



**Bottom 2 Top Construction LLC**

**16708 Hwy 67**

**Biloxi, MS 39532**

**Certificate #23104-MC**

**Jackson County Utility Authority**

**1225 Jackson Ave**

**Pascagoula, MS 39567**

**Enclosed Bid for: JCUA Hwy 90 Force Main Relocation**

**Address:**

**16708 Hwy 67 Biloxi, MS 39532**

**Office: 228-731-3795**

**Fax: 228-314-3811**

**Email: [jraffeo@bottom2top.net](mailto:jraffeo@bottom2top.net)**



# JCUA HIGHWAY 90 FORCE MAIN RELOCATION

## Project Manual

prepared for



04/11/2025

ISSUED FOR BID (04/23/25)

NS.18733

---

**TABLE OF CONTENTS**

**CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS**

**JCUA Highway 90 Force Main Relocation**

---

**CONTRACT DOCUMENTS**

**INTRODUCTORY INFORMATION**

TABLE OF CONTENTS

**BIDDING REQUIREMENTS**

- C111** ADVERTISEMENT FOR BIDS
- C200** INSTRUCTION TO BIDDERS FOR CONSTRUCTION CONTRACT
- C410** BID FORM FOR CONSTRUCTION CONTRACT
- C430** BID BOND

**CONTRACTING REQUIREMENTS**

- C510** NOTICE OF AWARD
- C520** AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT
- C550** NOTICE TO PROCEED
- C610** PERFORMANCE BOND
- C615** PAYMENT BOND
- C625** CERTIFICATION OF SUBSTANTIAL COMPLETION
- C626** NOTICE OF ACCEPTABILITY
- C700** GENERAL CONDITIONS
- C800** SUPPLEMENTARY CONDITIONS
- C941** CHANGE ORDER

**TECHNICAL SPECIFICATIONS**

THE MISSISSIPPI DEPARTMENT OF TRANSPORTATION, MISSISSIPPI STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2017 EDITION, SECTIONS 200-800 ARE THE GOVERNING TECHNICAL SPECIFICATIONS FOR THIS PROJECT AND ARE INCLUDED AS IF ATTACHED HEREIN.

**SPECIAL PROVISION 907-234-1 SILT FENCE**

**SPECIAL PROVISION 907-618-2 TRAFFIC CONTROL MANAGEMENT**

- 31 23 33 EXCAVATION, BACKFILL AND COMPACTION FOR UNDERGROUND PIPING
- 33 05 23.13 DIRECTIONAL DRILLING
- 33 05 23.16 IN CASED CROSSINGS PLACED BY BORING OR OPEN TRENCH
- 33 11 00 PIPING – GENERAL
- 33 11 01 DETAIL PIPING SPECIFICATION POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

---

33 11 02	DETAIL PIPING SPECIFICATION DUTILE IRON PIPE AND FITTINGS
33 11 04	DETAIL PIPING SPECIFICATION HIGH DENSITY POLYETHYLENE PIPE
33 12 16	VALVES
33 32 22	BYPASS PUMPING

**ADVERTISEMENT FOR BIDS**  
**JACKSON COUNTY UTILITY AUTHORITY**  
**JCUA HIGHWAY 90 FORCE MAIN RELOCATION**

**General Notice:**

The Jackson County Utility Authority (Owner) is requesting Bids for the construction of the following Project:

**JCUA HIGHWAY 90 FORCE MAIN RELOCATION**

Bids for the construction of the Project will be received at the **Office of the Jackson County Utility Authority** located at **1225 Jackson Avenue, Pascagoula, MS 39567**, until **Thursday, May 22, 2025 at 10 a.m.** local time. At that time the Bids received will be publicly opened and read.

The Project includes the following Work:

**Relocation of existing sanitary sewer force main along Highway 90 in Ocean Springs, MS.**

Bids are requested for the following Contract: **JCUA HIGHWAY 90 FORCE MAIN RELOCATION**

**Obtaining the Bidding Documents:**

Information and Bidding Documents for the Project can be found at the following designated website:

**[www.neel-schafferplans.com](http://www.neel-schafferplans.com)**

Bidding Documents may be downloaded from the designated website. Prospective Bidders must register with the designated website as a plan holder. All plan holders are required to have a valid email address for registration. The designated website will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only through the designated website. Neither Owner nor Engineer will be responsible for Bidding Documents, including addenda, if any, obtained from sources other than the designated website. All bid documents must be purchased through the website. The cost of bid documents is non-refundable. Questions regarding website registration and online orders shall be directed to **Plan House Printing at 601-336-6378**.

**Official Bid Documents can be downloaded at [www.centralbidding.com](http://www.centralbidding.com). Electronic Bids can be submitted at [www.centralbidding.com](http://www.centralbidding.com). For any questions regarding the electronic bidding process, please contact Central Bidding at 225-810-4814 or [info@centralbidding.com](mailto:info@centralbidding.com).**

**“Mississippi Standard Specifications for Road and Bridge Construction, 2017 Edition” as referred to herein may be purchased from the Mississippi Department of Transportation.**

**A Pre-Bid Conference will not be held.**

**Instructions to Bidders.**

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders that are included in the Bidding Documents.

