type of pipe and fittings, together with complete data covering all materials proposed for use, including the following:

1. Pipe stiffness.
 2. Name of manufacturer.
 3. Pipe size, wall thickness, length, and dimensions.
 4. Cell classification.
 5. Laying lengths.
 6. Joint and gasket details with type and configuration sizes, dimensions, and gasket grooves.
 7. Jointing methods and tolerances.
 8. Minimum radii for horizontal deflection.
 9. Details of reinforcement.
 10. Details of lubrication and grouting ports.
 11. Details of fittings and specials.
 12. Fabrication tolerances for all pipe dimensions.
 13. Shop drawings shall be prepared, signed, and sealed by a Professional Engineer licensed in the State of Texas employed or retained by the Contractor.
- C. Pre-Construction submittal data and specifications shall include, but shall not be limited to, the following for each size and type of pipe:
1. Manufacturer and manufacturer's qualifications.
 2. Manufacturing Details. Description and specification of the manufacturer and methods of manufacture including reinforcing, casting, covering, and storage.
 3. Material Properties. Submit data in support of the materials used meet or exceed the specified properties for all materials used including, reinforcing, gaskets, and protective lining, if applicable.
 4. Detailed structural calculations for the pipe confirming the following:
 - a. Calculations shall show loading and other design criteria, design standards, formulas, assumptions, loads, methods of analysis intermediate steps, and results of stresses and displacements.
 - b. If computer calculations are performed, example calculations shall be furnished to show the procedures used by the software.
 - c. Calculations shall be submitted showing that pipe and joints can adequately resist anticipated installation loads, including handling and jacking loads, in-situ and service loads, and all other associated design loads with required factors of safety.

- d. Calculations shall be prepared, signed, and sealed by a Professional Engineer licensed in the State of Texas employed or retained by the Contractor.
5. Pipeline layout and profile drawings showing the location, stationing, and invert elevations of pipe sections, fittings, and closure pieces, if applicable.
6. Handling, storage details, and shop drawings of methods of transportation from the manufacturing location to the site and methods and equipment used to handle and store.

1.6 DESIGN CRITERIA

- A. Pipe, joints, and gaskets shall be designed and furnished by the Contractor in accordance with the requirements of the standards listed herein except as modified or supplemented herein.
- B. Pipe Inside Diameter: Refer to the Drawings.
- C. Design Earth Cover Height Above the Top of the Pipe: Refer to the Drawings.
- D. In Situ Soil Characteristics and Water Table Elevation: Refer to the Geotechnical Engineering Report.
- E. Live Load: Equal to HS-20.
- F. Surcharge Load: As determined by the Contractor during construction.
- G. Groundwater Load: Refer to the Geotechnical Engineering Report.
- H. Intermittent Hydrostatic Pressure or Other Loads: Assume Maximum Water Surface Elevation of 29.00 feet AMSL with the pipe empty or pipe full of water.
- I. Minimum pipe stiffness when tested in accordance with ASTM D2412 shall be 72 psi (SN 72) for trenchless installation or 46 psi (SN 46) for open-cut installation.

PART 2 – PRODUCTS

2.1 STEEL SIPHON MATERIAL

- A. The pipes shall be of the size, strengths and dimensions shown on the plans and shall include all appurtenances and jointing materials as may be required to complete the work.

Provide the types and grades of steel listed in this Section unless otherwise shown on the plans.

Carbon Steel. Meet ASTM A36.

Low-Alloy Steel. Meet the requirements of one of the following standards:

- ASTM A252 Grade 2 or 3;
- ASTM A529 Grade 50;
- ASTM A572 Grade 50 or 55;
- ASTM A588;

- ASTM A709 Grade 50, 50S, 50W, or HPS 50W; or
- ASTM A992.

PART 3 – EXECUTION

3.1 FABRICATION

- A. All pipe of a given size, provided and utilized in this project, shall be of the same fabrication and acquired from a single supplier. Seamless pipe shall be utilized for all pipe having a nominal size equal to or less than 24” diameter. Larger pipe, utilized strictly for the construction of the siphon, may be seamless, spiral welded, or fabricated of rolled plate with longitudinal seams.
- B. If the siphon pipe is fabricated of rolled plate, thinning may not result in a loss of thickness exceeding 5% of the nominal design wall thickness. Any longitudinal seams shall be offset by 1/3 the circumference of the pipe at each successive circumferential weld.
- C. Joints: Full penetration butt welds shall be used for all joints and seems unless otherwise approved in writing by the Engineer.
- D. Protective Coating: All pipe shall be delivered to the project construction site with finished interior and exterior coatings in accordance with Section 09920 Protective Coatings.

3.2 HANDLING AND STORAGE

- A. Pipe shall be handled in a manner to protect the pipe and coating system from damage during loading, unloading, and shipping. All pipe shall be equipped with internal braces to maintain roundness of $\pm 1\%$ during shipping and handling. Pipe shall be handled with nylon slings and spreader bars to protect pipe. Pipe shall be transported and stored on padded bunks or dunnage to protect the exterior surface. Prior to installation, the pipe shall not be stored directly on the ground surface or dragged, skidded, or rolled on the ground surface during handling.
- B. Pipe shall be inspected upon delivery to the site and pipe defects or damaged coating noted. All damaged areas shall be repaired or replaced per the applicable specifications at no additional charge to the Owner.
- C. Contractor shall avoid contact of pipe surface with heavy objects and avoid foot traffic on the pipe surfaces except as required for installation. Pipe surfaces shall be cleaned and prepared for coating repairs and field coating of field weld joints in accordance with the specification for Section 09920 Protective Coatings.

3.3 INSTALLATION

- A. Install pipe, fittings, specials, and appurtenances as specified. Install pipe, fittings, and specials in accordance with the manufacturer’s recommendations, and AWWA M11.
- B. For pipe to be installed by open cut methods, trenching, backfilling, and embedment for pipe shall also be in accordance with Section 02220 Excavation, Trenching and Backfilling.
- C. Pipe shall be installed to the lines and grades indicated.
- D. Each joint of pipe must be inspected immediately prior to being lowered into the excavation. If repair of damaged areas and holidays is permitted by Engineer, repair those areas per the pipe manufacturer’s recommendations before the pipe is lowered into the excavation.

- E. Install pipe as specified. Pipe installation methods will be subject to the acceptance of the Engineer. Pipe must be lowered into the excavation using textile slings. Chains or cables shall not be used for handling the pipe.
- F. Do not damage the gaskets or the ends of the pipe joints. Prior to connecting the joints, inspect and verify that the pipe ends, and gaskets are thoroughly clean with no foreign materials adhering to them. Coat the pipe ends or groove slopes of the pipe with a lubricating material in accordance with the manufacturer’s recommendations. Petroleum lubricants shall not be permitted. Assemble the pipe with sufficient force necessary to make a tight seal on the gasket. Extreme caution shall be taken by the Contractor so as not to damage the pipe. Do not exceed the forces recommended by the manufacturer for joining the pipe
- G. Installation below drainage ditch: Support pipe to distribute loads evenly on bedding material. Temporary timber supports may be utilized to support pipe for field welding. If pipe is supported on steel or concrete cribbing, place ½” thick rubber gasket/bearing pad between pipe and support to protect surface of pipe and prevent damage to the coating.

3.4 TESTING

- A. Conduct pipe testing as outlined below.
- B. Hydrostatic Leak Test-Gravity Flow Sewer Lines:
 - 1. Perform hydrostatic leak tests after installation.
 - 2. The length of the pipe to be tested shall be such that the head over the crown of the upstream end is not less than 2 feet or 2 feet above the ground water level whichever is higher.
 - 3. Plug the pipe with pneumatic bags or mechanical plugs so that the air can be released from the pipe while it is being filled with water.
 - 4. Continue the test for 1 hour and make provisions for measuring the amount of water required to maintain the water at a constant level during this period.
 - 5. Determine the maximum allowable leakage or infiltration by the following formula.

$$L = \frac{C \times D \times S}{126,720}$$

Where L is the allowable leakage in gallons per hour; S is the length of pipe tested in feet; D is the nominal diameter of the pipe in inches; C is infiltration/exfiltration rate. Use 50 for C outside of 25-year floodplain, and 10 for C within 25-year floodplain.

- 6. Determine the rates of infiltration by means of V-Notch weirs, pipe spigot, or plugs in the end of the pipe. Methods, times, and locations are subject to the Engineer's acceptance.
- 7. Pipe with visible leaks or infiltration or exceeds the maximum allowable leakage or infiltration is considered defective and must be corrected.
- C. Alternative Air Test for Individual Joints:

1. An air test at each individual joint will be acceptable in lieu of the hydrostatic test referenced above.
2. Lines 36 inches and larger may be tested at individual joints.
3. Unless otherwise recommended by the manufacturer, the shortest allowable time for the test pressure to drop from 3.5 pounds per square inch (gauge pressure) to 2.5 pounds per square inch (gauge pressure) is 10 seconds for all pipe sizes.
4. Pipe joints that exceed the maximum allowable pressure drop over a specific period of time as recommended by the manufacturer or herein are considered defective and must be corrected by performing repairs as recommended by the pipe manufacturer.

D. Deflection Testing for Pipe:

1. Perform deflection tests on flexible and semi-rigid pipe in accordance TCEQ requirements.
 - a. The maximum allowable deflection of pipe measured as the reduction in vertical inside diameter is 75% of the manufacturer's recommendation.
 - b. Conduct test after the final backfill has been in place a minimum of 30 days.
 - c. Thoroughly clear the lines before testing.
2. Perform test by pulling a properly sized mandrel through the line up to 36-inch diameter. Larger than 36-inch which may be measured from the inside-vertical dimensions.
3. Repair pipe with deflections in excess of the maximum allowable deflection as recommended by the pipe manufacturer.

E. Engineer may require additional performance tests of the joints.

F. Contractor shall not enclose or cover any Work until inspected and required testing has been completed and accepted by the Engineer.

END OF SECTION

**SECTION 02513
CONCRETE STRUCTURES**

PART 1 – GENERAL

1.1 SCOPE

This section provides for the construction of concrete structures.

1.2 RELATED WORK

- A. Division 2, Site Work.
 - 1. Excavation, Trenching and Backfilling for Utilities
 - 2. Concrete Construction for Structures

1.3 MEASUREMENT AND PAYMENT

- A. Payment for structures is on unit price basis for each item installed.
- B. Headwalls including wingwalls will be measured and paid for at the unit price basis for each item including wingwall installed.
- C. No payment will be made for extra depth.

1.4 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit shop drawings for approval of design and construction details for cast-in-place units which differ from units shown on Drawings.
- C. Submit manufacturers' data and details for frames, grates, rings, and covers.

PART 2 – PRODUCTS

- A. Forms, Reinforcing Steel and Concrete. Refer to the section on Concrete Construction for Structures.
- B. Cast Iron. Furnish cast iron conforming to ASTM A-48 for Class 20 gray cast iron. Provide clean and perfect castings, free from sand, blow holes or other defects. Holes in the cover must be clean and free from plugs.

PART 3 – EXECUTION

- A. Excavation and Backfilling. Carry out the excavation and backfill for concrete structures as specified in the section on Excavation, Trenching and Backfilling for Utilities. Excavate to required grades. Dig excavation pits not farther than four (4) feet from the outside wall of the structure.

- B. Concrete Construction. Construct concrete structures in accordance with applicable sections of Division 3, Concrete in regards to forms, reinforcing steel, concrete and finishing.
- C. Class of Concrete. For concrete structures, furnish Class A concrete with 4000 psi compressive strength in 28 days.
- D. Exposed Concrete. Give exposed concrete a rubbed finish. See the section on Concrete Construction for Structures. Chamfer exposed edges $\frac{3}{4}$ -inch ($\frac{3}{4}$ ").

END OF SECTION

SECTION 02515
CONCRETE CONSTRUCTION FOR STRUCTURES

PART 1 – GENERAL

1.1 SCOPE

This section covers the work to be performed in the construction of storm sewer inlets, manholes and miscellaneous concrete items.

1.2 RELATED WORK

- A. Division 2, Site Work.
1. Storm Sewers
 2. Concrete Structures

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Cement.
1. Type. ASTM C-150, Type I unless authorized to be Type III.
 2. Requirements. ASTM Specifications for weight variations and length of storage. Use no caked cement. Deliver in bags for site-mixed concrete. Use only one (1) brand of cement in any one (1) structure.
- B. Water. Clean and free from injurious amount of oils, acids, alkalies, or other deleterious substances.
- C. Coarse Aggregate. ASTM C-33. Unless otherwise specified, use standard size form No. 4 to 1½-inch (1½") and modify only in accordance with the following requirements. Not larger than 1/5 of narrowest dimension between sides of forms, nor larger than 3/4 of the minimum clear spacing between reinforcing bars.
- D. Fine Aggregate. ASTM C-33.
- E. Air-Entraining Admixtures. ASTM C-260.
- F. Reinforcing Steel.
1. Bars. All bars except No. 3 bars shall meet ASTM A-615-72, new billet steel, grade 60, manufactured by the open hearth process, unless otherwise shown or specified. When placed in work, bars shall be free from dirt, scale, rust, paint, oil or other injurious materials. No. 3 bars shall be grade 40 steel.
 2. Bars to be Field Bent. Bars to be bent in the field must be grade 40.

3. Welded Wire Fabric. Wire fabric, when shown shall be ASTM A-82-62T, of gauge and spacing shown with longitudinal and transverse wires electrically welded together at points of intersection and welds of sufficient strength that they will not be broken during handling or placing. Welding and fabrication of fabric sheets shall be in accordance with ASTM A-185-64. Welded wire fabric must be provided in sheets. Rolls are not allowed.
 4. Furnish manufacturer's certificates giving properties of steel and specimens, free of cost, for testing when required.
- G. Curing. Liquid membrane forming compounds for curing concrete shall be Type 2 white pigmented conforming to ASTM Designation C-309.

2.2 STORAGE OF MATERIALS

- A. Cement. Store off ground in a well ventilated weatherproof building.
- B. Aggregate. Prevent admixture of foreign materials and aggregate, and preserve gradation.
- C. Reinforcing Steel. Store in such manner that it is protected from mechanical injury and surface deterioration caused by exposure to conditions producing rust.

2.3 CONCRETE

Use either ready-mixed concrete (ASTM C-94) or site-mixed concrete.

2.4 MEASUREMENT OF MATERIALS

- A. Measure materials by weight.
- B. Water may be measured by volume.
- C. Cement may be measured by bag. One (1) bag weighs 94 pounds.

2.5 CLASSIFICATION AND PROPORTIONING

- A. Proportioning. Concrete materials will be proportioned on basis of maximum water-cement ratio and minimum strength allowable with limits set on minimum cement content. Cement content shall be increased above minimum, without additional cost to Owner, if at any time the type, gradation, or size of aggregate being supplied requires that extra cement be added to meet strength and workability requirements.

B. Classification.

<u>Class</u>	<u>Type</u>	Minimum Compressive Strength (Pounds Per Square Inch) <u>7-Day</u>	Maximum Water Content Per Bag of Cement <u>28-Day</u>	(Gal.)	Minimum Cement (Bags per Cubic Yard <u>Cubic Yard</u>	Consistency Range in Slump <u>(Inch)</u>
A	Normal Weight		2000	3000	6.25	5.0 2 to 5
B	Pipe Blocking Fill	----		1500	8.00	4.0 3 to 5
C	Structural		----	4000		6.0 3 to 5

1. Include a maximum water, free water in aggregate minus absorption of aggregate based on a 30 minute absorption period.
2. Use minimum of 6.5 bags of cement per cubic yard of concrete if concrete is to be placed under water.

C. Consistency. Use concrete with consistency that can be worked readily into corners and around reinforcing steel without segregation of materials or having free water collect on surface. Proportions will be changed if satisfactory mix is not being obtained.

D. Air Content. Approximately three percent (3%) is required, unless otherwise specified. Determine in accordance with approved ASTM standard method.

E. Changes in Mixes. Engineer will make changes in proportions or materials, or both, necessary to secure desired concrete properties, subject to above limitations. Should Contractor desire to make changes in materials, gradation, or proportions of mixture, or use special concrete additives, obtain prior approval.

2.6 QUALITY OF CONCRETE

A. Field Tests. Test cylinders or beams will be made in numbers required to maintain check on strength of concrete. Provide and maintain curing facilities as required in ASTM C-31. Moisture tests of aggregate will be made at sufficient intervals for accurate batching and proportioning.

B. Applicable Standards. ASTM Standards for sampling and testing.

C. Tests on High-Early Strength Cement. Normal Portland cement seven-day (7) and 28-day tests and minimum strengths required at three (3) to seven (7) days.

- D. Failure to Meet Specifications. Should seven-day (7) or three-day (3) test strengths, as applicable for type of cement being used, fail to meet established strength standards, Owner may require extended curing or resumed curing on these portions of structure represented by test specimens. Should additional curing fail to give required strength, Owner may require, at Contractor's expense, strengthening or replacement of portions of structure which fail to develop required strength. Use ASTM C-42 for test cores.

PART 3 – EXECUTION

3.1 MIXING CONDITIONS

- A. General. Mix concrete in quantities required for immediate use, and place concrete within one (1) hour after start of mixing, except as otherwise authorized. Clock-stamp delivery ticket of all batches with time of mixing, at ready-mix plant. When adverse weather conditions affect quality of concrete, work shall be postponed.
- B. Cold Weather. Unless prior approval is obtained, do not mix concrete when air temperature is at or below 40°F (taken in shade away from artificial heat) and falling. Concrete may be mixed when temperature is 35°F and rising. If authorized for placement during cold weather, place concrete in accordance with PCA "Design and Control of Concrete Mixtures." Protect concrete from temperatures below 32°F until it has cured for minimum of three days (3) at 70°F or five days (5) at 50°F. Remove and replace unsatisfactory concrete.

3.2 MIXING AND MIXING EQUIPMENT

- A. Mixer. Use approved type and size, and do not load beyond manufacturer's rated capacity.
- B. Mixing Time. Minimum of 1½ minutes after materials are placed in mixer. Increasing mixing time 15 seconds for each ½ yard increase in mixer capacity over one (1) cubic yard size.
- C. Batch Material Control. Maintain positive batch control, accurate to within one percent (1%).
- D. Operation and Maintenance of Equipment. Clean, maintain, and operate equipment such that it is at all times capable of thoroughly mixing materials as required.
- E. Hand Mixing. Only when approved by Engineer.

3.3 FORMS

- A. General. Provide mortar-tight forms sufficient in strength to prevent bulging between supports. Set and maintain forms to lines designated. Construct forms to permit removal without damage to concrete. Forms may be given slight draft to permit ease of removal. Provide adequate clean-out openings and before placing concrete, remove extraneous matter from within forms.
- B. Design Loads for Forms and Falsework. Use fluid pressure of 150 pounds per cubic foot and live load of 50 pounds per square foot on horizontal surfaces with maximum unit stresses of 125 percent (125%) of allowable stresses used for design of structures.

C. Material.

1. General Form Lumber. Use seasoned lumber of good quality, free from loose or unsound knots, knot holes, twists, shakes, decay and other imperfections which would affect its strength or impair finished surface of concrete. Use S4S lumber for facing or sheathing. Use nominal two-inch (2") lumber as minimum thickness for forms for bottoms of caps, or ¾-inch (¾") form plywood backed adequately to prevent misalignment. Provide lumber of nominal one-inch (1") thickness or form plywood of approved thickness for general use and back by sufficient number of studs and wales.
2. Lining - Rub-Finish Surfaces. Provide form surfaces or form lining surfaces free of irregularities for exposed concrete faces which are to be given rubbed finish. Use plywood for form lining made with waterproof adhesive of ¼-inch (¼") minimum thickness, preferably oiled at mill, and then re-oiled or lacquered on job before using. Facing may be constructed of ¾-inch (¾") plywood made with waterproof adhesive backed by adequate studs and wales, and in which case, form lining will not be required. Provide rubbed finishes where indicated on drawings.
3. Special Form Lumber. Make molding for chamfer strips, or other uses, of redwood, cypress, or pine of quality that will not split when nailed and which can be maintained to true line. Use mill-cut molding dressed on all faces. Unless otherwise provided, fillet forms at sharp corners and edges with triangular chamfer strips, ¾-inch (¾") measured on sides.

D. Form Ties. Use metal form ties of approved type to hold forms in place. Do not use wire ties or snap ties. Remove form ties to depth of at least ¾-inch (¾") from surface of concrete. Form tie holes shall be not larger than 7/8 -inch (7/8") diameter. Do not burn off ties. Do not use pipe spreaders. Remove spreaders which are separate from forms as concrete is being placed.

E. Wetting and Oiling Forms. Treat facing of forms with approved form oil before concrete is placed. When so directed, treat both sides of face forms with oil. Apply oil before reinforcement is placed. In general, wet surfaces for forms which will come in contact with concrete immediately before concrete is placed.

F. Metal Forms. Applicable provisions of foregoing specifications for "Forms" apply equally to metal forms. Countersink bolt and rivet heads on facing sides. Use only metal forms which present smooth surface and line up properly. Keep metal free from rust, grease or other foreign material that will tend to disfigure or discolor concrete. Metal pan forms shall be clean and in good condition, free from dents and rust. Gage and condition of pans shall be such that they will support without significant distortion, concrete and construction loads.

3.4 FALSEWORK

A. General. Provide rigid false work having no excessive settlement or deformation.

B. Design Loads. Use 150 pounds per cubic foot for concrete, and live load of 50 pounds per square foot of horizontal surface of form work with maximum unit stresses of 125 percent (125%) of allowable stresses used for design of structures.

C. Materials. Use sound timber in false work centering. Use hardwood timber for wedges.

3.5 PLACING REINFORCEMENT

- A. Placing. The reinforcing steel shall be accurately placed and adequately secured in position in the forms. Maintain in place by approved chairs and spacers. No bar tie "pigtail" shall extend more than $\frac{3}{8}$ -inches past the outside face of the bar. All reinforcing steel shall be inspected and approved by the Engineer before placing of concrete.
- B. Bar Spacing and Cover. Minimum spacing center to center of parallel bars shall be $2\frac{1}{2}$ times nominal diameter of bar but in no case shall clear distance between bars be less than $1\frac{1}{2}$ times maximum size of coarse aggregate. Where not otherwise shown on drawings, minimum cover measured from surface of concrete to face of reinforcing bar shall be three-inches (3").
- C. Bending. Field bend steel only with prior approval of the Engineer. Bend reinforcing steel at required shapes while steel is cold. Excessive irregularities in bending will be cause for rejection. Detail bars in accordance with ACI-315-87. Bars to be field bent, must be Grade 40.
- D. Splices. Splicing of bars except where shown will not be permitted without written approval. Approved bar bending schedules or placing drawings constitute written approval. Splice bars with lap of at least 36 times diameter of reinforcement. Stagger splices or else locate at points of low tensile stress.

3.6 CONSTRUCTION JOINTS

- A. General. Contact surface between plastic concrete and concrete that has attained initial set is a "construction joint." "Monolithic" means manner of concrete placing which prevents construction joints. Joints other than those indicated, are not permitted without written authorization. Where authorized, make additional construction joints with details equivalent to those for joints in similar locations.
- B. Construction. Make surface of concrete previous placed rough with some aggregate particles exposed. Remove loose materials, wash and scrub clean with stiff brooms, and keep wet several hours prior to placing of plastic concrete. Immediately prior to placing of concrete on horizontal surfaces, slush surface with coating of mortar. Where possible, apply mortar on previously placed vertical surfaces by brushing and work mortar into irregularities of surface. Form keyways so as to permit easy removal of forms without damaging concrete.

3.7 PLACING CONCRETE

- A. General. Give advance notice to permit inspection of forms, reinforcing steel, preparations for placing of concrete. Place no concrete prior to approval. Regulate concrete placing so as to permit completion of finishing operations in daylight hours. However, if necessary to continue after daylight hours, light site as directed. If rainfall occurs after placing operations are started, provide covering to protect work.
- B. Handling and Transporting. Arrange and use metal or metal lined chutes, troughs and pipes in placing concrete so that ingredients of concrete will not be separated. Use concrete having maximum slump of three-inches (3") if deposited by chutes and/or troughs. Discharge troughs and chutes either vertically down inside of forms or into pocket outside of forms from which it can flow through holes left in forms. Keep chutes, troughs and pipe clean and free from coatings of hardened concrete. Use of chutes in excess of 35-foot (35') total length, by specific authorization only.

- C. Depositing. Limit free fall of concrete to four-feet (4'). Use tremies for placing concrete in walls, and similar placement. Do not deposit large quantities of concrete at one point in forms such that it requires running or working it along forms. Do not jar forms after concrete has taken initial set, or place any strain on projecting reinforcement or anchor bolts. Make tremies in sections, or provide in several lengths, so that outlet may be adjusted to proper heights during placing operations. Place concrete in continuous horizontal layers approximately 12-inch (12") thickness. Place each layer while layer below is still soft, and unless otherwise specified, let not more than one (1) hour elapse between placing of successive layers in continuous placement.
- D. Consolidation. Compact each layer of concrete with concrete spading implements and mechanical vibrators of approved type. Use vibrators of type which operates by attachment to forms only when immersion type vibrators cannot be used. Apply vibrators to concrete immediately after depositing, and move through layer of concrete just placed and several inches into plastic layer below. Do not penetrate or disturb layers previously placed which have partially set, and do not use vibrators to aid flow of concrete laterally.

3.8 CURING

- A. General. Curing shall be accomplished by preventing loss of moisture, rapid temperature change and mechanical injury for a period of seven (7) curing days when normal Portland cement has been used and for three (3) curing days when high-early-strength Portland cement has been used. Curing shall be started as soon as free water has disappeared from the surface of the concrete after placing and finishing.
- B. Form-Finish. Formed surfaces not requiring rub-finished surfaces shall be cured by leaving forms in place for the full curing period.
- C. Rub-Finish. Formed surfaces requiring rub-finished surfaces shall be cured by leaving forms in place for a minimum number of curing days as follows: Vertical surfaces - two (2) full curing days. Underside of sidewalk - four (4) full curing days. After rub-finish operations are complete, formed surfaces shall be cured by using moist cotton mats until normal curing period is complete.
- D. Unformed Surfaces. Cure by membrane curing compound method.
 - 1. After concrete has received final finish and surplus water sheen has disappeared, seal surface with a single uniform coating of approved curing compound applied at rate of coverage recommended by manufacturer and as directed by Engineer, but not less than one (1) gallon per 180 square feet of area. Provide satisfactory means and facilities to properly control and check rate of application of compound.
 - 2. Thoroughly agitate compound during use and apply by means of approved mechanical power pressure sprayers, equipped with satisfactory atomizing nozzles, except that for application on small miscellaneous items, hand powered spray equipment may be used. For all spraying equipment, prevent loss of compound between nozzle and concrete surface during spraying operations.
 - 3. Do not apply compound to a dry surface. If surface of concrete has become dry, thoroughly moisten immediately previous to application. At locations where coating shows discontinuities, pin holes or other defects, or if rain falls on newly coated surface before film has dried sufficiently to resist damage, apply an additional coat of compound immediately, at same rate of coverage specified herein.

3.9 REMOVAL OF FORMS AND FALSEWORK

Forms may be removed after 24 hours or when the concrete has sufficiently set-up, whichever is greater. The Contractor shall insure that no deformation of the proposed structural shapes occurs because of early removal of forms. This may be accomplished by use of temporary bracing during the curing time. A "Curing Day" is any calendar day on which temperature is above 50°F for at least 19 hours. Colder days may be counted if air temperature adjacent to concrete is maintained above 50°F. In continued cold weather, when artificial heat is not provided, removal of forms and false work may be permitted at end of period of calendar days equal to twice the number of curing days stated as above.

3.10 DEFECTIVE WORK

Immediately repair any defective work discovered after forms have been removed. If surface of concrete is bulged, uneven, or shows excess honeycombing or form marks, which cannot be repaired satisfactorily, remove and replace entire section.

3.11 FINISHING

- A. General. Immediately repair any defective work discovered after forms have been removed. If surface of concrete is bulged, uneven, or shows excess honeycombing or form marks, which cannot be repaired satisfactorily, remove and replace entire section.
- B. Patching. Patch slight honeycomb, minor defects and form tie holes in concrete surfaces with cement mortar mixed one (1) part cement to two (2) parts fine aggregate, unless otherwise directed. Repair by cutting out unsatisfactory material and replacing it with new concrete, securely keyed and bonded to old concrete and finish so as to make joints as inconspicuous as possible. Use stiff mixture and thoroughly tamp into place. After patch has stiffened sufficiently to allow for greatest portion of shrinkage, strike off mortar flush with surface.
- C. Rub-Finish.
 - 1. Rub-Finish all exposed surfaces of formed concrete structures except as noted below. After pointing has set sufficiently, wet surface with brush and give first surface rubbing with No. 16 carborundum stone or equal. Rub sufficiently to bring surface to paste, to remove form marks and projections, and to produce smooth, dense surface. Add no cement to form surface paste. Spread or brush materials, which has been ground to paste, uniformly over surface and allow to take reset. In general, do not rub chamfered corners in first surface rubbing. In preparation for final acceptance, clean surfaces and give final finish rubbing with No. 30 carborundum stone or equal. After rubbing, strip surface with brush and allow mortar on surface to take reset; then wash surface with clean water. Leave structure with clean, neat and uniform appearing finish.
- D. Float-Finish. Concrete slabs shall receive a wood float finish.

END OF SECTION

**SECTION 02530
DEWATERING AND DRAINAGE OF EXCAVATION**

PART 1 – GENERAL

1.1 SCOPE

This section provides for furnishing all labor, materials, equipment, power and incidentals, and for performing all operations necessary to dewater, drain and maintain excavations and foundation beds as described herein and as necessary for construction of structures and appurtenances. Included are construction, maintenance and removal of cofferdams; removal of standing water, surface drainage and seepage from excavation or other work, and protecting work against rising waters and floods, and repair of any resulting damage.

1.2 CONTRACTOR'S RESPONSIBILITY

Assume sole responsibility for dewatering systems and for all loss or damage resulting from partial or complete failure of protective measures. Owner will require that Contractor Foreman be responsible for preventing any flooding due to construction in ditch or bayou. The Foreman must be on-site during all construction hours and available for immediate action using any equipment necessary during the evening hours.

1.3 PLANS AND OTHER DATA TO BE SUBMITTED

Submit plans for review of proposed methods of dewatering, foundation drainage and diversion, in accordance with sound engineering practice. Do not start dewatering without written approval from the Engineer.

1.4 RELATED WORK

Division 2, Site Work - Embankment.

1.5 MEASUREMENT AND PAYMENT

Payment for costs in connection with such work will be at the lump sum price bid for the work.

PART 2 – PRODUCTS

Contractor may use equipment and material desired.

PART 3 – EXECUTION

3.1 DEWATERING EXCAVATIONS

Furnish, install, operate and maintain all necessary pumping for dewatering the various parts of the work and for maintaining free of water the foundations and such other parts of the work as required for construction operations. Provide manpower and all equipment necessary to prevent any flooding that could occur due to rainfall (day or night) that cannot drain due to construction. Also, as required for inspections and safety, or for any reason determined by the Engineer to be desirable.

END OF SECTION

**SECTION 02600
WELL POINT SYSTEM**

PART 1 – GENERAL

1.1 SCOPE

This section shall consist of supplying all labor, materials, and plant and performing all work necessary to lower and control the groundwater levels and hydrostatic pressures to permit all excavation and construction specified under this contract to be performed under dry conditions.

The work under this section shall include all costs of mobilization, supply, installation, operation, maintenance, supervision, and final dismantling and removal from the site of the dewatering equipment.

1.2 EXAMINATION OF THE SITE

The Contractor shall take all the steps that IS considered necessary to familiarize with the site conditions, the ground conditions and the groundwater conditions. Copies of the logs of the borings, information on the groundwater conditions, have been included in these specifications. The data described above is furnished for information only, and it is expressly understood that the Owner and/or the Engineer will not be held responsible for any interpretation or conclusions drawn there from by the Contractor.

PART 2 – EXECUTION

2.1 SUBMITTALS

- A. The Contractor shall submit complete plans and description of the overall dewatering system he proposes to use for the work under this section for approval by the Engineer, showing the details of the dewatering system prior to initiation of any excavation within three-feet (3') of the prevailing groundwater levels.
- B. Approval by the Engineer of the dewatering system proposed by the Contractor will only be with respect to the basic principles of the methods the Contractor intends to employ. Approval by the Engineer of the dewatering system will be based on the demonstrated performance of the system to satisfy the requirements for dewatering as specified herein.