**This Advertisement is issued by:**

**Owner: Jackson County Utility Authority**

**By: Eric Page**

**Title: Executive Director**

**Dates of Advertisement:**

**April 23, 2025**

**April 30, 2025**

# INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

## TABLE OF CONTENTS

	Page
Article 1— Defined Terms.....	1
Article 2— Bidding Documents.....	1
Article 3— Qualifications of Bidders.....	1
Article 4— Pre-Bid Conference.....	2
Article 5— Site and Other Areas; Existing Site Conditions; Examination of Site; Owner’s Safety Program; Other Work at the Site.....	2
Article 6— Bidder’s Representations and Certifications.....	4
Article 7— Interpretations and Addenda.....	4
Article 8— Bid Security.....	4
Article 9— Contract Times.....	5
Article 10— Substitute and “Or Equal” Items.....	5
Article 11— Subcontractors, Suppliers, and Others.....	5
Article 12— Preparation of Bid.....	6
Article 13— Basis of Bid.....	7
Article 14— Submittal of Bid.....	7
Article 15— Modification and Withdrawal of Bid.....	7
Article 16— Opening of Bids.....	8
Article 17— Bids to Remain Subject to Acceptance.....	8
Article 18— Evaluation of Bids and Award of Contract.....	8
Article 19— Bonds and Insurance.....	9
Article 20— Signing of Agreement.....	9
Article 21— Sales and Use Taxes.....	9
Article 22— Contracts to Be Assigned.....	9

## ARTICLE 1—DEFINED TERMS

- 1.01 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.

## ARTICLE 2—BIDDING DOCUMENTS

- 2.01 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.
- 2.02 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.
- 2.03 Owner has established a Bidding Documents Website as indicated in the Advertisement or invitation to bid. 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.

## ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 Bidder is to submit the following information with its Bid to demonstrate Bidder's qualifications to perform the Work:
- A. For all bids submitted in excess of \$50,000, Bidder shall write its current Mississippi Board of Contractors Certificate of Responsibility Number on the exterior of the sealed bid envelope in order to be opened and considered.
- B. Bidder's Mississippi Board of Contractors Certificate of Responsibility Classification for this project shall be **Municipal and Public Works**. Bidder's Classification shall be written on the exterior of the sealed bid envelope along with the Certificate of Responsibility Number in order to be opened and considered.
- C. Out of state Bidders, licensed in the State of Mississippi, shall include with their bid package a copy of their resident state's current preference law, if any, pertaining to such state's treatment of nonresident contractors. Failure to do so shall result in Bidder's proposal being rejected and not considered. If the Bidder's resident state does not have a preference law, the Bidder shall submit a letter stating such from an officer of the court.

- D. Owner hereby notifies all Bidders that it will affirmatively insure that disadvantaged and women's enterprises will be afforded the full opportunity to bid on and be considered for award of any contracts associated with this project and will not be discriminated against on the grounds of race, color, or national origin.
- 3.02 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 4—PRE-BID CONFERENCE**

- 4.01 A pre-bid conference will not be conducted for this Project.

**ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE**

5.01 *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.

5.02 *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.

5.03 *Other Site-related Documents*

- A. In addition to the documents regarding existing Site conditions referred to in Paragraph 5.02.A, the following other documents relating to conditions at or adjacent to the Site are known to Owner and made available to Bidders for reference:

- 1. **None**

5.04 *Site Visit and Testing by Bidders*

- A. Bidder is encouraged 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. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- C. 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.
- D. 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.
- E. 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.

5.05 *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.

5.06 *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 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

### 6.01 *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 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:
  - A. **Doug Wimberly, PS, PE**  
**Neel-Schaffer, Inc.**  
**707 Watts Avenue, Suite C**  
**Pascagoula, MS 39567**  
**228-696-2649**  
[doug.wimberly@neel-schaffer.com](mailto:doug.wimberly@neel-schaffer.com)
- 7.03 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.
- 7.04 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 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of five (5) percent of Bidder’s maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.
- 8.02 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.

- 8.03 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.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

#### **ARTICLE 9—CONTRACT TIMES**

- 9.01 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.
- 9.02 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 10—SUBSTITUTE AND "OR EQUAL" ITEMS**

- 10.01 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.
- 10.02 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 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS**

- 11.01 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.
- 11.02 Subcontractor's proposed for subcontracts for all or any portion of the construction exceeding \$50,000 are required to have a current Certificate of Responsibility Number issued by the Mississippi Board of Contractors and such subcontractors shall hold Classifications required for those portions of the work that they will be performing. A listing of all such subcontractors along with their Certificate Number and Classification(s) shall be provided with the Bidder's proposal.
- 11.03 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.

- 11.04 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 12—PREPARATION OF BID**

- 12.01 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."
- 12.02 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.
- 12.03 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.
- 12.04 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.
- 12.05 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.
- 12.06 A Bid by an individual must show the Bidder's name and official address.
- 12.07 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.
- 12.08 All names must be printed in ink below the signatures.

- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.

#### **ARTICLE 13—BASIS OF BID**

##### **13.01 *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.

#### **ARTICLE 14—SUBMITTAL OF BID**

- 14.01 The documents required to be submitted as part of the Bid Package include, at a minimum, the Bid Form, the Bid Bond Form and other documents as required under the terms of Article 2 of the Bid Form. Bidders shall submit a bound copy of the Bid Package. If bids are submitted electronically, Bidder shall scan in the entire Bid Package and submit the same.
- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation 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, Bidder’s Certificate of Authority (for Bids exceeding \$50,000), Bidder’s Certificate of Authority Classification, 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 Advertisement.
- 14.03 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 15—MODIFICATION AND WITHDRAWAL OF BID**

- 15.01 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.

- 15.02 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.
- 15.03 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 16—OPENING OF BIDS**

- 16.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

#### **ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

- 17.01 All Bids will remain subject to acceptance for the period of time stated 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 18—EVALUATION OF BIDS AND AWARD OF CONTRACT**

- 18.01 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.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 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.
- 18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.
- 18.05 *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.
  - B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner will announce to all bidders a "Base Bid plus alternates" budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After

determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.

- C. For determination of the apparent low Bidder(s) when sectional bids are submitted, Bids will be compared on the basis of the aggregate of the Bids for separate sections and the Bids for combined sections that result in the lowest total amount for all of the Work.
  - D. 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.
  - E. For the determination of the apparent low Bidder when cost-plus-fee bids are submitted, Bids will be compared on the basis of the Guaranteed Maximum Price set forth by Bidder on the Bid Form.
- 18.06 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.
- 18.07 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 19—BONDS AND INSURANCE**

- 19.01 Article 6 of the General Conditions, as may be modified by 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.
- 19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

#### **ARTICLE 20—SIGNING OF AGREEMENT**

- 20.01 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 printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

#### **ARTICLE 21—SALES AND USE TAXES: NOT USED.**

#### **ARTICLE 22—CONTRACTS TO BE ASSIGNED: NOT USED.**

# 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:

**Jackson County Utility Authority**

**1225 Jackson Avenue**

**Pascagoula, MS 39567**

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.

## 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. List of Proposed Subcontractors if their portion of the project exceeds \$50,000. Include their Certificate of Responsibility and Classification;
- C. Contractor's Certificate of Responsibility and Classification written on the outside of the Bid envelope;
- D. If the Bidder resides out of state, a copy of the Bidder's resident state law regarding preference, if any, pertaining to such state's treatment of non-resident contractors. If the Bidder's resident state does not have a preference law, the Bidder shall submit a letter stating such form an office of the court.

## 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:

Item No.	Description	Estimated Qty	Unit	Bid Unit Price	Bid Amount
201-A	Clearing and Grubbing	1	LS	\$81,351.90	\$81,351.90
202-B	Removal of Asphalt Pavement, All Types and Thicknesses	108	SY	\$19.50	\$2,106.00
202-B	Removal of Pipe, All Types and Sizes	140	LF	\$19.50	\$2,730.00
202-B	Removal of Concrete Sidewalk and Driveways, All Depths	93	SY	\$19.50	\$1,813.50
203-EX	Borrow Excavation, CI B-9, AH,FM	1,640	CY	\$25.48	\$41,787.20
225-A	Grassing	1	AC	\$6,370.00	\$6,370.00
304-F	610 Crushed Stone, LVM	100	CY	\$234.00	\$23,400.00
403-A	9.5 mm, MT, Asphalt Pavement	20	TON	\$348.91	\$6,978.20
403-A	12.5 mm, MT, Asphalt Pavement	40	TON	\$348.91	\$13,956.40
234-A	Temporary Silt Fence	4,000	LF	\$6.54	\$26,160.00
237-A	Wattles, 20"	400	LF	\$10.66	\$4,264.00
612-B	Flowable Fill, Non-Excavatable	40	CY	\$254.80	\$10,192.00
614-B	Concrete Driveway	93	SY	\$218.40	\$20,311.20
618-A	Maintenance of Traffic	1	LS	\$91,000	\$91,000
620-A	Mobilization	1	LS	\$78,000	\$78,000
33 05 23.13	10" SDR 11 HDPE Pipe by Directional Bore	970	LF	\$147.94	\$143,501.80
33 05 23.16	8" C900 PVC Carrier Pipe in 16" Steel Casing by Open Trench	640	LF	\$286.91	\$183,622.40
33 11 01	8" C900 PVC Sewer Force Main	2,450	LF	\$65.44	\$160,328.00
33 11 02	Ductile Iron Fittings	2	TON	\$43,841.20	\$87,682.40
33 11 02	Cap Existing Main	2	EA	\$1656.72	\$3,313.44
33 11 03	Connection to Existing Forcemain	2	EA	\$4188.34	\$8,376.68
33 12 16	Air Release Valve	3	EA	\$17,586.92	\$52,760.76
				Total Bid	\$1,050,005.88

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 within **90** calendar days after the date when the Contract Times commence to run 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 within **120** calendar days after the date when the Contract Times commence to run.
- 4.03 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

**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:

Bottom 2 Top Construction  
(typed or printed name of organization)

By: Sara Fox  
(individual's signature)

Name: Sara Fox  
(typed or printed)

Title: Owner  
(typed or printed)

Date: 5/22/25  
(typed or printed)

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

Attest: [Signature]  
(individual's signature)

Name: Kevin Scarengos  
(typed or printed)

Title: Witness  
(typed or printed)

Date: 5/22/25  
(typed or printed)

Address for giving notices:

16708 Hwy 67 Biloxi MS 39532

Bidder's Contact:

Name: Sara Fox  
(typed or printed)

Title: Owner  
(typed or printed)

Phone: 228-234-3739

Email: sfox@bottom2top.net

Address: 16708 Hwy 67 Biloxi MS 39532

Bidder's Contractor License No.: (if applicable) 23104-MC

## BID BOND (PENAL SUM FORM)

<b>Bidder</b> Name: Bottom 2 Top Construction LLC Address (principal place of business): 16708 Highway 67 Biloxi, MS 39532	<b>Surety</b> Name: Old Republic Surety Company Address (principal place of business): P.O. Box 1635 Milwaukee, WI 53201
<b>Owner</b> Name: <b>Jackson County Utility Authority</b> Address (principal place of business): <b>1225 Jackson Avenue</b> <b>Pascagoula, MS 39567</b>	<b>Bid</b> Project (name and location): <b>JCUA Highway 90 Force Main Relocation</b>  Bid Due Date: May 22, 2025
<b>Bond</b> Penal Sum: Five percent (5%) of the amount bid-- Date of Bond: May 22, 2025	
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 Bottom 2 Top Construction LLC <i>(Full formal name of Bidder)</i>	Surety Old Republic Surety Company <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: <u>Debbie Dunaway</u> <i>(Signature) (Attach Power of Attorney)</i>
Name: <u>Sara Fox</u> <i>(Printed or typed)</i>	Name: <u>Debbie Dunaway</u> <i>(Printed or typed)</i>
Title: <u>Owner</u>	Title: <u>Attorney-In-Fact</u>
Attest: <u>[Signature]</u> <i>(Signature)</i>	Attest: <u>Rachael Nelson</u> <i>(Signature)</i>
Name: <u>Kevin Scurrogos</u> <i>(Printed or typed)</i>	Name: <u>Rachael Nelson</u> <i>(Printed or typed)</i>
Title: <u>Witness</u>	Title: <u>Witness</u>
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.	

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.



POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That OLD REPUBLIC SURETY COMPANY, a Wisconsin stock insurance corporation, does make, constitute and appoint: TROY WAGENER, JIM E. BRASHIER, TEB JONES, DAVID FORTENBERRY, MARY NORVAL, KIM BARHUM, F. ROSS BELL, KATHLEEN B. SCARBOROUGH, DEWEY B. MASON, SUSAN M. SKRMETTA, JOSEPH R. BEATTIE, LISA R. BUTLER, PATRICK T. MASON, CHRIS BOONE, SHARON TUTEN, CHARLOTTE A. RAMSEY, LESSIE R. ANDERSON, DEBBIE DUNAWAY, JAMES ELEY BRASHIER, TENORA POSEY of GULFPORT, MS

its true and lawful Attorney(s)-in-Fact, with full power and authority for and on behalf of the company as surety, to execute and deliver and affix the seal of the company thereto (if a seal is required), bonds, undertakings, recognizances or other written obligations in the nature thereof, (other than bail bonds, bank depository bonds, mortgage deficiency bonds, mortgage guaranty bonds, guarantees of installment paper and note guaranty bonds, self-insurance workers compensation bonds guaranteeing payment of benefits, or black lung bonds), as follows:

ALL WRITTEN INSTRUMENTS

and to bind OLD REPUBLIC SURETY COMPANY thereby, and all of the acts of said Attorneys-in-Fact, pursuant to these presents, are ratified and confirmed. This appointment is made under and by authority of the board of directors at a special meeting held on February 18, 1982.

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following resolutions adopted by the board of directors of the OLD REPUBLIC SURETY COMPANY on February 18, 1982.

RESOLVED that, the president, any vice-president or assistant vice president, in conjunction with the secretary or any assistant secretary, may appoint attorneys-in-fact or agents with authority as defined or limited in the instrument evidencing the appointment in each case, for and on behalf of the company to execute and deliver and affix the seal of the company to bonds, undertakings, recognizances, and suretyship obligations of all kinds; and said officers may remove any such attorney-in-fact or agent and revoke any Power of Attorney previously granted to such person.

RESOLVED FURTHER, that any bond, undertaking, recognizance, or suretyship obligation shall be valid and binding upon the Company

- (i) when signed by the president, any vice president or assistant vice president, and attested and sealed (if a seal be required) by any secretary or assistant secretary; or
(ii) when signed by the president, any vice president or assistant vice president, secretary or assistant secretary, and countersigned and sealed (if a seal be required) by a duly authorized attorney-in-fact or agent; or
(iii) when duly executed and sealed (if a seal be required) by one or more attorneys-in-fact or agents pursuant to and within the limits of the authority evidenced by the Power of Attorney issued by the company to such person or persons.

RESOLVED FURTHER that the signature of any authorized officer and the seal of the company may be affixed by facsimile to any Power of Attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligations of the company; and such signature and seal when so used shall have the same force and effect as though manually affixed.

IN WITNESS WHEREOF, OLD REPUBLIC SURETY COMPANY has caused these presents to be signed by its proper officer, and its corporate seal to be affixed this 24th day of February, 2023.

[Signature of Karen J. Haffner]

Assistant Secretary



OLD REPUBLIC SURETY COMPANY

[Signature of Alan Pavlic]

President

STATE OF WISCONSIN, COUNTY OF WAUKESHA - SS

On this 24th day of February, 2023, personally came before me, Alan Pavlic and Karen J Haffner, to me known to be the individuals and officers of the OLD REPUBLIC SURETY COMPANY who executed the above instrument, and they each acknowledged the execution of the same, and being by me duly sworn, did severally depose and say: that they are the said officers of the corporation aforesaid, and that the seal affixed to the above instrument is the seal of the corporation, and that said corporate seal and their signatures as such officers were duly affixed and subscribed to the said instrument by the authority of the board of directors of said corporation.



[Signature of Kathryn R. Pearson]

Notary Public

My Commission Expires: September 28, 2026

(Expiration of notary's commission does not invalidate this instrument)

CERTIFICATE

I, the undersigned, assistant secretary of the OLD REPUBLIC SURETY COMPANY, a Wisconsin corporation, CERTIFY that the foregoing and attached Power of Attorney remains in full force and has not been revoked; and furthermore, that the Resolutions of the board of directors set forth in the Power of Attorney, are now in force.

87-0829



Signed and sealed at the City of Brookfield, WI this 22nd day of May, 2025.

[Signature of Karen J. Haffner]

Assistant Secretary

ORSC 22262 (3-06)

CADENCE INSURANCE, INC.



**Certification Regarding  
Debarment, Suspension, and Other Responsibility Matters  
Primary Covered Transactions**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 13 CFR Part 145. The regulations were published as Part VII of the May 26, 1986 *Federal Register* (pages 19160-19211). Copies of the regulations are available from local offices of the U.S. Small Business Administration.

**(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS ON REVERSE)**

- (1) The prospective primary participant certifies to the best of its knowledge and belief that it and its principals:
- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
  - (b) Have not within a three-year period preceding this application been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
  - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
  - (d) Have not within a three-year period preceding this application had one or more public transactions (Federal, State, or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective primary participant shall attach an explanation to this proposal.

Business Name Bottom 2 Top Construction LLC

Date 5/22/25

By Sara Fox owner  
Name and Title of Authorized Representative

Sara Fox  
Signature of Authorized Representative

### INSTRUCTIONS FOR CERTIFICATION

1. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.
2. The inability of a person to provide the certification required below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such person from participation in this transaction.
3. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.
4. The prospective primary participant shall provide immediate written notice to the department or agency to which this proposal is submitted if at any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
5. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations (13 CFR Part 145).
6. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.
7. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion—Lower Tier Covered Transactions," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
8. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the ineligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
9. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
10. Except for transactions authorized under paragraph 6 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.