2.2 DEWATERING REQUIREMENTS

- A. It is the intent of these specifications that an adequate dewatering system be installed to lower and control the groundwater in order to permit excavation, construction of the facilities and the placement of the fill materials, all to be performed under dry conditions. The dewatering system shall be adequate to pre-drain the water-bearing strata above and below the bottom of the structure foundations, the drains, the siphons and all other excavations. In addition, the system to be used shall reduce the hydrostatic head in the water-bearing strata below the structure foundations, the drains, sewers, and all other excavations, to the extent that the water level and piezometric water levels in the construction area are substantially a minimum of three-feet (3') below the prevailing excavation surface at all times.

- B. Prior to any excavation below the groundwater level, the dewatering system shall be placed into operation to lower the water levels as required and then shall be operated continuously 24 hours per day, seven (7) days per week until all drains, sewers and structures have been satisfactorily constructed (including placement of backfill materials) and no longer require dewatering. An adequate weight of backfill material should be in place to prevent buoyancy prior to discontinuing operation of the dewatering system.

The Contractor shall obtain approval from the Engineer before discontinuing the operation of the dewatering system.

- C. The Contractor shall be solely responsible for the arrangement, location and depths of the dewatering system necessary to accomplish the work described under this section of the specifications. The dewatering shall be accomplished in a manner that will reduce the hydrostatic head below any excavation to the extent that the water level and piezometric water levels in the construction area are substantially a minimum of three-feet (3') below the prevailing excavation surface. The dewatering will prevent the loss of fines, seepage, boils, quick conditions or softening of the foundation strata, will maintain stability of the sides and bottom of the excavation, and will result in all construction operations being performed under dry conditions.
- D. The Contractor shall dispose of all water from the excavation in such a manner as will not endanger public health, property, any portion of the work under construction or completed either by him or any other contractor, and shall be performed in such a manner as will cause no inconvenience whatsoever to the Owners, Engineer or to others engaged on work about the site.
- E. The Contractor shall provide complete standby equipment, installed and available, for immediate operation as may be required, to adequately maintain the dewatering on a continuous basis in the event that all or any part of the dewatering system may become inadequate or fail.
- F. If the dewatering requirements are not satisfied due to inadequacy or failure of the dewatering system, then loosening of the foundation strata, or instability of the slopes, or damage to the foundations or structures may occur. The supply of all labor, materials, and plant, and the performance of all work necessary to carry out additional work for reinstatement of the structures or foundation soil resulting from such inadequacy or failure shall be undertaken by the Contractor to the approval of the Engineer, and at no additional expense to the Owner.

2.3 OBSERVATION WELLS (PIEZOMETERS)

- A. The Contractor shall supply, install, take measurements and maintain at least one (1) observation well (piezometer) per 400 linear feet of utility excavation and such additional observation wells as may at any time be ordered by the Engineer.
- B. The observation well shall be of a suitable design proposed by the Contractor and as approved by the Engineer.
- C. The Contractor shall be responsible for installing and maintaining all observation wells and observing and recording the elevation of the groundwater and piezometric water levels in all the observation wells daily. A record of the information obtained shall be given to the Field Project Representative each day. The Contractor shall also permit the Engineer to make his own observations. Any observation wells that become inactive, damaged or destroyed shall be replaced within 24 hours by the Contractor at no additional expense to the Owner. If an observation well become inactive, damaged or destroyed, and if in the opinion of the Engineer, the observations from that

observation well are critical, further excavation shall be suspended at the discretion of the Engineer at no additional expense to the Owner and excavation shall not commence until that observation well is repaired or replaced to the satisfaction of the Engineer and reliable observations can be obtained from that well or its replacement well.

- D. The Contractor shall, by adding or removing water from all observation well risers, demonstrate that the observation wells are functioning properly.
- E. All observation wells shall be satisfactorily installed and proven to be functioning properly prior to commencement of dewatering in any section.

2.4 CONTROL OF GROUNDWATER LEVELS

The observation wells and test pits, or holes, shall be used as a primary basis of determining compliance with the requirements of the dewatering specification.

2.5 DEWATERING SUBCONTRACTOR

The Contractor may employ a dewatering Subcontractor who has experience in the field of dewatering including installation, operation, and removal of the necessary dewatering facilities to perform the dewatering of the construction area.

Employment of a dewatering Subcontractor does not relieve the Contractor of the performance requirements of this specification.

The Contractor shall name the dewatering Subcontractor he intends to use when submitting his bid. Qualification of the dewatering Subcontractor shall be a basis of considering the qualification of the Contractor.

PART 3 – MEASUREMENT AND PAYMENT

- A. Payment for dewatering shall include supplying all labor, materials, and plant and performing all work necessary to lower and control the groundwater levels as herein specified, including the observation wells. Measurement and payment shall be lump sum, irrespective of the number of well points, length of system, or method employed for dewatering.
- B. No separate measurement or payment will be made under this section of work for structures, but should be incidental to such items of work indicated on the construction drawings.

END OF SECTION

SECTION 02630
CONTROL OF EROSION AND EROSION CONTROL STRUCTURES

PART 1 – GENERAL

1.1 DESCRIPTION

Work to be performed under this item shall pertain to the protection of the bayou and laterals from erosion. The structures and protection shall be installed as shown on the plans or as directed by the Engineer at various locations and shall be so constructed as to protect the side slopes from erosion due to drainage of water from the berms or from lateral ditches entering the bayou. Structures will be constructed of corrugated metal pipe, concrete slope paving and sheet piling.

1.2 MEASUREMENT AND PAYMENT

In all items of work pertaining to erosion control structures, the Contractor shall furnish all materials, supplies, equipment, labor and supervision required to complete the work as indicated and to the satisfaction of the Engineer.

- A. Erosion-Control Structures. Erosion Control Structures shall be paid for at the lump sum bid price per each structure, complete in place. End sections, band couplers, fabricated bends, and required concrete will be included in the lump sum price.
- B. Concrete Slope Paving. Concrete slope paving will be paid for at the unit bid price per square yard of four-inch (4") paving, complete in place, including all reinforcing steel.
- C. Sheet Piling. Sheet piling shall be paid for at the unit price per foot of pile installed.
- D. Other Work. No direct payment will be made for other work required to complete the structures and make the erosion control structures operate as planned.

PART 2 – PRODUCTS

2.1 MATERIALS

The materials to be used in erosion control structures shall be as follows:

- A. Corrugated Metal Pipe. Corrugated metal pipe for erosion control structures shall be of the size shown on the plans or as directed by the Engineer. The pipe shall be standard galvanized, corrugated metal pipe. The pipe shall be of the gauge specified on the plans or in the specifications.
- B. Band Couplers. Band Couplers shall be of the same diameter as the pipe and two (2) gages lighter material. All band couplers will be two-feet (2") long and shall be galvanized.
- C. Bends. Bends shall be fabricated from straight pipe of the same size and gage as other pipe in the structure. The angle of bend and length of each leg will be as required to fit the field conditions and these dimensions will be determined from field measurements. The bends will be galvanized.

- D. End Sections. End sections shall be standard end sections for corrugated metal pipe as manufactured by "Armco Steel Corporation" or equal. The end sections will be for the same size pipe as in other portions of the structure and shall be galvanized. Toe plates shall be furnished by the Contractor and installed by him and shall be of the depth shown on the plans or specified in the specifications.
- E. Slope Paving. Slope paving shall be four-inch (4") thick Class "A" concrete slope paving as specified in Division 2 "Concrete Slope Paving."
- F. Sheet Piles. Steel sheeting shall be made from steel conforming to ASTM A-569 or ASTM A-526. The sides of each piece of sheeting shall be furnished with an interlock that is continuous for the full length of the sheeting. The interlock shall have an opening of sufficient width to allow free slippage of the adjoining sheet.

The minimum gage shall be seven (7); the minimum section modulus shall be 4.71 in 3/ft.

PART 3 – EXECUTION

3.1 LOCATIONS

Erosion control structures and erosion control protection shall be provided at all lateral drainage arteries entering the bayou, at all backslope drains entering lateral ditches, and such other points as may be designated by the Engineer or shown on the plans. At locations where laterals enter the bayou and no structure is to be constructed, the Contractor shall perform such operations as may be necessary to dress the slopes of the lateral ditch to a uniform section of nice appearance.

3.2 BERM DRAINAGE AND BACKSLOPE DITCH

The intent of the District is to provide a means of collecting water along the berm of the bayou and providing inlets to the bayou at various points with the aim of preventing erosion of the slopes due to overland flow of water. This will be obtained by the following means:

- A. Erosion Control Structures. Structures for draining the berm into the bayou or lateral ditches will be constructed of corrugated metal pipe and concrete slope paving. The pipe will be of the size shown on the plans or specified in the specifications. The structure will be made up of straight pipe, band couplers, end sections and bends or a combination of these components. Slope paving will be used as shown on the drawings.
- B. Backslope Ditch. Where the right-of-way permits, the Contractor shall construct a "V" bottom drainage ditch along the right-of-way lines as directed. The ditch will be located as directed by the Engineer and will be constructed to the grades established in the field to drain to the drainage structures to be constructed under this contract. The Engineer will be the judge as to sufficiency of right-of-way for construction ditches.
- C. Grading of Berm. The Contractor shall grade the berm along the bayou to cause water that falls on the berm to drain into the backslope ditches. The berm shall be graded as indicated and in locations where the natural ground is low, the Contractor shall place fill material to bring the berm to a suitable grade. This fill material shall come from the channel excavation.

3.3 EXISTING OUTFALL PIPE

Where existing outfall drainage pipe enter the ditch, it will be the responsibility of the Contractor to rehabilitate the structure to make it meet the rectified channel of the stream. This work will take the form of extending the pipe to the new channel, cutting the pipe off to the new side slope or paving around the outlet end of the pipe. Should the pipe require extension, this extension shall be made with corrugated metal pipe of the size and length determined by the Engineer. The new pipe will be joined to the old by use of a concrete collar, as indicated on the plans. Slope paving will be placed as directed by the Engineer.

3.4 EROSION PROTECTION AT LATERAL DITCHES

The Contractor shall dress the side slopes and bottom of lateral ditches that enter the bayou in the reach to be improved under this contract to a uniform section as directed by the Engineer. The Contractor shall place erosion protection at the intersections of these ditches and the bayou as directed by the Engineer. The erosion protection may be a pipe structure, slope paving or a combination of the two.

3.5 RESPONSIBILITY OF THE CONTRACTOR FOR EROSION

The Contractor shall install erosion control works at the earliest possible time during construction along a section of the bayou. Erosion protection shall be provided at lateral ditches entering the bayou as soon as rough excavation passes the lateral. The Contractor shall dress the ditch and construct the erosion control works before moving from the location. If the Contractor fails to construct an erosion control structure after having been directed to do so by the Engineer, this shall be cause for stopping construction on all parts of the project if, in the opinion of the Engineer, the conditions warrant such action.

It shall be the responsibility of the Contractor to protect the slope of the bayou and lateral ditches entering the bayou from erosion during the course of this contract. In the event washouts of the side slopes and erosion damage should occur, the Contractor shall repair the damage to slopes and remove silt from channel at his expense. The damage shall be repaired in a manner satisfactory to the Engineer at no cost to the Owner.

3.6 INSTALLATION OF EROSION PROTECTION

The Contractor shall perform all necessary operations required to install erosion controls structures, such as excavation, grading and backfill.

The backfill around the structures shall be placed in layers and mechanically tamped. Where necessary, additional fill material shall be provided by the Contractor to backfill around structures to the grade of the surrounding ground. There being sufficient material in the channel excavation to make these fills, the Contractor will provide this fill at no additional cost to the Owner. Material shall be hauled to the structure sites if required.

END OF SECTION

**SECTION 02800
 HYDRO-MULCH SEEDING**

PART 1 – GENERAL

1.1 SCOPE

- A. This section provides for the covering of channel bottom, side slopes, berms, and berm ditches with healthy permanent and rooted grass system for erosion prevention. The work covered by this section consists of furnishing all plant, labor, materials, equipment, supplies, supervision, and tools, and performing all work necessary for topsoiling, smoothing, seeding, fertilizing, watering, maintenance, and clean-up of the top and side slopes of the rectified channel sections, all in accordance with the drawings and specifications.
- B. The hydro-mulch seeding operations, together with all other necessary related work, shall conform to the requirements specified in this section. The area to be hydro-mulch seeded is the entire unpaved disturbed areas within the right-of-way. Areas within the right-of-way that are not disturbed and which have a well established turf will not require hydro-mulch seeding.

1.2 PAYMENT

Payment for hydro-mulch seeding will be at the unit price per acre for hydro mulch. Final payment will be for the acreage covered with healthy permanent grass, as specified, within the drainage channel right-of-ways. All measurements will be made in a horizontal plane.

PART 2 – PRODUCTS

2.1 EQUIPMENT

The Contractor may use equipment necessary for a complete installation.

2.2 MATERIALS

- A. Seed. All seed must meet the requirements of U.S. Department of Agriculture Rules and Regulations as set forth in Federal Seed Act and Texas Seed Law. Type of seed, purity and germination requirements, rate of application and planting dates are as follows:

<u>Type</u>	<u>Application Rate Pounds Per Acre</u>	<u>Planting Date</u>
1. Unhulled Common Bermuda Grass 98/88	40	Jan. 1 to April 15
Annual Rye Grass (Gulf)	100	
2. Hulled Common Bermuda Grass 98/88	40	April 15 to Oct. 1

Millet

3.	Hulled Common Bermuda Grass 98/88	40	Oct. 2 to Jan. 1
	Unhulled Common Bermuda Grass 98/88	40	Oct. 2 to Jan. 1
	Annual Rye Grass (Gulf)	100	

- B. Fertilizer. Fertilizer shall be water soluble with analysis of 15 percent (15%) nitrogen, 15 percent (15%) phosphoric acid and 15 percent (15%) potash. Rate of application shall be 750 pounds per acre except during the period of April 15 thru September 1, when the rate shall be reduced to 600 pounds per acre.
- C. Mulch. Mulch shall be virgin wood cellulose fiber made from whole wood chips. Within the fiber mulch material at least 20 percent (20%) of the fibers will be 10.7 mm in length and 0.27 mm in diameter. Rate of application shall be 2,000 pounds per acre. Soil stabilizers such as Terra Type III, (or approved equal) shall be applied at a rate of 40 pounds per acre on the side slopes and "Terra Tack I" (or approved equal) shall be applied at a rate of 40 pounds per acre in the flatter upper portions of the channel areas.

PART 3 – EXECUTION

3.1 HYDROMULCHING

Apply a mulch mixture to the channel area at the rates specified:

- A. Prepare the area to be seeded as required.
- B. Apply the mulch mixture to the area at the specified rates.
- C. Fertilize, water and cultivate the application to insure a good product.
- D. Reapply a mulch mixture if necessary to get a stable growth.

PART 4 – GUARANTEE

The hydro-mulch seeding shall be adequately watered until established. Any areas damaged by erosion or areas that do not have an acceptable turfing shall be redone to the satisfaction of the Engineer.

Contractor will guarantee a permanent covering grass after sufficient time for germination.

END OF SECTION

**SECTION 02911
STEEL SHEET PILE**

PART 1 – GENERAL

1.1 DESCRIPTION

This Item shall govern steel sheet piling utilized to provide backfill retention and a temporary barrier for selective dewatering of a portion of the canal.

1.2 MEASUREMENT

Steel sheet piling will be measured by the plan quantity linear wall foot (straight line distance in the horizontal plane) of acceptable piling in place.

1.3 PAYMENT

Partial payments of the lump sum bid value for Temporary Sheet Piling shall be as follows:

- A. When temporary piles are installed and acceptable to the Owner, 80% of the value for the accepted measure of temporary piling will be eligible for payment.
- B. Upon removal of temporary piling and restoration of canal banks/levees is acceptable to the Owner, the remainder of the value for the accepted measure of temporary piling will be eligible for payment.

1.4 SUBMITTALS

- A. Mill Certificates. Submit mill certificates for sheet piling and structural steel.
- B. Shop Drawings. Submit shop drawings as specified in Division 1, General Requirements.