**Certification Regarding  
Debarment, Suspension, and Other Responsibility Matters  
Primary Covered Transactions**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 13 CFR Part 145. The regulations were published as Part VII of the May 26, 1988 *Federal Register* (pages 19160-19211). Copies of the regulations are available from local offices of the U.S. Small Business Administration.

**(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS ON REVERSE)**

- (1) The prospective primary participant certifies to the best of its knowledge and belief that it and its principals:
- (a) Are not presently debarred, suspended, proposed for disbarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
  - (b) Have not within a three-year period preceding this application been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
  - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
  - (d) Have not within a three-year period preceding this application had one or more public transactions (Federal, State, or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective primary participant shall attach an explanation to this proposal.

Business Name Bottom 2 Top Construction LLC

Date 5/22/25

By Sara Fox  
Name and Title of Authorized Representative

Sara Fox  
Signature of Authorized Representative

## INSTRUCTIONS FOR CERTIFICATION

1. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.
2. The inability of a person to provide the certification required below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such person from participation in this transaction.
3. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.
4. The prospective primary participant shall provide immediate written notice to the department or agency to which this proposal is submitted if at any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
5. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations (13 CFR Part 145).
6. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.
7. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion—Lower Tier Covered Transactions," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
8. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the ineligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
9. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
10. Except for transactions authorized under paragraph 6 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

# State of Mississippi

## Certificate of Formation

Acting under the authority vested in me as Secretary of State by the Constitution and Laws of this State,  
I do hereby certify the following has satisfied all conditions precedent for formation in this State.

Bottom 2 Top construction Llc



Given this the 14th day of November, Two Thousand and Seventeen, in the Capital City of Jackson, Mississippi under my Hand and Seal,

*C. Dilbert Hosemann, Jr.*

C. DILBERT HOSEMAN, JR.  
Secretary of State

# State of Mississippi

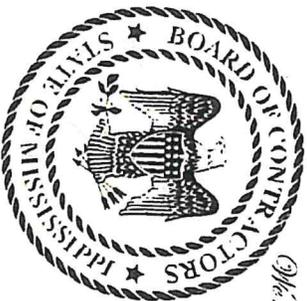
## BOARD OF CONTRACTORS

ACTIVE

BOTTOM 2 TOP CONSTRUCTION LLC  
16708 HWY 67  
BILOXI, MS 39532

is duly registered and entitled to perform

- 1) BUILDING CONSTRUCTION
- 2) HEAVY CONSTRUCTION
- 3) MUNICIPAL AND PUBLIC WORKS CONSTRUCTION



*We have herewith set our hand and caused the Clerk of the Mississippi Board of Contractors to be affixed this 20 day of Feb., 2025*

CERTIFICATE OF RESPONSIBILITY

No. 23104-MC

Expires Feb. 20, 2026

*Joel A. Carroll,*

CHAIRMAN OF THE BOARD

**STATE OF MISSISSIPPI**

**MISSISSIPPI DEVELOPMENT AUTHORITY  
MINORITY AND SMALL BUSINESS DEVELOPMENT DIVISION**

Certifies that

**BOTTOM 2 TOP CONSTRUCTION, LLC**

*Biloxi, MS*

**Woman Owned and  
Operated Business Enterprise**

Specialty Area(s) of:

Water Supply and Irrigation Systems; Sewage Treatment Facilities; Water and Sewer Line and Related Structures Construction;  
Poured Concrete Foundation and Structure Contractors; Site Preparation Contractors.

*May 14, 2024 – May 14, 2027*

  
Carol S. Harris  
Director  
Minority & Small Business Development Division

  
William V. Cork  
Executive Director  
Mississippi Development Authority

THIS IS TO CERTIFY THAT THE ABOVE IS A TRUE AND CORRECT COPY OF THE CERTIFICATE ON FILE IN THIS OFFICE.

**0177078**



**F0108**

**Fee: \$**



**Michael Watson**  
SECRETARY OF STATE

**2024021711**

Business ID: 1132376  
Filed: 01/16/2024 03:40 PM  
Michael Watson  
Secretary of State

P.O. BOX 136  
JACKSON, MS 39205-0136  
TELEPHONE: (601) 359-1633

**2024 LLC Annual Report**

**Business Information**

**Business ID:** 1132376

**Business Name:** Bottom 2 Top Construction LLC

**State of Incorporation:** MS

**Business Email:** jraffeo@bottom2top.net

**Phone:** (\*\*\*)\*\*\*-\*\*\*\*

**FEIN:** \*\*-\*\*\*\*\*

**Principal Address:** 16708 Hwy 67  
Biloxi, MS 39532

**Registered Agent**

**Name:** Sara Louise Fox

**Address:** 24111 Ryland Ridge Rd  
Saucier, MS 39574

**Managers and Members**

**Managers**

**Name:**  
Joseph R Raffeo Jr  
*Manager*

**Address:**  
24111 Ryland Ridge Rd.  
Saucier, MS 39574

**Officers**

**Title/Name:**  
**President:** Sara Louise Fox

**Address:**  
24111 Ryland Ridge Rd.  
Saucier, MS 39574

**Director:**

**Vice President:**

**Secretary:**

**Treasurer:**

- 
- 
- 
- 

This LLC has a written Operating Agreement.

**NAICS Code/Nature of Business**

221310 - Water Supply and Irrigation Systems

221320 - Sewage Treatment Facilities

237110 - Water and Sewer Line and Related Structures Construction

**Signature**

By entering my name in the space provided, I certify that I am authorized to file this document on behalf of this entity, have examined the document and, to the best of my knowledge and belief, it is true, correct and complete as of this day *01/16/2024*.

***Name:***

Sara Louise Fox

*President*

***Address:***

24111 RYLAND RIDGE RD.

SAUCIER, MS 39574

**Officers List**

***Name:***

Joseph R Raffeo Jr  
*Manager*

Sara Louise Fox  
*President*

***Address:***

24111 Ryland Ridge Rd.  
Saucier, MS 39574

24111 Ryland Ridge Rd.  
Saucier, MS 39574

**NOTICE OF AWARD**

Date of Issuance:

Owner: Jackson County Utility Authority                      Owner's Project No.:  
Engineer: Neel-Schaffer, Inc.                                      Engineer's Project No.: 18733  
Project: JCUA Highway 90 Force Main Relocation  
Contract Name: JCUA Highway 90 Force Main Relocation  
Bidder:  
Bidder's Address:

You are notified that Owner has accepted your Bid dated **[date]** for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

**[Describe Work, alternates, or sections of Work awarded]**

The Contract Price of the awarded Contract is \$**[Contract Price]**. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

**[Number of copies sent]** unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner **[number of copies sent]** counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): **[Describe other conditions that require Successful Bidder's compliance]**

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: **Jackson County Utility Authority**

By (signature): \_\_\_\_\_

Name (printed): \_\_\_\_\_

Title: \_\_\_\_\_

Copy: Engineer

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

This Agreement is by and between **Jackson County Utility Authority** (“Owner”) and [name of contracting entity] (“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: **JCUA Highway 90 Force Main Relocation**

## ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **JCUA Highway 90 Force Main Relocation**

## ARTICLE 3—ENGINEER

3.01 The Owner has retained **Doug Wimberly, PS, PE of Neel-Schaffer, Inc.** (“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.

### 4.02 *Contract Times: Days*

A. The Work will be substantially complete within **90** 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 **120** days after the date when the Contract Times commence to run.

### 4.03 *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 **\$1,000.00** 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 **\$1,000.00** 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. Total of Lump Sum Amounts and Unit Price Work (subject to final Unit Price adjustment) **[\$number]**.

#### **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 during performance of the Work 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.
    - a. **95** percent of the value of the Work completed (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to **100** percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less **200** percent of

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 rate of **1.5%** percent per annum.

**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 \_\_ sheets with each sheet bearing the following general title: **JCUA Highway 90 Force Main Relocation**.
7. Addenda (numbers **[number]** to **[number]**, inclusive).
  8. Exhibits to this Agreement (enumerated as follows):
    - a. **None**
  9. 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 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.
  - 5. 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.
  - 6. 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.
  - 7. 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.
  - 8. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
  - 9. 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.

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

This Agreement will be effective on **[indicate date on which Contract becomes effective]** (which is the Effective Date of the Contract).

Owner:

Contractor:

\_\_\_\_\_  
*(typed or printed name of organization)*

\_\_\_\_\_  
*(typed or printed name of organization)*

By: \_\_\_\_\_  
*(individual's signature)*

By: \_\_\_\_\_  
*(individual's signature)*

Date: \_\_\_\_\_  
*(date signed)*

Date: \_\_\_\_\_  
*(date signed)*

Name: \_\_\_\_\_  
*(typed or printed)*

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(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)*

Attest: \_\_\_\_\_  
*(individual's signature)*

Title: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Address for giving notices:

Address for giving notices:

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Designated Representative:

Designated Representative:

Name: \_\_\_\_\_  
*(typed or printed)*

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Address:

Address:

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Email: \_\_\_\_\_

*(If [Type of Entity] is a corporation, attach evidence of authority to sign. If [Type of Entity] is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)*

License No.: \_\_\_\_\_  
*(where applicable)*

State: \_\_\_\_\_

## NOTICE TO PROCEED

Owner: Jackson County Utility Authority Owner's Project No.: \_\_\_\_\_  
Engineer: Neel-Schaffer, Inc. Engineer's Project No.: 18733  
Contractor: \_\_\_\_\_ Contractor's Project No.: \_\_\_\_\_  
Project: JCUA Highway 90 Force Main Relocation  
Contract Name: JCUA Highway 90 Force Main Relocation  
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: **[Select one of the following two alternatives, insert dates or number of days, and delete the other alternative.]**

The date by which Substantial Completion must be achieved is **[date for Substantial Completion, from Agreement]**, and the date by which readiness for final payment must be achieved is **[date for readiness, from Agreement]**.

**[or]**

The number of days to achieve Substantial Completion is **[number of days, from Agreement]** 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 **[number of days, from Agreement]** 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:

**[Note any access limitations, security procedures, or other restrictions]**

Owner: Jackson County Utility Authority  
By (signature): \_\_\_\_\_  
Name (printed): \_\_\_\_\_  
Title: \_\_\_\_\_  
Date Issued: \_\_\_\_\_  
Copy: Engineer



## PERFORMANCE BOND

<b>Contractor</b> Name: _____ Address ( <i>principal place of business</i> ): _____	<b>Surety</b> Name: _____ Address ( <i>principal place of business</i> ): _____
<b>Owner</b> Name: <b>Jackson County Utility Authority</b> Mailing address ( <i>principal place of business</i> ): <b>1225 Jackson Avenue</b> <b>Pascagoula, MS</b>	<b>Contract</b> Description ( <i>name and location</i> ): <b>JCUA Highway 90 Force Main Relocation</b>  Contract Price: _____ Effective Date of Contract: _____
<b>Bond</b> Bond Amount: _____ Date of Bond: _____ <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16	
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.	
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: _____
<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>	

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><b>Contractor</b></p> <p>Name: _____</p> <p>Address (<i>principal place of business</i>): _____</p>	<p><b>Surety</b></p> <p>Name: _____</p> <p>Address (<i>principal place of business</i>): _____</p>
<p><b>Owner</b></p> <p>Name: <b>Jackson County Utility Authority</b></p> <p>Mailing address (<i>principal place of business</i>):  <b>1225 Jackson Avenue</b>  <b>Pascagoula, MS 39567</b></p>	<p><b>Contract</b></p> <p>Description (<i>name and location</i>):  <b>JCUA Highway 90 Force Main Relocation</b></p> <p>Contract Price: _____</p> <p>Effective Date of Contract: _____</p>
<p><b>Bond</b></p> <p>Bond Amount: _____</p> <p>Date of Bond: _____</p> <p><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: **None**

# CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:  
Engineer:  
Contractor:  
Project:  
Contract Name:

Owner's Project No.:  
Engineer's Project No.:  
Contractor's Project No.:

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:	Owner's Project No.:
Engineer:	Engineer's Project No.:
Contractor:	Contractor's Project No.:
Project:	
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: \_\_\_\_\_



# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

## TABLE OF CONTENTS

	Page
Article 1—Definitions and Terminology.....	1
1.01 Defined Terms.....	1
1.02 Terminology.....	6
Article 2—Preliminary Matters.....	7
2.01 Delivery of Performance and Payment Bonds; Evidence of Insurance.....	7
2.02 Copies of Documents.....	7
2.03 Before Starting Construction.....	7
2.04 Preconstruction Conference; Designation of Authorized Representatives.....	8
2.05 Acceptance of Schedules.....	8
2.06 Electronic Transmittals.....	8
Article 3—Contract Documents: Intent, Requirements, Reuse.....	9
3.01 Intent.....	9
3.02 Reference Standards.....	9
3.03 Reporting and Resolving Discrepancies.....	10
3.04 Requirements of the Contract Documents.....	10
3.05 Reuse of Documents.....	11
Article 4—Commencement and Progress of the Work.....	11
4.01 Commencement of Contract Times; Notice to Proceed.....	11
4.02 Starting the Work.....	11
4.03 Reference Points.....	11
4.04 Progress Schedule.....	12
4.05 Delays in Contractor’s Progress.....	12
Article 5—Site; Subsurface and Physical Conditions; Hazardous Environmental Conditions.....	13
5.01 Availability of Lands.....	13
5.02 Use of Site and Other Areas.....	14
5.03 Subsurface and Physical Conditions.....	15
5.04 Differing Subsurface or Physical Conditions.....	16

5.05	Underground Facilities.....	17
5.06	Hazardous Environmental Conditions at Site .....	19
Article 6—Bonds and Insurance.....		21
6.01	Performance, Payment, and Other Bonds.....	21
6.02	Insurance—General Provisions.....	22
6.03	Contractor’s Insurance.....	24
6.04	Builder’s Risk and Other Property Insurance .....	25
6.05	Property Losses; Subrogation .....	25
6.06	Receipt and Application of Property Insurance Proceeds .....	27
Article 7—Contractor’s Responsibilities .....		27
7.01	Contractor’s Means and Methods of Construction .....	27
7.02	Supervision and Superintendence .....	27
7.03	Labor; Working Hours .....	27
7.04	Services, Materials, and Equipment .....	28
7.05	“Or Equals” .....	28
7.06	Substitutes .....	29
7.07	Concerning Subcontractors and Suppliers.....	31
7.08	Patent Fees and Royalties .....	32
7.09	Permits .....	33
7.10	Taxes .....	33
7.11	Laws and Regulations.....	33
7.12	Record Documents.....	33
7.13	Safety and Protection .....	34
7.14	Hazard Communication Programs .....	35
7.15	Emergencies.....	35
7.16	Submittals .....	35
7.17	Contractor’s General Warranty and Guarantee .....	38
7.18	Indemnification.....	39
7.19	Delegation of Professional Design Services .....	39
Article 8—Other Work at the Site.....		40
8.01	Other Work .....	40
8.02	Coordination .....	41
8.03	Legal Relationships.....	41

Article 9—Owner’s Responsibilities .....	42
9.01 Communications to Contractor .....	42
9.02 Replacement of Engineer.....	42
9.03 Furnish Data .....	42
9.04 Pay When Due.....	42
9.05 Lands and Easements; Reports, Tests, and Drawings .....	43
9.06 Insurance.....	43
9.07 Change Orders .....	43
9.08 Inspections, Tests, and Approvals.....	43
9.09 Limitations on Owner’s Responsibilities .....	43
9.10 Undisclosed Hazardous Environmental Condition.....	43
9.11 Evidence of Financial Arrangements.....	43
9.12 Safety Programs .....	43
Article 10—Engineer’s Status During Construction .....	44
10.01 Owner’s Representative.....	44
10.02 Visits to Site.....	44
10.03 Resident Project Representative.....	44
10.04 Engineer’s Authority .....	44
10.05 Determinations for Unit Price Work .....	45
10.06 Decisions on Requirements of Contract Documents and Acceptability of Work .....	45
10.07 Limitations on Engineer’s Authority and Responsibilities .....	45
10.08 Compliance with Safety Program.....	45
Article 11—Changes to the Contract .....	46
11.01 Amending and Supplementing the Contract .....	46
11.02 Change Orders .....	46
11.03 Work Change Directives.....	46
11.04 Field Orders.....	47
11.05 Owner-Authorized Changes in the Work.....	47
11.06 Unauthorized Changes in the Work.....	47
11.07 Change of Contract Price .....	47
11.08 Change of Contract Times.....	49
11.09 Change Proposals.....	49
11.10 Notification to Surety.....	50

Article 12—Claims .....	50
12.01    Claims .....	50
Article 13—Cost of the Work; Allowances; Unit Price Work .....	51
13.01    Cost of the Work .....	51
13.02    Allowances .....	55
13.03    Unit Price Work .....	55
Article 14—Tests and Inspections; Correction, Removal, or Acceptance of Defective Work .....	56
14.01    Access to Work .....	56
14.02    Tests, Inspections, and Approvals .....	56
14.03    Defective Work .....	57
14.04    Acceptance of Defective Work .....	58
14.05    Uncovering Work .....	58
14.06    Owner May Stop the Work .....	58
14.07    Owner May Correct Defective Work .....	59
Article 15—Payments to Contractor; Set-Offs; Completion; Correction Period .....	59
15.01    Progress Payments .....	59
15.02    Contractor’s Warranty of Title .....	62
15.03    Substantial Completion .....	62
15.04    Partial Use or Occupancy .....	63
15.05    Final Inspection .....	64
15.06    Final Payment .....	64
15.07    Waiver of Claims .....	65
15.08    Correction Period .....	66
Article 16—Suspension of Work and Termination .....	67
16.01    Owner May Suspend Work .....	67
16.02    Owner May Terminate for Cause .....	67
16.03    Owner May Terminate for Convenience .....	68
16.04    Contractor May Stop Work or Terminate .....	68
Article 17—Final Resolution of Disputes .....	69
17.01    Methods and Procedures .....	69
Article 18—Miscellaneous .....	69
18.01    Giving Notice .....	69
18.02    Computation of Times .....	69