PART 2 – PRODUCTS

2.1 SHEET PILES

- A. Provide rolled steel sheet pile sections meeting requirements of ASTM A-328, ASTM A690, or ASTM A572 Grade 50.
- B. For the sections shown, use the U.S. Steel Sheet Piling Catalog or Bethlehem Steel Sheet Piling Catalog to determine the minimum section moduli, weights per linear foot and interlock sizes, shapes, and strength.
- C. Driving ends of piles must be shaped square and blunt at the mill.
- D. The interlock size, shape, and strength must be comparable with the previously specified sections.
- E. Supply sheets in the section and of length as shown in the plans. Steel sheet piling may be substituted with a section modulus and minimum thickness of material equal to or greater than that of the section specified. Substitutions with a reduction in pile length or penetration will not be considered.

- F. Except as indicated on the plans, the sheet piles will be a temporary installation. Coatings will not be required on temporary piling. Excess length above the water surface will be permitted for any sheets to be removed upon completion of the project and Contractor will not be required to cut-off tops of piles.
- G. Sheet piling utilized in this project shall have a section modulus (Z) of not less than 15 in³/ft.
- H. Contractor shall submit to a complete data sheet on the piling he intends to use to the Owner for approval prior to installation.

2.2 ANCHORAGES AND ACCESSORIES

Wale beams, tie rods, plates, angles, bolts, and other metal accessories must meet requirements of ASTM A-36.

PART 3 – EXECUTION

3.1 DRIVING SHEET PILES

- A. Locations and Tolerances. Drive piles at the locations and to the grades shown on the drawings.
 - 1. Drive piles vertically and in correct alignment so that the top of the wall lies on a straight line or can be pulled into proper alignment.
 - 2. Provide adequate temporary wales and bracing to guide and hold the bulk-heads in correct alignment. Use sturdy templates and guides to assure proper location and alignment as well as ease of construction.
 - 3. Deviations from the planned positions will not be allowed without specific approval. Remove any pile that deviates from the planned position.
 - 4. Drive all sheet piling to within three-inches (3") of the grade shown.
- B. Methods.
 - 1. Drive piles with either a steam hammer or a diesel hammer of a size and weight appropriate for the conditions encountered. Equip the hammer with a cast steel or structural steel driving head. Place the driving head between the head of the pile and the hammer.
 - 2. In general, drive piles to full plan penetration using only the hammer. Do not drive piles singly to their full penetration. Set up a number of adjacent sheet piles and alternate from one to another until the desired penetration is reached. Do not drive any pile more than eight-feet (8') in a single operation or more than eight-feet (8') deeper than adjacent piles.
 - 3. Drive all piles so that interlocks will be completely engaged. Any pile ruptured at the interlock must be removed from the work and another pile redriven in its place.
 - 4. Water jetting may not be used without first obtaining written permission. Before requesting approval, exhaust all reasonable alternatives in size, weight and fall of the hammer. If driving cannot be effected, request approval for jetting. Perform water jetting operations in combination with hammer driving or with the weight of the hammer resting on the pile. Stop jetting operations as directed and complete driving of the pile using only the hammer. In no

case will water jetting be permitted for the last five-feet (5') of penetration. The number of jets used and the quantity and pressure of water will be subject to approval.

5. Splicing of piles will not be permitted without specific approval.
 6. If a pile is overdriven or misaligned, it must be removed and redriven. If a pile is damaged, such as with a ruptured interlock, it must be removed and a new pile driven in its place. In either case, fill the hole with sand before restarting pile driving.
 7. Where normal variations and tolerances result in a closure or intersection varying from that anticipated, provide, fabricate and drive special closure sections as shown or directed
- C. All sheet piles installed for the retention of backfill soils or for use as a dewatering barrier shall be driven to the finished bottom elevation that attains a minimum penetration of not less than 1.5 times the exposed face, or 10' below the mud line of the canal, whichever is greater.
- D. If Contractor cannot achieve the specified minimum penetration of piles below the mud line, he shall immediately notify the Owner for evaluation and direction on how to proceed
- E. Interlocks shall be fully engaged for the entire length of the sheets. Interlock tear-out must be evaluated and may be cause for rejection.

END OF SECTION

**SECTION 03100
CONCRETE FORMWORK**

PART 1 – GENERAL

1.1 DESCRIPTION

This section defines requirements and limitations for design, construction, erection, and removal of concrete formwork for this project.

1.2 REFERENCE STANDARD

American Concrete Institute; ACI 347, "Recommended Practice for Concrete Formwork."

PART 2 – PRODUCTS

2.1 MATERIALS

A. Forms for As-Cast Finish

1. Rough Form Finish. Dressed or undressed lumber free of knots, splits, or other defects; plywood; metal; other approved material.
2. Smooth Form Finish. Plywood, tempered, concrete-form hardboard; dressed lumber faced with plywood; metal; plastic; other approved material. Do not use material with raised grain, torn surface, work edges, patches, dents, or other defects.

B. Form Accessories

1. Use commercially manufactured ties, hangers, and other accessories for embedding in concrete. Use of wire which is not commercially fabricated as form accessories is not permitted.
2. Install form ties so that ends or end fasteners can be removed without causing spalling of concrete faces.
3. After ends or end fasteners of form ties have been removed, the embedded portion must be no less than 1-inch (1") from the plane of the exposed concrete surface. Tie cones shall be no greater than 1-inch (1") in diameter.
4. Burning off ties is not permitted.
5. Removable or taper ties are not permitted.

C. Form Coating. Use commercial formulation of form oil or form-release agent having proven satisfactory performance. Coating must not bond with, stain, or adversely effect concrete surfaces. It must not impair subsequent treatment of concrete surfaces, including bonding agents and curing compounds.

D. Chamfer Strips. Provide in corners of forms to produce beveled edges on permanently exposed surfaces. Size of chamfer is 3/4-inch (3/4") unless shown otherwise. Interior corners and edges of formed joints do not require beveling unless otherwise shown.

2.2 DESIGN OF FORMWORK

Design formwork for loads, lateral pressure, and allowable stresses as described in the reference standard (ACI 347). Allow for design consideration, wind loads, allowable stresses, and other applicable requirements of controlling local building codes.

- A. Tolerances.
 - 1. For concrete surfaces exposed to view, the maximum allowable deflection is 1/240 of the span between structural members.
 - 2. When necessary to maintain specified tolerances, chamfer formwork to compensate for anticipated deflection during concrete hardening.
 - 3. Design forms sufficiently tight to prevent loss of mortar.
- B. Earth Cuts For Forms. For beams under slabs on grade, use earth cuts for forms where beams are shown to have sloping sides and are integral with slab. Earth cuts may be used for sides of footings if sides of excavation are in stable condition to prevent caving or sloughing.
- C. Slip Forming. Not permitted.

PART 3 – EXECUTION

3.1 NOTIFICATION

At least 24 hours prior to scheduled concrete placement, notify the Engineer that formwork may be inspected. Do not place concrete until forms have been inspected and approved.

3.2 PREPARATION

- A. Anchor, brace, and tie formwork to shores, members, or other supporting surfaces to prevent upward or lateral movement to any part of formwork system during concrete placement. Tighten forms to close joints and insure conformance to specified lines and shapes. Remove and rebuild forms that cannot be tightened properly.
- B. Arrange facing material in an orderly and symmetrical fashion. Keep the number of seams to a practical minimum. Support facing material adequately to prevent deflection in excess of specified tolerances.
- C. For flush surfaces exposed to view, overlap previously placed, hardened concrete with form sheeting by approximately one-inch (1"). Hold forms against hardened concrete to maintain true surfaces, preventing offsets or loss of mortar.
- D. Provide temporary openings at the base of column and wall forms and at other points required. The openings facilitate observation and cleaning immediately before concrete is placed.
- E. If runways are required for moving equipment, provide for support of runways with struts or legs resting directly on the formwork or structural member. Do not allow runways or supports to rest on reinforcing steel.

3.3 ADJUSTMENTS

- A. Use wedges or jacks to provide positive adjustment of shores and struts. Wedges used for final adjustment of forms should be fastened in position after final inspection and before concrete placement.
- B. Securely brace forms against lateral deflections. Prepare to compensate for settling during concrete placement.
- C. For wall openings, construct wood forms that facilitate any necessary loosening to counteract swelling of forms.

3.4 TOLERANCES

- A. Construct formwork so that concrete surfaces will conform to tolerance limits as listed in the appropriate table at the end of this section.
- B. Establish sufficient control points and bench marks as references for tolerance checks. Maintain these references in undisturbed condition until final completion and acceptance of the project.

3.5 PREPARATION OF FORM SURFACES

- A. Before placing concrete, clean surfaces of forms and embedded materials. Remove accumulated mortar, grout, rust and other foreign matter.
- B. Coat forms for exposed or painted concrete surfaces with form oil or form-release agent before placing reinforcement. Cover form surfaces with coating material used in strict accordance with the manufacturer's printed instructions. Do not allow excess coating material to accumulate in forms or to contact hardened concrete against which fresh concrete will be placed. Remove coating material from reinforcement before placing concrete.
- C. Other than retained-in-place metal forms, forms for unexposed surfaces may be wet with water immediately before concrete placement in lieu of coating. One exception is that when a possibility of freezing temperatures exists, use of a coating is mandatory.

3.6 REMOVAL OF FORMS

- A. On vertical surfaces when repair of surfaces defects or finishing is required before concrete is aged, remove forms as soon as concrete has hardened sufficiently to resist damage from removal operations.
- B. Remove top forms on sloping surfaces of concrete as soon as concrete has attained sufficient stiffness to prevent sagging. Loosen wood forms for wall openings as soon as this can be accomplished without damage to concrete. Formwork for columns, walls, sides of beams, and other parts not supporting weight of concrete may be removed after 12 hours provided that concrete has hardened sufficiently to resist damage from removal operations. When shores and other vertical supports are arranged so that nonload-carrying, form-facing material may be removed without loosening or disturbing shores and supports, facing material may be removed at an earlier age.
- C. Keep in place all forms and shoring used to support weight of concrete until concrete has reached the minimum strength specified for removal of forms and shoring. In no case shall forms be removed in less than four (4) days.

3.7 REMOVAL STRENGTH

- A. Control Tests. Suitable strength control tests will be used as evidence that concrete has attained specified strength for removal of formwork or shoring supporting weight of concrete in beams, slabs, and other structural members.
 - 1. Field Test. When field cured test cylinders reach the specified removal strength, formwork or shoring may be removed from the respective concrete placements.
 - 2. Laboratory Test. When concrete has been cured as specified for cast-in-place concrete for the same time period required by laboratory cured cylinders to reach specified strength, the formwork or shoring may be removed from respective concrete placements. Determine the length of time that the concrete placement has been cured by totaling the number of days or fraction of days, not necessarily consecutive, during which the air temperature surrounding the concrete is above 50°F and the concrete has been damp or thoroughly sealed against evaporation and loss of moisture.

- B. Compressive Strengths. The minimum concrete compressive strengths for removal of all formwork not specifically covered under the previous paragraph on Removal of Forms shall be 75 percent (75%) of the specified minimum 28-day strength of the class of concrete involved.

3.8 SHORING

- A. When reshoring is permitted or required, plan operations in advance and secure approval of such operations. While reshoring is under way, keep live load off the new construction. Do not permit concrete in beam, slab, column or other structural member to be subjected to combined dead and construction loads in excess of loads permitted for developed concrete strength at the time of reshoring.
- B. Place reshores as soon as practicable after stripping operations are complete but in no case later than the end of the working day on which stripping occurs. Tighten reshores to carry the required loads without overstressing construction. Leave reshores in place until tests representative of concrete being supported have reached specified strength or strength specified for removal of reshores.
- C. Leave original supporting shores in place or reshore those floors supporting shoring under newly placed concrete. Reshoring system capacity must be sufficient to resist anticipated loads and in all cases have a capacity equal to at least ½ of the capacity of the shoring system above. Locate reshores directly under shore positions above unless other locations are permitted.
- D. Extend reshoring over a sufficient number of stories to distribute weight of newly placed concrete, forms and construction live loads in such a manner that design superimposed loads of floors supporting shores are not exceeded.

3.9 FORM REUSE

Approval is required before reusing any forms. Do not reuse forms that are worn or damaged beyond repair. Thoroughly clean and recoat forms before reuse. For wood and plywood forms to be used for exposed smooth finish, sand or otherwise dress concrete contact surface to original condition or provide form liner facing material. For metal forms, straighten, remove dents and clean to return to original condition.

TABLE 3A
 TOLERANCES FOR FORMED SURFACES
 CONCRETE IN BUILDINGS

Variation Form	Variation in	For Any 10 Foot Length	For Any 20 Foot Length or Any Bay	Maximum For Entire Dimension
Plumb Specified Batter	or Lines and surfaces of columns, piers, walls, and arrises	¼"	--	1"
	Exposed corner columns, control joint grooves, and other conspicuous lines	¼"	¼"	½"
Level Specified Grade	or Slab soffits, ceilings, beam soffits, and in arrises (measured before removal of shores)	¼"	—"	¾"
	exposed lintels, sills, parapets horizontal grooves and other conspicuous lines	--	¼"	½"
Drawing Dimensions	Position of linear building lines, columns, walls, and partitions	--	½"	1"
	Size and location of sleeves, floor openings and wall openings	--	--	±¼"
	Cross section of columns, beams, slabs, and walls	--	--	+½" -¼"
	Footings* in plan	--	--	+2" -½"
	Footing misplacement or eccentricity of direction error (the less of)	--	--	2% of width or 2"
	Footing thickness decrease	--	--	5%
	Footing thickness increase	--	--	no limit
	Step rise in flight of stairs	--	--	±_"
	Step tread in flight of stairs	--	--	±¼"
	Consecutive step rise	--	--	± ¹ / ₁₆ "
Consecutive step tread	--	--	±_"	

* Footing tolerances apply to concrete dimensions only, not to positioning of vertical reinforcing steel, dowels, or embedded items.

TABLE 3B

TOLERANCES FOR FORMED SURFACES

CONCRETE IN BRIDGES, WHARVES AND SIMILAR STRUCTURES

<u>Variation Form</u>	<u>Variation In</u>	<u>Maximum</u>
Plumb or Specified Batter	Surfaces of Columns, Piers, and Walls	½" in 10'
Level or Specified Grade	Top Surfaces of Slabs, Curbs, & Railings	3/16" in 10'
Drawings Dimensions	Cross Section of Columns, Caps, Beams and Similar Members	+½" -¼"
	Thickness of Deck Slabs	+¼" - "
	Footings	*

* Same as footings for buildings - See Table 3A.

END OF SECTION

**SECTION 03150
CONCRETE JOINTS AND EMBEDDED ITEMS**

PART 1 – GENERAL

1.1 SCOPE

This section specifies requirements for construction joints, contraction joints, expansion joints and embedded items for concrete work. Coordinate work of this section with related work of other sections to obtain a proper installation. Review drawings and specifications for additional requirements for joints and embedded items.

1.2 REFERENCE STANDARDS

The latest editions of reference standards listed below form a part of this specification and are applicable to this project.

- A. American Society for Testing and Materials (ASTM).
1. ASTM A-120, "Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses."
 2. ASTM A-306, "Carbon Steel Bars Subject to Mechanical Property Requirements."
 3. ASTM D-994, "Preformed Expansion Joint Filler for Concrete (Bituminous Type)."
 4. ASTM D-1751, "Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextending and Resilient Bituminous Types)."
 5. ASTM D-1752, "Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction."

1.3 SUBMITTALS

- A. Shop Drawings. Submit shop drawings as specified in Division 1 - General Requirements. Shop drawings shall show expansion joints, construction joints and sequences for concrete placement.
- B. Substitute Materials. Acceptable brands of materials are specified herein. If substitutions are desired, submit brochures and samples of requested substitutions for approval before delivery to the project.

PART 2 – PRODUCTS

- A. Expansion Joint Filler, Nonbituminous. Preformed cork filler conforming to ASTM D-1752 or plain fillerboard conforming to ASTM D-1751. Use 3/4-inch (3/4") thickness unless otherwise shown on the drawings.
- B. Expansion Joint Sealer. Polysulfide compound conforming to ANSI 116.1. Acceptable products include:
1. Cork filler such as Sonneborn's "Sonoflex Cork" or Grace's "Standard Cork" Code 4323.
 2. Grace's "Verti-seal" (Thiokol two-component Polysulfide Sealant) #2382 or Sonneborn's "Sonolastic" (Two Part) (Code CS 311).
 3. Or approved equal.
- C. Bonding Agent. A. C. Horn Products, "Thiopoxy 62"; Sika Corporation, "Sikadur 32 Hi-Mod"; or Permagine Corporation, "Uniweld"; or approved equal.
- D. Bond Breaker. 30-pound asphalt saturated felt.

- E. Expansion Joint Dowels. Plain steel bars conforming to ASTM A-306, grade 70. Cut dowels to length at shop or mill before delivery to the site. Dowels must be straight and clean, free of loose flaky rust and loose scale. Dowels may be sheared to length provided deformation from true shape caused by shearing does not exceed 0.04-inches from the end.
- F. Sleeves. ASTM A-120, standard weight galvanized pipe.
- G. Waterstops. Use polyvinylchloride waterstops as manufactured by Tiger Industries; W. R. Meadows, Inc.; W. R. Grace & Company; or approved equal. Unless otherwise shown, use stops of six-inch (6") minimum width and $\frac{3}{16}$ -inch ($\frac{3}{16}$ ") minimum thickness, similar in construction to "Tiger-Flex," Type SB, standard ribbed with bulb.

PART 3 – EXECUTION

3.1 PLACEMENT OF EMBEDDED ITEMS

- A. Place embedded items to least impair strength of the structure. Obtain approval of locations for embedded items before placement of concrete. Should locations of embedded items conflict with reinforcement or be detrimental to strength of structure, relocate items as directed.
- B. Do not cut or reposition reinforcing steel to facilitate installation of inserts, conduit, sleeves, anchor bolts, mechanical openings and similar items without prior approval.

3.2 CONSTRUCTION JOINTS

- A. Make construction joints only at locations shown on reviewed shop drawings or as directed. Comply with the following procedures unless exceptions are shown on the drawings or deviations are specifically directed by the Engineer.
- B. Joints not shown on drawings must be approved. Locate joints to least impair strength of the structure. In general, locate joints near the middle of spans of slabs, beams and girders. However, if a beam intersects a girder at the joint, offset joints in girders a distance equal to twice the width of the beam. Locate joints in walls and columns at the underside of floors, slabs, beams and girders and at tops of footings or floor slabs. Place beams, girders, brackets, column capitals, haunches and drop panels monolithic with slabs.
- C. Place all joints perpendicular to main reinforcement. Continue all reinforcing steel and mesh across construction joints. Provide keys as directed. Provide longitudinal keys at least 1½-inch (1½") deep by 1/3 of the wall thickness, centered in the wall, in all joints in walls.
- D. Prepare joints by roughening the concrete surface in an approved manner which will expose aggregate uniformly and will not leave laitance, loosened particles of aggregate or damaged concrete at surface.
- E. Filler must be full depth of concrete section with top held down ¼-inch ($\frac{1}{4}$ ") to provide recess for sealant. Polysulfide sealer shall be used on all interior expansion joints and paving.
- F. In lieu of the above method for securing bond between new and set concrete, the following optional method may be used. Use a bonding agent applied to roughened and cleaned surfaces of set concrete in strict accordance with manufacturer's recommendations with respect to preparation of surfaces and applications of bond agent.

3.3 WATERSTOPS

- A. Install in locations shown.
- B. Each piece of premolded water stop must be of maximum practicable length for a minimum number of end joints.
- C. Make joints at intersections and at ends of pieces in a manner most appropriate to the material being used and in accordance with manufacturer's recommendations. Joints must develop effective watertightness fully equal to that of continuous waterstop material, must permanently develop not less than 50 percent (50%) of mechanical strength of parent section, and must permanently retain flexibility.
- D. Accurately position and support waterstops against displacement during concrete placement.

3.4 OTHER EMBEDDED ITEMS

- A. It is the Contractor's responsibility to check shop drawings for number and location of embedded items and that work is coordinated so that embedded items are properly placed.
- B. Accurately position and support embedded items against displacement during concrete placement.
- C. Metal items, except reinforcing, must be galvanized unless specific exception is obtained.

END OF SECTION

**SECTION 03200
CONCRETE REINFORCEMENT**

PART 1 – GENERAL

1.1 SCOPE

This section gives requirements for concrete reinforcement. Coordinate the requirements of this section with all other sections of Division 3 - Concrete.

1.2 REFERENCE STANDARDS

The latest editions of reference standards listed below form a part of this specification and are applicable to this project.

A. American Society for Testing and Materials.

ASTM A-615, "Deformed and Plain Billet-Steel Bars for Concrete Reinforcement"

ASTM A-185, "Specification for Welded Steel Wire Fabric for Concrete Reinforcement"

ASTM A-306, "Specification for Carbon Steel Bars Subject to Mechanical Property Requirements"

B. American Concrete Institute.

ACI 315, "Manual of Standard Practice for Detailing Reinforced Concrete Structures"

ACI 318, "Building Code Requirements for Reinforced Concrete"

C. Concrete Reinforcing Steel Institute.

CRSI 163, "Recommended Practice for Placing Reinforcing Bars"

CRSI 165, "Recommended Practice for Placing Bar Supports, Specifications and Nomenclature"

1.3 SUBMITTALS

A. Certificates. Submit the manufacturer's certificates giving the properties of steel proposed for use. List the manufacturer's test number and heat number, chemical analysis, yield point, tensile strength and percent elongation. Also identify on the certificates the proposed location of the steel in the work.

B. Bill of Materials. Submit bills of materials to be reviewed with shop drawings.

C. Shop Drawings.

1. Submit shop drawings according to Division 1, General Requirements. Show reinforcement fabrication, bar placement location, splices, spacing, and bar designation, bar type, length, size, bending, number of bars, location of bars to accommodate post-tensioning tendons and other pertinent information, including dimensions. Information must correspond directly to data listed on the bill of material.

2. Provide sufficient detail to permit placement of reinforcement without use of design drawings. Reproduction of design drawings for use as shop drawings will not be allowed. Begin fabrication of reinforcing steel after shop drawings have been reviewed by the Engineer.

3. Refer to ACI reference standards for detailing, location, placing, splicing, etc. of reinforcing steel to be shown on shop drawings.

1.4 SCHEDULING

Schedule materials for delivery to the site so that items may be installed immediately upon delivery. Plan the schedule to accommodate other work, especially post-tensioning. Place items in the proper sequence so that removal and replacement to accommodate other work is avoided.

1.5 HANDLING AND STORAGE

Store steel reinforcement above the ground on platforms, skids or other supports. Protect reinforcing, as far as practicable, from mechanical injury, surface deterioration and rusting caused by exposure to the weather.

1.6 INSPECTION

Make storage and fabrication facilities of the supplier and fabricator available for inspection by the Engineer prior to and during fabrication.

PART 2 – PRODUCTS

2.1 REINFORCEMENT

- A. Deformed Bars. Use deformed bars conforming to ASTM A-615, grade as specified on drawings, for all bars except column spirals and those shown on drawings to be smooth bars. Where grade is not specified on drawings, use Grade 60.
- B. Smooth Bars. Use bars conforming to ASTM A-306, Grade 70, for all smooth bars including column spirals.
- C. Marking. Clearly mark all bars with waterproof tags showing the number of bars, size, mark, length and yield strength. Mark steel with the same designation as the member in which it occurs. Key marks to the concrete placement number as designated in the concrete placement sequence shown on the drawings.
- D. Welded Wire Fabric. ASTM A-185, electrically-welded wire fabric of cold-drawn wire. Provide gauge and mesh size as shown.

2.2 MECHANICAL BAR SPLICES

- A. G-Loc Splices. As manufactured by Gateway Building Products, 3233 W. Grand Avenue, Chicago, Illinois, or approved equal.
- B. Cadweld Splices. As manufactured by Erico Products, Inc., 2070 E. 61st Place, Cleveland, Ohio, or approved equal.

2.3 TIE WIRE

Use 18-gage annealed steel for tie wire.

2.4 ACCESSORIES

Provide chairs, riser bars, ties and other accessories made of plastic or metal, except as otherwise specified. Where concrete surfaces are exposed to the weather in finished work, provide plastic or plastic-coated accessories only. Use of galvanized accessories is not permitted in these locations. Use plastic accessories manufactured by W.H.C. Products, Inc., Houston, Texas or approved equal.

PART 3 – EXECUTION

3.1 NOTIFICATION

Notify the Engineer at least 24-hours before concrete placement so that reinforcement may be inspected and errors corrected without delaying the work.

3.2 FABRICATION

- A. Cold-Form Bent Bars. Fabricate cold-form bent bars to the shapes shown on the drawings. Do not straighten or rebend bars without specific approval. On the job, cut bars by shearing or sawing.
- B. Splices. Use a minimum number of splices. Lap splices in strict accord with ACI 318 or as shown. Where it is necessary to splice reinforcement other than as shown, the Engineer will determine the character of the splice. Do not make splices at points of maximum stress. Stagger splices in adjacent bars.
- C. Fabrication Tolerances. Bars used for concrete reinforcement must conform to the following fabrication tolerances.

<u>Measurement</u>	<u>Tolerance in Inches</u>
Sheared length	± 1
Depth of truss bars to 8-inch depth	± 0, - ¼
Depth of truss bars over 8-inch depth	+ 0, - ½
Stirrups, ties and spirals	± ¼
All other bends	± 1

3.3 PLACING

- A. Condition of Reinforcement. Reinforcement must be free of injurious seams, flaws, cracks, scale, loose or flaky rust or other foreign material, including oil, mud or coating that will reduce the bond to concrete.
- B. Placement Tolerances. Place reinforcement within the following tolerances.

<u>Placement</u>	<u>Tolerance in Inches</u>
Concrete cover to formed surfaces	± ¼
Minimum spacing between bars	± ¼
Top bars in slabs and beams to 8-inch depth	± ¼
Top bars in slabs and beams between 8 and 24-inch depth	± ½
Top bars in slabs and beams more than 24 inches	

in depth	± 1
Crosswise of members spaced evenly within	± 2
Lengthwise of members	± 2

C. Concrete Cover. Except as otherwise shown, provide a clear cover measured from reinforcement to the face of the concrete as listed.

<u>Surfaces</u>	<u>Measurement in Inches</u>
Interior not exposed to weather	
Slabs, joists, and walls	¾
Beams, girders, and columns	1½
Exterior not in contact with earth or water	
Slabs and walls, No. 6 and smaller bars	1
Slabs and walls, No. 7 and larger bars	1½
Beams, girders, and columns	2
Exterior in contact with earth or fresh water	
Slabs and walls, No. 6 and smaller bars	1½
Slabs and walls, No. 7 and larger bars	2
Beams, girders, and columns	2½
Exposed to salt water or salt spray	
Slabs and walls	2
Beams, girders, and columns	3
Footings	
Top and sides	2
Bottom	3
Increase measurements under these conditions:	
Cover of top bars for slabs without wearing surface designed to carry vehicular traffic	½
When using No. 14 or No. 18 bars	½

3.4 ASSEMBLY

- A. Reinforcing Bars in Forms Use spacers, chairs, wire ties and other accessory items necessary to properly assemble, space and support reinforcing. Provide accessories of sufficient number, size and strength to adequately prevent deflection or displacement of reinforcement due to construction loads or concrete placement. Accessories recommended by CRSI will be used if not otherwise specified or shown. Accessories shall be of a size to provide concrete cover as previously specified. Use appropriate accessories to position and support bolts, anchors and other embedded items. Tie reinforcing bars at each intersection and to accessories. Blocking reinforcement upon concrete or masonry is prohibited.
- B. Reinforcement for Concrete on Ground. Support reinforcement on plastic chairs spaced about three-feet (3") on center each way. Use a minimum of one (1) chair for each nine (9) square feet. Fasten chairs to the reinforcement as recommended by the manufacturer of the chairs.

- C. Vertical Reinforcement in Columns. Offset vertical bars by at least one (1) bar diameter at splices. Provide accurate templates for column dowels to insure proper placement.
- D. Mechanical Bar Splices. Use only where indicated.
- E. Welded Wire Fabric.
1. For welded wire fabric designated as load carrying reinforcement, make lapped splices so that the overlap measured between the outer-most cross wires of each fabric sheet is not less than the spacing of cross wires plus two-inches (2"). Support as required for reinforcing bars.
 2. For welded wire fabric not specifically designated as load carrying reinforcement, make lapped splices so that the overlap measured between the outermost cross wires of each fabric sheet is not less than two-inches (2"). Extend the fabric across supporting beams and walls to within four-inches (4") of concrete edges. Also extend the fabric through contraction joints and construction joints, other than keyed joints in slabs on the ground.
- F. Construction Joints. Provide continuous reinforcing through joints. As a general rule, place unscheduled joints at midspan. Obtain specific approval for jointing and bar splicing that is not indicated on the drawings. Splices shown on reviewed shop drawings are acceptable.
- G. Interferences. If reinforcing interferes with the location of other reinforcing steel, conduits or embedded items, request instructions from the Engineer. The Engineer need not be notified if bars are moved to avoid such interferences unless the bars are moved more than one (1) bar diameter or enough to exceed specified tolerances. Do not cut reinforcement to install inserts, conduits, mechanical openings or other items without approval.
- H. Field Bending. Shape reinforcing bent during construction operations to conform to the drawings. Closely inspect the reinforcing for breaks. If reinforcing is damaged, replace, cadweld, or otherwise repair as directed. Do not bend reinforcement after it is embedded in concrete.
- I. Welding. Unless directed by the Engineer, do not weld reinforcing bars.

END OF SECTION

SECTION 03300
CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.1 SCOPE

- A. This section gives requirements for normal weight structural concrete.
- B. Coordinate the requirements of this section with all other sections of Division 3, Concrete. All requirements of this section apply to those except as may be otherwise specified in such sections.

1.2 REFERENCE STANDARD

The current issue of ACI-318, "Specifications for Structural Concrete for Buildings" is a part of this specification and is applicable to this project.

1.3 SUBMITTALS

- A. Mill Certificates. Required for all bulk cement and reinforcing steel.
- B. Admixtures. Submit brochures on admixtures proposed for use if different from those specified.
 - 1. A submittal is required from the manufacturer of the approved air-entraining admixture. Give requirements to control percent of air content under all conditions including temperature variations. Provide three (3) copies.
 - 2. A submittal is required from the manufacturer of the approved water-reducing retarder. Give requirements for quantities and types to be used under various temperatures and job conditions to produce a uniform, workable concrete mix.
- C. Design Mixes. Submit historical test data on proposed design mixes for each type of concrete in the project. Historical test data must comply with the requirements of ACI 318-11 chapter 5.
- D. Curing Method. Submit the proposed curing method for all concrete. If the use of a white pigmented membrane-forming compound is recommended, submit evidence that the compound is satisfactory for the intended application. A written guarantee will be required.
- E. Sample Ticket: Provide sample delivery ticket. Delivery ticket shall include, at a minimum, the following items:
 - 1. Delivery ticker number
 - 2. Supplier
 - 3. Mix ID
 - 4. Batch Plant ID
 - 5. Truck Number
 - 6. Load Number
 - 7. Batch Date and Time
 - 8. Material Target vs. Actual (water, cement, aggregate, admixtures, etc.)
 - 9. Target Slump

1.4 STORAGE OF MATERIALS

- A. Cement. Store cement in weather tight buildings, bins or silos to provide protection from dampness and contamination and to minimize warehouse set.
- B. Aggregate. Arrange and use aggregate stockpiles to avoid excessive segregation or contamination with other materials or with other sizes of like aggregates. Build stockpiles in successive horizontal layers not exceeding three-feet (3') in thickness. Complete each layer before the next is started. Do not use frozen or partially frozen aggregates.
- C. Sand. Before using, allow sand to drain until uniform moisture content is reached.
- D. Admixtures. Store admixtures to avoid contamination, evaporation or damage. For those used in the form of suspensions or nonsoluble solutions, provide suitable agitating equipment to assure uniform distribution of ingredients. Protect liquid admixtures from freezing and other temperature changes which would adversely affect their characteristics.

1.5 TESTING LABORATORY SERVICES

The tests required in this section will be performed by a commercial testing laboratory as specified in Division 1, General Requirements.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Portland Cement. Use cement conforming to ASTM C-150, Type "I." Type III may be used when specifically authorized. Use the same brand of cement upon which the selection of concrete was based. Only one (1) brand of each type will be permitted in any one structure, unless otherwise specified.
- B. Admixtures. Use the following admixtures as required or permitted. The use of calcium chloride will not be permitted. The products must conform to the referenced standards.
 - 1. Air-entraining Admixtures. Conform to ASTM C-260, such as Sika's "AER," Sonneborn's "Aerolith" or approved equal.
 - 2. Chemical Admixtures. Conform to ASTM C-494, "Tentative Specifications for Chemical Admixtures for Concrete."
 - 3. Water-reducing Retarder. Use of an admixture containing chloride is not permitted. The product must be nonstaining. Use Master Builder's "MBHC," Sika's "Plastiment" or approved equal.
- C. Mixing Water. Fresh, clean and drinkable.
- D. Aggregates. Use coarse aggregate from only one (1) source and fine aggregate from only one (1) source for exposed concrete in a single structure.
 - 1. Coarse aggregate for normal weight concrete shall conform to ASTM C-33. Grading limits for precast, prestressed members and for all members six- inches (6") or less in least dimension, one-inch (1") to No. 4. Grading for all other normal weight concrete, 1½-inches (1½") to No. 4.
 - 2. Use natural sand complying with ASTM C-33 for fine aggregate in normal weight concrete.
- E. Membrane-forming Curing Compound. ASTM C-309, white pigmented commercial curing compound which will not permanently discolor concrete.

- F. Sheet Material for Curing Concrete. ASTM C-171, waterproof paper, polyethylene film or white burlap-polyethylene sheeting.
- G. Non-shrink Grout. Unless otherwise specified, use Master Builders' "Embeco 153," or approved equal, consisting of specially prepared catalyzed metallic aggregate, Portland cement that is not air-entrained, and specially size-graded sand.
- H. Reinforcing Steel. Use ASTM A-615, Grade 60 reinforcing steel, unless otherwise specified or noted on the drawings. Use deformed bars except where smooth bars are specified.
- I. Expansion Joints. Use ASTM D-994 expansion joint filler, ¾-inches (¾") thick, unless otherwise show, from full depth to one-inch (1") above the slab. Use ASTM-1190 joint sealer to fill the joint. Provide joint filler and sealer at locations shown.

2.2 PROPORTIONING

- A. Objective. Select proportion of ingredients to produce concrete having proper placability, durability, strength, appearance, and other required properties. Proportion ingredients to produce a homogeneous mixture which will work readily into corners and angles of forms and around reinforcement by methods of placing and consolidation employed on the work, but without permitting materials to segregate or allowing excessive free water to collect on the surface.
- B. Strength. Provide ultimate strength concrete in all portions of the work. Strength must conform to values for the class of concrete specified for each portion of the structure. Requirements are based on 28-day compressive strength. If high early-strength concrete is specified, requirements are based on seven (7) day compressive strength.
- C. Entrained Air. Air-entrain all concrete, unless otherwise specified. Provide for not less than three-percent (3%) nor more than five-percent (5%) by volume of total entrapped and entrained air for normal weight concrete.
- D. Slump. The maximum permissible slump for concrete is five-inches (5"); the minimum is three-inches (3"). Determine slump by methods given in ASTM C-143.
- E. Admixtures. Proportion admixtures according to the manufacturer's recommendations. Use of an approved accelerator is permitted when the air temperature is less than 40[°]F. Use of an approved retarder is required when the temperature of placed concrete exceeds 85[°]F.
- F. Classification and Use.
 1. Classification:

<u>Class</u>	<u>Minimum 28-Day Compressive Strength (psi)</u>	<u>Minimum Cement Contents Sacks per Cubic Yard*</u>
Normal Weight		
A	3000	5
Sidewalks		
B	2500	4½
Structural		

C 4000 6

* If the required strength is not secured with the minimum cement content as specified, add cement or provide other aggregates as necessary.

2. Use the specified classes of concrete in the following locations:
 - a. Class B – *Siphon Pipe Concrete Cap*
 - b. Class C – *Siphone Structures*

G. Water-Cement Ratio for Normal Weight Concrete. If the relationship between strength and the water-cement ratio has been determined previously for materials specified for normal weight concrete, the ratio may be used. Otherwise, determine the proper water-cement ratio by using the following procedures.

1. Make concrete trial mixtures having suitable proportions and consistency. Use at least three (3) different water-cement ratios which will produce a range of strengths encompassing those required. Design trial mixes to produce the maximum allowable slump.
2. Determine proportions of ingredients and conduct tests in accordance with basic relationships and procedures outlined in ACI 613, "Recommended Practice for Selecting Proportions for Concrete."
3. Make and cure specimens according to ASTM C-192, "Method of Making and Curing Concrete Compression and Flexure Test Specimens in the Laboratory." For each water-cement ratio, prepare at least three (3) specimens for each age test. Test for strength at seven (7) days and 28 days, or other age as required. Conduct tests according to ASTM C-39, "Method of Test for Compressive Strength of Molded Concrete Cylinders."
4. From results of these tests plot a curve showing the relationship between water-cement ratio and compressive strength.

H. Alternate Determination of Proportions. In lieu of proportioning as specified for normal and lightweight concrete, a mix design employing the same ingredients proposed for use, and used successfully on previous projects under similar conditions may be used. To obtain the necessary approval, submit the following:

1. Concrete mix design.
2. Reports for at least 20 consecutive sets of 7-day and 28-day concrete strength tests made during the last six (6) months.
3. Reports of compliance tests of fine and coarse aggregates made during last six (6) months.

2.3 MIXING NORMAL WEIGHT CONCRETE

A. Ready-Mixed Concrete. Mix and transport ready-mixed concrete according to ASTM C-94, "Specifications for Ready-Mixed Concrete." In addition, the batch plant shall provide for the following items:

1. Arrangement. Provide separate bins or compartments for different sized aggregates and for bulk cement. Compartments of ample size constructed so that materials will be kept separate under all working conditions are required.
2. Weighing of Materials. Aggregates may be weighed in separate weigh batchers with individual scales. Weigh bulk cement on a separate scale in a separate weigh batcher. Observe the following limits of accuracy when weighing or measuring materials.

<u>Materials</u>	<u>Percent Accuracy</u>
Cement	1
Water	1
Aggregates	2
Admixture	3

3. Water Meter or Batcher. Provide a suitable measuring device capable of measuring mixing water within the specified accuracy for each batch. Note the number of gallons of water as batched on printed batching tickets.
4. Moisture Control. Provide a moisture meter to measure the amount of free water in fine aggregates within 0.3 of a percent. Compensate for varying moisture contents of fine aggregates and change batch weights of materials if necessary before batching.
5. Scales. Provide adequate facilities for accurate measurement and control of each material entering each batch of concrete. Accuracy of weighing equipment must conform to applicable requirements of ASTM and NRMCA for such equipment.
6. Recorders or Printers. Provide recorders/printers to produce tickets. Each ticket will provide a printed record of weights for cement as batched and for separate aggregates as batched individually. Use the type of indicator that returns for zero punch or to zero after a batch is discharged. Clearly indicate by stamped letters or numbers the difference between aggregates and cement as batched. Show the time of day stamped or printed at intervals of not more than six (6) minutes. Deliver recorded ticket copies with concrete. The testing agency will keep one (1) copy.
7. Protection. Protect weighing, indicating, recording or printing, and control equipment against exposure to dust and weather.

B. Transit Mix Truck Requirements.

1. Clean each transit mix truck drum and reverse drum rotation before the truck proceeds under the batching plant.
2. Keep the water tank valve on each transit truck locked at all times that the truck is in use. Any addition of water must be directed by the Engineer. Added water must be incorporated by additional mixing of at least 35 revolutions or two (2) minutes.
3. Equip each transit-mix truck with a continuous, nonreversible, revolution counter showing the number of revolutions at mixing speeds.

C. Batch Mixing at Site.

1. Mix concrete in a batch mixer conforming to requirements of the Mixer Manufacturers' Bureau of the Associated General Contractors of America. Use a mixer equipped with a suitable charging hopper, water storage tank and water measuring devices. It must be capable of thoroughly mixing aggregates, cement and water into a uniform mass within the specified mixing time, and of discharging the mix without segregation. Operate the mixer according to the rated capacity and recommended revolutions per minute printed on the manufacturer's rating plate.
2. Charge the batch into the mixer so that some water will enter in advance of cement and aggregates. Keep water running until $\frac{1}{4}$ of specified mixing time has elapsed. Provide controls to prevent discharging until the required mixing time has elapsed. When concrete of normal weight is specified, provide controls to prevent the addition of water during mixing. Discharge the entire batch before the mixer is recharged.
3. Mix each batch of two (2) cubic yards or less for not less than one (1) minute and 30 seconds. Increase mixing time 15 seconds for each additional cubic yard or fraction of a yard.
4. Keep the mixer clean. Replace pick-up and throw-over blades in the drum when they have lost 10 percent (10%) of original depth.

D. Admixtures.

1. Charge air-entraining and chemical admixtures into the mixer as a solution using an automatic dispenser or similar metering device. Measure admixture to an accuracy within ± 3 percent (3%). Do not use admixtures in powdered form.

2. Two (2) or more admixtures may be used in the same concrete, provided that the admixtures in combination retain full efficiency and have no deleterious effect on the concrete or on the properties of each other. Inject the admixtures separately during the batching sequence.
3. Add retarding admixtures as soon as practicable after the addition of cement.

E. Temperature Control.

1. When the mean temperature falls below 40^o F, keep the admixed temperature above 55^o F to maintain concrete above the minimum placing temperature.
2. If water or aggregates have been heated, combine water with aggregate in the mixer before cement is added. Do not add cement to the mixtures of water and aggregate when the temperature of the mixture is greater than 95^o F.
3. In hot weather, cool ingredients before mixing to maintain temperature of the concrete below the maximum placing temperature. If necessary, substitute well-crushed ice for all or part of the mixing water.

PART 3 – EXECUTION

3.1 JOINT PREPARATION

Thoroughly roughen the top surface of concrete placement terminating at the construction joints as soon as practical after initial set is attained.

Clean hardened concrete surfaces of all loose material, laitance, dirt, and foreign matter, and saturate it with water. **Pressure washing is not acceptable.** Remove all free water and moisten the surface before concrete or bonding grout is placed against it.

Coat the joint surface with bonding mortar, grout, epoxy or other material as indicated in the plans. Provide Type V epoxy for bonding fresh concrete to hardened concrete:

- (a) Eucopoly LPL MV
- (b) Sikadur Hi-Mod
- (c) Or approved equal.

Place bonding agents in accordance with the manufacturer's recommendations.

3.2 CONCRETE PREPARATION

- A. Coordination. Mix concrete only in quantities for immediate use. Discard concrete which has set. Retempering of set concrete is not permitted. Completely discharge concrete at the site within one (1) hour and 30 minutes after adding cement to aggregate. In hot weather reduce this time to one (1) hour or less to prevent stiffening of concrete before it is placed.
- B. Protection from Adverse Weather. Unless adequate protection is provided or approval is obtained, do not place concrete during rain, sleet, snow or freezing weather. Do not permit rainwater to increase mixing water or to damage the surface finish. If rainfall occurs after placing operations begin, provide adequate covering to protect the work.
- C. Placing Temperature.

1. Cold Weather. Unless special provisions are made for heating the concrete mix and concrete in forms, do not place any concrete when the air temperature is below 40^o F or is predicted to be below 40^o F within the next 48 hours after placement. Provide and use protective material and heating equipment as required to maintain the temperature of the concrete surface at not less than 35^o F for a period of at least 36 hours after placement.
2. Hot Weather. When the air temperature is above 85^o F, use of an approved retarding agent is required in all concrete. Concrete temperature prior to placement shall not exceed 95^o F.

D. Adjusting Slump. If concrete arrives at the project with slump below that specified, water may be added. Indiscriminate addition of water to increase slump is prohibited. Do not exceed either the maximum permissible water-cement ratio or maximum slump. Any addition of water above the maximum water-cement ratio must be accompanied by a corresponding quantity of cement. Mix adjustments to obtain specified slump must be approved and directed by the Engineer.

3.3 CONVEYING

A. Objectives. Handle concrete from mixer to placement as quickly as practicable while providing concrete to required quality in the placement area. Use methods which prevent loss of ingredients and segregation.

B. Equipment. Obtain approval of the conveying equipment. Select equipment of size and design to insure continuous flow of concrete at the delivery end. Conform to the following equipment and operations requirements.

1. Provide truck mixers, agitators, nonagitating units and manner of operation conforming to requirements of ASTM C-94, "Specifications for Ready-Mixed Concrete."
2. Use belt conveyors configured horizontally or at a slope which causes no segregation or loss. Use an approved arrangement at the discharge end to prevent separation. Discharge long runs without separation into a hopper.
3. Provide metal or metal-lined chutes. Arrange for slopes not exceeding one (1) vertical to two (2) horizontal and not less than one (1) vertical to three (3) horizontal. Chutes more than 20 feet long and chutes not meeting slope requirements may be used if concrete is discharged into a hopper before distribution.
4. Pumping of concrete will be permitted only after written approval. Use a batch design and aggregate sizes suitable for pumping.

C. Maximum Time to Placement

The maximum time interval between the addition of cement to the batch, and the placing of concrete in the forms shall not exceed the following:

<u>Air or Concrete Temperature</u> <u>(Whichever is Higher)</u>	<u>Maximum Time</u> <u>(Addition of Water or Cement</u> <u>to Placing in Forms)</u>
Non-Agitated Concrete	
Over 80°F	15 Minutes
35°F to 79°F	30 Minutes
Agitated Concrete	

90°F or Above	45 Minutes
75°F to 89°F	60 minutes
35°F to 74°F	90 Minutes

The use of an approved retarding agent in the concrete will permit the extension of each of the above temperature-time maximums by 30 minutes for bridge decks, top slabs of direct traffic culverts and cased drilled shafts, and one hour for all other concrete except that the maximum time shall not exceed 30 minutes for non-agitated concrete.

3.4 PLACING

- A. Preparation. In addition to the previous requirements, confirm that formwork has been completed. Remove ice, excess water, dirt and other foreign materials from forms. Confirm that reinforcement is securely in place and expansion joint material, anchors and other embedded items are properly positioned. Have a competent workman at the pour location who can assure that reinforcement and embedded items remain in design locations while concrete is being placed. Sprinkle semi porous subgrades to eliminate suction. Seal extremely porous subgrades in an approved manner.
- B. Procedure.
1. Deposit concrete continuously, or in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause formation of seams or planes of weakness within the section. If the section cannot be placed continuously, place construction joints as specified or as approved.
 2. Proceed with placement at a rate such that concrete which is being integrated with fresh concrete is still plastic. Do not deposit concrete which has partially hardened or has been contaminated by foreign materials.
 3. Remove temporary spreaders from forms when the spreader is no longer useful. Temporary spreaders may remain embedded in concrete only if made of galvanized metal or concrete, and if prior approval has been obtained.
 4. Do not start placing of concrete in supported elements until concrete previously placed in columns and walls is no longer plastic.
 5. Deposit concrete as nearly as practicable in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to a procedure which will cause segregation.
 6. Where surface mortar is to be the basis of a finish, especially those designated to be painted, work coarse aggregate back from forms with a suitable tool to bring the full surface of mortar against the form. Prevent formation of excessive surface voids.
 7. Consolidate concrete by vibration, spading, rodding or forking so that concrete is thoroughly worked around reinforcement, around embedded items and into corners of forms. Eliminate air or stone pockets which may cause honeycombing, pitting or planes of weakness. A minimum frequency of 7000 revolutions per minute is required for mechanical vibrators. Do not use vibrators to transport concrete within forms. Insert vibrators and withdraw at points from 18 to 30 inches apart. At each insertion vibrate sufficiently to consolidate concrete, generally from 5 to 15 seconds. Do not over-vibrate causing segregation. Keep a spare vibrator on the site during concrete placing operations.
- C. Concreting Under Water. When required or permitted, deposit concrete under water by an approved method. Obtain advanced approval of the method from the Engineer. Deposit concrete in such a way that fresh concrete enters the mass of previously placed concrete from within, causing water to be displaced with a minimum disturbance at the surface of the concrete.

3.5 REPAIRING SURFACE DEFECTS

- A. Defective Areas. Repair defective areas immediately after the removal of forms.
1. Remove honeycombed and other defective concrete down to sound concrete. To prevent absorption of water from patching mortar, dampen the defective area and a strip six-inches (6") wide surrounding the area to be patched. Prepare bonding grout by mixing approximately one (1) part cement to one (1) part fine sand passing a No. 30 mesh sieve. Mix to a consistency of thick cream, and brush thoroughly into the surface.
 2. Make patching mortar of the same materials and of approximately the same proportions as concrete, except omit coarse aggregate. Prepare mortar with not more than one (1) part cement to 2½ parts sand by damp loose volume. Substitute white Portland cement for part of the gray Portland cement on exposed concrete in order to produce a color matching the color of surrounding concrete. Determine color by making a trial patch.
 3. Use no more mixing water than necessary for handling and placing. Mix patching mortar in advance and allow to stand. Mix frequently with a trowel until it has reached the stiffest consistency that will permit placing. Do not add water.
 4. After surface water has evaporated from the area to be patched, thoroughly brush a coat of bond grout into surface. When bond grout begins to lose its water sheen, apply the premixed patching mortar. Thoroughly consolidate the mortar into place and strike off to leave the patch slightly higher than the surrounding surface. To permit initial shrinkage, leave undisturbed for at least one (1) hour before final finishing. Keep the patched area damp for seven (7) days. Do not use metal tools in finishing patches in a formed wall which will be exposed.
- B. Tie Holes. Patch tie holes immediately after removal of forms. After cleaning and thoroughly dampening the tie hole, fill solid with patching mortar.
- C. Proprietary Materials. If permitted or required, proprietary compounds for adhesion or as patching ingredients may be used in lieu of or in addition to the foregoing patching procedures. Use such compounds according to the manufacturer's recommendations.

3.6 FINISHING OF FORMED SURFACES

- A. Surfaces Requiring No Finish. A finish is not required on surfaces concealed from view by earth, water, ceiling, etc. in the completed structure.
- B. Smooth Form Finish.
1. Use plywood or fiberboard linings or forms in as large sheets as practicable and with smooth, even edges and close joints.
 2. Patch tie holes and defects. Rub fins and joint marks with carborundum blocks to leave a smooth, unmarred finished surface.
 3. Rubbed Finishes. In basins that contain liquids with normal water levels, the rubbed finish need only extend 3 feet below the normal level. Where fill dirt is placed against an exterior surface, extend the finish 3 feet below the finished grade. All other visible surfaces shall receive a finish. Produce one of the following finishes on concrete specified to have a smooth form finish:
 - a. Smooth-rubbed finish – Produce finish on newly hardened concrete no later than the day following formwork removal. Wet the surface and rub it with carborundum brick or other abrasive until uniform color and texture are produced. Use no cement grout other than cement paste drawn from the concrete itself by the rubbing process.

- b. Grout-cleaned finish – Begin cleaning operations after contiguous surfaces to be cleaned are completed and accessible. Do not clean surfaces as work progresses. Wet the surface and apply grout consisting of one part portland cement and one and one-half parts fine sand with enough water to produce the consistency of thick paint. Add white cement as needed to match color of surrounding concrete. Scrub grout into voids and remove excess grout. When grout whitens, rub the surface and keep the surface damp for 36 hours afterward.
- c. Cork-floated finish – Wet the surface and apply stiff grout of one part portland cement and one part fine sand, filling voids. Add white cement as needed to match color of surrounding concrete. Use enough water to produce a stiff consistency. Compress grout into voids by grinding the surface with a slow-speed grinder. Produce the final finish with cork float, using a swirling motion.

3.7 FINISHING SLABS AND SIMILAR FLAT SURFACES

- A. Shaping to Contour. Use strike-off templates or approved compacting-type screeds riding on screed strips and edge forms to bring concrete surface to the proper contour. See the section on Concrete Formwork for edge forms and screeds.
- B. Consolidation. Thoroughly consolidate concrete in slabs and use internal vibration in beams and girders of framed slabs and along bulkheads of slabs on grade. Obtain consolidation of slabs and floors with vibrating bridge screeds, roller pipe screeds, or other approved means. Concrete to be consolidated must be as dry as practicable. Do not permit manipulation of surfaces prior to finishing operations.
- C. Tolerances for Finished Surfaces. Tolerances are checked by placing a straightedge of specified length anywhere on the slab. The gap between slab and straightedge must not exceed the tolerance listed for the specified class.

<u>Class</u>	<u>Straightedge Length In Feet</u>	<u>Tolerance In Inches</u>
A	10	—
B	10	¼
C	10	⅛

- D. Floated Finish.
 - 1. After concrete has been placed, struck off, consolidated and leveled, do not work further until ready for floating. Begin floating when water sheen has disappeared, or when the mix has stiffened sufficiently to permit proper operation of a power-driven float. Consolidate the surface with power-driven floats. Use hand floating with wood or cork-faced floats in locations inaccessible to a power-driven machine and on small, isolated slabs.
 - 2. Recheck tolerance of the surface after initial floating with a 10-foot (10') straightedge applied at not less than two (2) different angles. Cut down high spots and fill low spots to Class "B" tolerance. Immediately refloat slab to uniform, smooth, granular texture.
- E. Troweled Finish.
 - 1. To obtain a troweled finish, a floated finish as previously specified must be applied. After power floating, use a power trowel to produce a smooth surface which is relatively free of defects but which may still contain some trowel marks. Do additional trowelings by hand after the surface has hardened sufficiently. Do final troweling when a ringing sound is produced as the trowel is moved over the surface. Thoroughly consolidate the surface by hand troweling operations.

2. Produce a finished surface free of trowel marks, uniform in texture and appearance and conforming to Class "A" tolerance. On surfaces intended to support floor coverings, remove defects which might show through covering by grinding.

3.8 CURING PROCEDURES

- A. Objective. Protect freshly deposited concrete from premature drying and excessively hot or cold temperatures. Maintain a minimal moisture loss and a relatively constant temperature during the time necessary for hydration of cement and proper hardening of concrete.
- B. Initial Curing. Immediately after the finishing operation, begin initial curing. Keep concrete continuously moist at least overnight. Use one of the following materials and methods for initial curing:
 1. Ponding or continuous sprinkling.
 2. Absorptive mat or fabric kept continuously wet.
 3. Sand or other covering kept continuously wet.
 4. Continuous steam bath (not exceeding 150^o F at the surface of concrete).
 5. Vapor mist bath.
 6. Membrane-forming curing compound applied according to the manufacturer's recommendations.
- C. Final Curing. Immediately following the initial curing and before concrete has dried, provide additional curing by one (1) of following materials or methods:
 1. Continuing the method used in initial curing.
 2. Waterproof paper, polyethylene film or white burlap-polyethylene sheeting.
 3. Other moisture-retaining coverings as approved.
- D. Duration of Curing. Continue final curing until the cumulative number of days or fractions of days during which the ambient temperature is above 50^o F has totaled seven (7). If high-early-strength concrete has been used, combine final curing for a total of three (3) days. Prevent rapid drying at the end of the curing period.
- E. Curing Day. A curing day is defined as a calendar day when the temperature, taken in the shade away from artificial heat, is above 50^o F for at least 19 hours, (or colder days if satisfactory provisions are made to maintain the temperature at all surfaces of the concrete above 40^o F for the entire 24 hours). The required curing period shall begin when all concrete has attained its initial set.
- F. Formed Surfaces. Steel forms heated by the sun and wood forms in contact with concrete during final curing period shall be kept wet. If forms are to be removed during the curing period, employ one (1) of the above curing materials or methods immediately. Continue such curing for the remainder of the curing period.
- G. Temperature.
 1. Cold Weather. Place concrete only when the temperature is above 40^o F and rising. Place no concrete if the temperature is below 50^o F and falling. Maintain the ambient temperature of the air surrounding the concrete above 50^o F for the required curing period. When necessary, make arrangements for heating, covering, insulating or housing concrete work in advance of placement to maintain the required temperature and moisture conditions. Prevent injury due to concentration of heat.
 2. Hot Weather. When necessary, make arrangements for installation of windbreaks, shading, fog spraying, sprinkling, ponding or wet covering of light color in advance of placement. Take such protective measures, as quickly as concrete hardening and finishing operations will allow.
 3. Temperature Changes. Control changes in temperature of concrete at a rate as uniform as possible. Do not permit a temperature change to exceed 5^o F in any one hour or 50^o F in any 24-hour period.

- H. Protection From Mechanical Injury. During the curing period, protect concrete from damaging mechanical disturbances, particularly load stresses, heavy shock and excessive vibration. Protect finished concrete surfaces from damage caused by construction equipment, materials, or methods and by rain or running water. Do not load self-supporting structures in any way that overstresses concrete.
- I. Membrane Curing Requirements.
1. After concrete has received final finish and surplus water sheen has disappeared, seal surface with a single uniform coating of approved curing compound applied at rate of coverage recommended by manufacturer and as directed by Engineer, but not less than one (1) gallon per 180 square feet of area. Provide satisfactory means and facilities to properly control and check rate of application of compound.
 2. Thoroughly agitate compound during use and apply by means of approved mechanical power pressure sprayers, equipped with satisfactory atomizing nozzles, except that for application on small miscellaneous items, hand powered spray equipment may be used. For all spraying equipment, prevent loss of compound between nozzle and concrete surface during spraying operations.
 3. Do not apply compound to a dry surface. If surface of concrete has become dry, thoroughly moisten immediately previous to application. At locations where coating shows discontinuities, pin holes or other defects, or if rain falls on newly coated surface before film has dried sufficiently to resist damage, apply an additional coat of compound immediately, at same rate of coverage specified herein.
 4. Use any of the following curing compounds for unformed surfaces:
 - a. ShepCure City White
 - b. W.R. Meadows 1600 White Series
 - c. Day-Chem White Pigmented Cure (J-8)
 - d. Or approved equal.
 5. Use any of the following curing compounds for all formed surfaces to receive further surface treatment or additional concrete:
 - a. Shep Cure 309 Rez All
 - b. W.R. Meadows 1100 – Clear Resin Based
 - c. Day – Chern Rez Cure (J-11-W)
 - d. Or approved equal.

END OF SECTION

**SECTION 03350
GROUTING**

PART 1 – GENERAL

1.1 SCOPE

This section covers grouting of pump, motor, and equipment baseplates and column baseplates. Epoxy Grout and grout applied as concrete fill in structures or for use in concrete masonry are also covered under this section.

1.2 REFERENCES

- A. CRD C 621 – Corps of Engineers Specification for Non-shrink Grout.
- B. ASTM C 109 – Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 in. or 50 mm. cube specimens)
- C. ASTM C 230 – Specification for Flow Table for use in Tests of Hydraulic Cement.
- D. ASTM C 1107 – Standard Specification for Packaged Dry, Hydraulic Cement Grout (Non-shrink)

1.3 SUBMITTALS

- A. Conform to Section 01330 – Submittal Procedures.
- B. Quality Control:
 - 1. The Contractor shall submit manufacturer’s literature certifying compliance with the specified properties for Class I and II grouts.
 - 2. The Contractor shall submit manufacturer’s literature containing instruction and recommendations on the mixing, handling, placement and appropriate uses for each type of grout used in the work.
- C. The Contractor shall submit manufacturer's written warranty as specified.

1.4 QUALITY ASSURANCE

- A. Field Tests:
 - 1. Compression test specimens will be taken during construction from the first placement of each type of grout, and at intervals thereafter as selected by the Engineer to ensure continued compliance with these Specifications. The specimens will be made by the Engineer or its representative.
 - 2. Compression tests and fabrication of specimens for non-shrink grout will be performed as specified in ASTM C 109 at intervals during construction as selected by the Engineer. A set of three specimens will be made for testing at 7 days, 28 days, and each additional time period as appropriate.
 - 3. Grout already placed which fails to meet the requirements of these Specifications is subject to removal and replacement no additional cost to the Owner.
 - 4. The cost of laboratory tests on grout will be borne by the Owner, but the Contractor shall assist the Engineer in obtaining specimens for testing. However, the Contractor shall be charged for the cost of any additional tests and investigation on work performed which does not meet the Specifications. The Contractor shall supply materials necessary for fabricating the test specimens.

- B. Warranty:
1. Provide one-year warranty for work provided under this Section.
 2. Manufacturer's warranty shall not contain a disclaimer limiting responsibility to only the purchase price of products or materials furnished.
 3. Manufacturer shall warrant participation with Contractor in replacing or repairing grout found to be defective due to faulty materials, as determined by industry standard test methods.

PART 2 – MATERIALS

- A. Nonshrink Grout. Product and Manufacturer: Provide one of the following:
- B. Set Grout, as manufactured by Master Builders, Inc.
- C. NBEC Grout, as manufactured by Five Star Products, Inc.
- D. NS Grout, as manufactured by the Euclid Chemical Company.
- E. Sikagrout 212, as manufactured by Sika Corporation
- F. Or approved equal according to Corps. of Engineers Specification CRD-C62I.
- G. Epoxy Grout.
- | | |
|-----------|--|
| Adhesive | Sika "Sikadur Hi-Mod" or "Sikadur Hi-Mod Gel" or approved equal. |
| Aggregate | Suitable for application as recommended by the epoxy grout manufacturer. |
- H. Grout for Concrete Fill. Portland Type 1 Cement and Aggregate according to ASTM C-476.
- I. Water. Clean and free from all deleterious substances.

2.1 NONSHRINKING GROUT

- A. Application - The following is a listing of typical applications and the corresponding type of non-shrink grout which is to be used. Unless indicated otherwise, grouts shall be provided as listed below whether or not called for on the Drawings.

<u>Application:</u> _____	<u>Type of Grout</u> _____
Structural member base plates	Non-shrink Class II
Storage tanks and other equipment	Non-shrink Class I
Filling blockout spaces for embedded items such as railing posts, gate guide frames, etc.	Non-shrink Class II (Class I where placement time exceeds 15 minutes)
Under precast concrete elements	Non-shrink Class I
Toppings and concrete fill less than 3 inches thick	Concrete Topping per Section 03310 and Section 03345
Toppings and concrete fill greater than 3 inches thick	Concrete Fill per Section 03310 and Section 03345
Any application not listed above, where grout is called for on the Drawings	Non-shrink Class I, unless noted otherwise

B. Prepackaged Grouts

1. Basic Requirements for Cementitious Non-Shrink Grout
 - a. Provide prepackaged non-shrink grout that is inorganic, flowable, non-gas-liberating, non-metallic, and cement-based, requiring only the addition of water.
 - b. Deliver grout in original packaging with manufacturer's instructions printed on each container.
 - c. Select the specific formulation for each class of non-shrink grout specified to conform to that recommended by the manufacturer for the particular application.
 - d. Compressive strength at 28 days: 7000 psi minimum.
 - e. Do not use a grout for which the non-shrink property is based on a chemically generated gas or gypsum expansion.
2. Class I Non-Shrink Grout:
 - a. Supply Class I Grout conforming to these specifications and to CRD C 621 and ASTM C 1107 Grade C and B (as modified below) when tested using the amount of water needed to achieve the following properties:
 - i. Fluid consistency (20 to 30 seconds) per CRD C 611 at initial testing.
 - ii. Fluid consistency (45 seconds) per CRD C 611 at 30 minutes after mixing.
 - iii. At temperatures of 45, 73.4, and 95 degrees F.
 - b. To satisfy non-shrink requirements, the length change from placement to time of final set shall not have a shrinkage greater than the amount of expansion measured after final set at 3 and 14 days. The expansion at 3 and 14 days shall not exceed the 28-day expansion.
 - c. Fluid grout shall pass through the flow cone, with a continuous flow, 1 hour after mixing.
 - d. Demonstrate in tests that grout maintains contact with the baseplate to provide a minimum effective bearing area of 95 percent of the gross contact area after final set.
 - e. The grout packaging shall list weight, maximum amount of mixing water to be used, maximum usable working time (pot life) at flowable consistency, and temperature restrictions for preparation and placement within which grout will meet specified requirements.
3. Class II Non-Shrink Grout:
 - a. Supply Class II Grout conforming to ASTM C 1107 and the following requirements when tested using the amount of water needed to achieve the following properties:

- i. Flowable consistency: 140 percent flow on ASTM C 230, five drops in 30 seconds.
 - ii. Fluid working time: 15 minutes, minimum.
 - iii. Flowable duration: 30 minutes, minimum.
 - b. When tested, the grout shall not bleed at maximum allowed water.
- C. Curing Materials. Curing materials: As specified in Section 03370 - Concrete Curing and as recommended by the manufacturer of prepackaged grouts.
- D. Consistency. Mix grouts to the consistency necessary to completely fill the space to be grouted. Dry pack consistency is such that the grout is plastic and moldable but will not flow. Where "dry pack" is called for in the Contract Documents, it shall mean a grout of that consistency; the type of grout to be used shall be as specified herein for the particular application.

2.2 EPOXY GROUT

Epoxy grout shall be provided for all anchor bolts and reinforcing bars installed in hardened concrete.

Epoxy resin, 50% hardener and 50% resin by volume, shall be provided in equal parts containers. Contractor shall not exceed manufacturer's recommendation for pot life.

- A. Preparation. Where indicated on the drawings, anchor bolts and reinforcing bars shall be epoxy grouted in holes drilled into hardened concrete. Diameters of holes shall be ¼-inch (¼") larger than the maximum dimension of the bolt head, and ½-inch (½") larger than the bar diameter. The embedment depth for epoxy grouted anchor bolts and reinforcing bars shall not be less than 10 bolt or bar diameters unless indicated otherwise on the drawings.

Holes shall be prepared for grouting as recommended by the grout manufacturer.

- B. Installation. Anchor bolts and reinforcing bars shall be clean, dry and free of grease and other foreign matter at time of installation. The bolts and bars shall be set and positioned and the epoxy grout shall be placed and finished in accordance with the recommendations of the grout manufacturer. Particular care shall be taken to ensure that all spaces and cavities are filled with epoxy grout, without voids.

2.3 GROUT FOR CONCRETE FILL

Grout for concrete fill in structures or for use in concrete masonry should comply with ASTM C-476. Fine or coarse grout may be used depending upon the horizontal dimension of the grout space. Fine grout shall be used when the minimal dimension is two-inches (2") and coarse grout shall be used when the minimal dimension is four-inches (4").

Grout Proportions by volume shall be supplied as follows:

- (1) Fine Grout. 1 part Portland cement; 2¼ to 3 parts fine aggregate
- (2) Coarse Grout. 1 part Portland cement; 2¼ to 3 parts fine aggregate; 1 to 2 parts coarse aggregate

All grout should be of fluid consistency; the desired slump is eight-inches (8").

Whenever possible, grout should be batched, mixed, and delivered in accordance with ASTM C-94, requirements for transit mixed concrete. When a batch mixer is used on the job site, all materials should be mixed thoroughly for at least five (5) minutes. Grout which has not been placed 1½ hours after water is first added should be discarded.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Verify that base concrete or masonry has attained design strength before grout is placed.
- B. When cementitious grouts are used on concrete surfaces, saturate the concrete surface with water for 24 hours prior to placement of cement-based grout. Upon completion of saturation period remove excess water prior to grouting.

3.2 GROUTING PROCEDURES

Prepackaged Grouts: Perform mixing, surface preparation, handling, placing, consolidation, curing, and other means of execution for prepackaged grouts according to the written instructions of the manufacturer. Use prepackaged materials in the quantities and proportions as directed by the manufacturer unless there is certified test data verifying that the specified properties are attained by modified mix.

3.3 CONSOLIDATION

Place grout in such a manner, for the consistency necessary for each application, so as to assure that the space to be grouted is completely filled.

3.4. EDGE FINISHING.

The grout shall be finished smooth in all locations where the edge of the grout will be exposed to view after it has reached its initial set. Edges of grout shall be cut flush at the baseplate of structural member or piece of equipment unless drawings indicate otherwise.

END OF SECTION

SECTION 09920
PROTECTIVE COATINGS (STEEL PIPES)

PART 1 – GENERAL

1.1 SCOPE

This Item shall govern the preparation of surfaces, performance, and completion of painting and finishing of all exterior and interior surfaces as required and specified herein, and environmental protection systems as required on this project.

1.2 RELATED WORK

- A. Division 2, Site Work
1. Raw Water Conveyance Steel Siphons

1.3 MEASUREMENT AND PAYMENT

- A. No payment will be made for protective coatings of the steel siphon pipes. Include payment for protective coatings in Steel Siphon Pipes bid item.

1.4 SUBMITTALS

- A. After award of the contract, and before delivery of any paint materials to the job site, the Contractor shall submit to the Owner a complete list of all materials proposed to be furnished and installed under this portion of the work.
- B. Submittals presented by the Contractor shall in no way be construed as permitting substitution of materials for those specified or approved for this work by the Owner.
- C. When required by the Owner, the Contractor shall prepare and deliver to the Owner two (2) identical sets of samples of the selected colors painted onto 8 ½ inch x 11 inch pieces of material.
- D. Contractor shall submit manufacturer’s technical data, MSDS, and product literature indicating that the products comply with the specified requirements.
- E. Contractor shall submit documentation for the coating system application equipment to be used.

1.5 QUALIFICATIONS

- A. The Contractor must meet the following requirements:
1. The Contractor shall engage only qualified applicator who has successfully completed applications using specified materials or equal on projects of similar scope with a satisfactory record.
 2. Bidder should include references for similar projects utilizing the types of coating systems specified herein, including name address and phone number on the bidder’s qualifications statement sheet.

PART 2 – PRODUCTS

2.1 MATERIAL

- A. All materials delivered to the job site shall be in original sealed and labeled containers of the paint manufacturer.
- B. Coatings shall be shop applied during optimal painting conditions. Air and surface temperatures shall be within limits prescribed by the manufacturer for the coating being applied, and work areas shall be reasonably free of airborne dust at the time of application and while the coating is drying. Special attention to environmental conditions and substrate preparation shall be required for any field repairs to shop applied coatings and to areas coated in the field after field welding joints during installation.
- C. All paint for this project shall be supplied by TNEMEC or Carboline as specified herein unless expressly approved in writing by the Owner prior to contract bid. No request for an “approved equal” product will be considered that would decrease film thickness or number of coats, or offers a change in the general type of coating specified.
- D. It is the Contractor’s responsibility to investigate and verify the paint supplied by an “approved equal” manufacturer meets all of the requirements of these technical specifications.
- E. Contractor must select paints and paint materials which will conform to all federal, state and local air, ground, and water pollution control agencies. This precludes the use of any materials which would not comply with the present pollution control regulations. The Contractor will, if required by the Owner, furnish written certification by the manufacturer that these materials do, at the time of bidding, meet these regulatory agencies’ requirements.
- F. Colors, where not specified, shall be selected by the Owner.
- G. Contractor shall obtain all components, including primers, undercoat materials, thinners, and coatings from the same manufacturer, or as recommended by the manufacturer, for each type of coating or lining system specified to ensure compatibility, and proper chemical and mechanical bond.

2.2 COATING SYSTEM

- A. Application of all protective coatings must meet all applicable requirements of SSPC, NACE, the coating system manufacturer, and local, state and federal regulations.
- B. The interior of pipes, exterior of the pipes, and sheet piling to be permanently incorporated into the project shall receive protective coatings in accordance with this specification.

2.3 ENVIRONMENTAL PROTECTION SYSTEMS

- A. Contractor shall strictly observe and comply with all applicable environmental protection regulations associated with his activities on this project. All environmental protection measures, including but not limited to debris containment and disposal, ground and surface water protection shall be the sole responsibility of the Contractor.
- B. Contractor shall take care to use all protective measures meeting latest EPA and OSHA requirements.

PART 3 – EXECUTION

3.1 SURFACE PREPARATION

- A. Prior to abrasive blasting steel, surface should be clean, dry, and contaminant free. Surface of steel should be at least 5°F above the dew point to prevent flash rusting.
- B. The grade of abrasive used shall be one which will produce, without exceeding the minimum DFT of the first full prime coat, an anchor profile depth and shape which will give optimum adhesion between the steel substrate and first full prime coat and an anchor pattern which will be completely covered by the prime coat selected by the Contractor.
- C. Blasting shall be done with clean sand, or approval equal. The abrasive material shall be clean, dry, and free of clay particles and other extraneous matter. “Recycling” of blast material will not be permitted.
- D. The compressed air used for blasting shall be free of detrimental amounts of water and oil. Adequate traps and separators shall be provided at the compressor.
- E. All traces of blast products and dust must be removed from surfaces to receive primer, as well as all adjacent areas which have been previously coated before application of the initial or successive protective coats.
- F. Where existing defects (such as weld splatter, etc.) are present, the Contractor must either remove these existing defects or must pre-coat these areas.
- G. All blast cleaned surfaces shall be fully prime coated within six (6) hours after blasting or prior to flash rusting, whichever occurs first. Areas which are not coated within six (6) hours or before flash rusting occurs will be re-blasted.
- H. Abrasive blast all steel surfaces to be coated, to a “near-white” grade of surface preparation in strict accordance with SSPC-SP10. Refer to appropriate system and application requirements below for required surface profile.

3.2 PIPE COATING SYSTEM & APPLICATION REQUIREMENTS – INTERIOR AND EXTERIOR

- A. The coating system for all segments of pipe, interior and exterior, shall be applied utilizing a two (2) coat, high-build, coal tar epoxy system, as specified herein. Complete coating system shall be supplied from a single manufacturer.
- B. All coatings shall be shop applied whenever possible. Prepare surface by blast cleaning to a “Near-White” (SSPC SP-10) finish with a 3-mil profile.

Stripe Coat: Stripe coat all crevices, welds and sharp angles with Tnemec “Tneme-Tar” (46H-413) or Carboline “Bitumastic 300M” high-build polyamide epoxy coal tar coating, or prior approved equal.

1st Coat: Tnemec “Tneme-Tar” (46H-413) or Carboline “Bitumastic 300M” high-build, polyamide epoxy coal tar coating, or prior approved equal. Required DFT Range: 8-10 mils.

2nd Coat: Tnemec “Tneme-Tar” (46H-413) or Carboline “Bitumastic 300M” high-build, polyamide epoxy coal tar coating, or prior approved equal. Required DFT Range: 8-10 mils.

3.3 GENERAL COATING SYSTEM APPLICATION REQUIREMENTS

- A. Application of each coat shall be in strict accordance with the manufacturer’s recommendations. Prior to application of each successive coat of paint, Contractor will wash down all surfaces.
- B. Contractor should note the “spot” holiday testing required prior to the application of the last coat as specified below.
- C. After the final coat has cured to the extent that it can be handled or walked on without damage, the lining will again be checked for holidays as specified below.
- D. Contractor is not required to apply any of the coating systems in only the minimum number of full coats. He may, if he so chooses, apply each full coat in multiple applications in order to achieve the minimum DFT required for that particular coat. Contractor will not be allowed to build up any low mils of the coating system by applying an “extra heavy” last full coat.

3.4 REPAIR OF DAMAGED & DEFECTIVE AREAS

- A. Contractor will repair all painted areas damaged due to his operations and all areas rejected by the OWNER due to the Contractor’s unsatisfactory paint application by removing the damaged or defective paint by re-blasting and re-painting as originally specified.
- B. Scratches, abraded or burned areas, as well as premature failures like rusting, peeling, or blistering, along with heavy runs, sags, delamination, debris embedded in the paint, drips, over spray, and other similar conditions shall all be considered unsatisfactory and require correction prior to acceptance.
- C. Repairs of small damaged spots and along the edges of large damaged areas will be feather-edged by hand or power sanding the adjacent areas to provide a smooth and continuous surface texture and to be invisible after the final coat is applied.

3.5 CERTIFICATION

- A. Contractor shall provide the coating applicator’s certification and verification that the coating system was applied in strict conformance with the specifications and manufacturer’s recommendations.

3.6 CONTRACTOR QUALITY CONTROL PROGRAM

- A. Contractor must implement and carry out his own surface preparation and painting quality control procedures under the direct supervision of the Contractor’s Quality Control Supervisor.
- B. The Contractor’s QC Supervisor is responsible for ensuring quality work each day and providing documentation that both workmanship and materials are in accordance with this specification.
- C. Contractor will monitor and keep written and accurate documentation of the following information:
 - 1. Material quality assurance
 - 2. Surface preparation

3. Coating application
4. Temperatures
5. Humidity and dew point
6. Testing (WFT, DFT, holiday detection, etc.)

3.7 PAINT APPLICATION – GENERAL

All surfaces, just prior to and during application of paint, shall be free from all dirt, dust, overspray, blast products, mud, oil, grease, rust, mill scale, contamination from power stage air motor exhausts, and any other objectionable substances. Particular attention must be addressed to all “hard to reach” surfaces.

- A. Contractor must comply with all recommendations of the paint manufacturer in regard to drying time for each coat, technique of application, ventilation, thinning, safety precautions, etc. It will be the Contractor’s responsibility to fully inform himself and all members of his field crew of these recommendations and to comply with them in all respects.
- B. No paint shall be applied to any surface under any of the following weather conditions:
 1. Ambient temperature below 50° F.
 2. Steel surface temperature below 50° F.
 3. When substrate surface temperature is less than 5° F above the dew point.
 4. When the relative humidity is above 85%, or as specified by the coating manufacturer.
 5. During wet, damp, or foggy weather.
- C. Exceptions to the above must be approved by the Owner for each separate incident.
- D. No paint shall be applied to any surface when there is a possibility that windblown dust, dirt, debris, or insects will collect on freshly applied paint or when high winds will adversely affect the painting operations.
- E. Care must be taken to avoid dry overspray. Dry overspray must be removed by hand sanding prior to coating application to the satisfaction of the Owner.
- F. All coating materials, blast material, and all equipment used in surface preparation and painting shall be subject to inspection at all times by the Owner.
- G. Air compressors, blasting and painting equipment must be equipped with moisture traps, gages, regulators, etc. Blast hoses shall be equipped with automatic safety control devices (i.e. “dead-man” switches) at the nozzles.
- H. All paint for field touch-ups shall be delivered to the jobsite in originally labeled and unopened containers, shall be stored inside, and shall be protected against freezing. No adulterant, unauthorized thinner, or other material not included in the paint formulation shall be added, unless approved in writing by the paint manufacturer and the Owner.
- I. Paint shall be thoroughly mixed by means of mechanical agitation only. The mixing and use of partial units will not be permitted.

- J. The first full coat must cover the anchor pattern completely with no peaks exposed after normal drying time.
- K. Contractor will carefully observe the minimum and maximum re-coat times as specified by the paint manufacturer. Any coating which has set past the maximum re-coat time shall be prepared for top- coating in strict accordance with the recommendations of the paint manufacturer.
- L. Do not paint over any surfaces not fully blasted or cleaned. Dust and blast products shall be removed from all surfaces prior to coating by blowing, brushing, and/or water washing with potable water only. Care must be taken to prevent blown dust particles from settling back on the surfaces to be coated. When using water to remove blast products and dust from painted surfaces, ample time will be allowed for drying before starting the next coat. Should the painted surfaces become contaminated by any foreign materials prior to the application of the next coat, the Contractor will be required to remove the contaminants.

3.8 VENTILATION & CURE

- A. Contractor must be aware that adequate ventilation during the curing period of each coating system is critical to the curing mechanisms of the coating materials. The ventilation system must be in accordance with the coating manufacturer’s recommendations and designed to completely eliminate any “dead” areas on the surface.

3.9 SPECIAL PRECAUTIONS

- A. Non-paintable surfaces such as galvanized parts, insulation, valve stems, gauges, safety devices, lights, control panels, etc. shall be protected against damage.
- B. The Contractor is not to cut or burn holes in or weld any temporary attachments to any component or part unless approved in writing by the Owner prior to the cutting or welding operation.

3.10 SAFETY

- A. It is the Contractor’s sole responsibility and duty to ensure that all OSHA, Federal, State, City and local safety rules, regulations and general industry safety practices are fully complied with at all times by his employees, his sub-contractors, or anyone else at the jobsite under the control or direction of the Contractor.

3.11 WARRANTY

- A. Contractor shall warranty paint application for a period not less than one (1) year. Warranty shall provide for full coverage of all parts and labor for on-site repair of any failed areas detected within the warranty period.

END OF SECTION