18.03 Cumulative Remedies ..... 70  
18.04 Limitation of Damages ..... 70  
18.05 No Waiver ..... 70  
18.06 Survival of Obligations ..... 70  
18.07 Controlling Law ..... 70  
18.08 Assignment of Contract..... 70  
18.09 Successors and Assigns ..... 70  
18.10 Headings..... 70



# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

## ARTICLE 1—DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

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

requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
- c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
- d. A demand for money or services by a third party is not a Claim.

- 11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
- 12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
- 13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
- 14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
- 15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
- 16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
- 17. *Cost of the Work*—See Paragraph 13.01 for definition.
- 18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
- 19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
- 20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
- 21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

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

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

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

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

## 1.02 Terminology

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

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

## **ARTICLE 2—PRELIMINARY MATTERS**

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

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

### **2.02 *Copies of Documents***

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

### **2.03 *Before Starting Construction***

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

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

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

2.05 *Acceptance of Schedules*

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

2.06 *Electronic Transmittals*

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

## ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

### 3.01 *Intent*

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

### 3.02 *Reference Standards*

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

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

### 3.03 *Reporting and Resolving Discrepancies*

#### A. *Reporting Discrepancies*

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

#### B. *Resolving Discrepancies*

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

### 3.04 *Requirements of the Contract Documents*

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

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

### 3.05 *Reuse of Documents*

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

## **ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK**

### 4.01 *Commencement of Contract Times; Notice to Proceed*

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

### 4.02 *Starting the Work*

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

### 4.03 *Reference Points*

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

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

#### 4.04 *Progress Schedule*

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

#### 4.05 *Delays in Contractor's Progress*

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

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

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

### **5.01 Availability of Lands**

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

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

5.02 *Use of Site and Other Areas*

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

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

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

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

5.03 *Subsurface and Physical Conditions*

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

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

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

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

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

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

5.04 *Differing Subsurface or Physical Conditions*

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

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

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

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

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

#### 5.05 *Underground Facilities*

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

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
  4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
  5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
  2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
  3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
  4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

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

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

#### 5.06 *Hazardous Environmental Conditions at Site*

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

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

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

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

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

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

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

## **ARTICLE 6—BONDS AND INSURANCE**

### **6.01 *Performance, Payment, and Other Bonds***

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

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

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

#### 6.02 *Insurance—General Provisions*

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

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

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

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

6.03 *Contractor's Insurance*

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

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

#### 6.04 *Builder's Risk and Other Property Insurance*

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

#### 6.05 *Property Losses; Subrogation*

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

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

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

6.06 *Receipt and Application of Property Insurance Proceeds*

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

**ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES**

7.01 *Contractor's Means and Methods of Construction*

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

7.02 *Supervision and Superintendence*

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

7.03 *Labor; Working Hours*

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

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

7.04 *Services, Materials, and Equipment*

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

7.05 *"Or Equals"*

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

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

#### 7.06 *Substitutes*

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

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

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

7.07 *Concerning Subcontractors and Suppliers*

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

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

7.08 *Patent Fees and Royalties*

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

#### 7.09 *Permits*

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

#### 7.10 *Taxes*

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

#### 7.11 *Laws and Regulations*

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

#### 7.12 *Record Documents*

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

### 7.13 *Safety and Protection*

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

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

7.14 *Hazard Communication Programs*

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

7.15 *Emergencies*

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

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

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

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

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

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

*D. Resubmittal Procedures for Shop Drawings and Samples*

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

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

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

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

**7.17 Contractor's General Warranty and Guarantee**

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

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

#### 7.18 *Indemnification*

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

#### 7.19 *Delegation of Professional Design Services*

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

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

## **ARTICLE 8—OTHER WORK AT THE SITE**

### **8.01 *Other Work***

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

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

#### 8.02 *Coordination*

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

#### 8.03 *Legal Relationships*

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

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

## **ARTICLE 9—OWNER'S RESPONSIBILITIES**

### **9.01 *Communications to Contractor***

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

### **9.02 *Replacement of Engineer***

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

### **9.03 *Furnish Data***

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

### **9.04 *Pay When Due***

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

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

## ARTICLE 10—ENGINEER’S STATUS DURING CONSTRUCTION

### 10.01 *Owner’s Representative*

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

### 10.02 *Visits to Site*

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

### 10.03 *Resident Project Representative*

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

### 10.04 *Engineer’s Authority*

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

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

10.05 *Determinations for Unit Price Work*

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

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

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

10.07 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

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

## ARTICLE 11—CHANGES TO THE CONTRACT

### 11.01 *Amending and Supplementing the Contract*

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

### 11.02 *Change Orders*

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

### 11.03 *Work Change Directives*

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

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

11.04 *Field Orders*

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

11.05 *Owner-Authorized Changes in the Work*

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

11.06 *Unauthorized Changes in the Work*

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

11.07 *Change of Contract Price*

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

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

#### 11.08 *Change of Contract Times*

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

#### 11.09 *Change Proposals*

- A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.
- B. *Change Proposal Procedures*
  - 1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
  - 2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
    - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
    - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

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

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

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

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

#### 11.10 *Notification to Surety*

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

## **ARTICLE 12—CLAIMS**

### 12.01 *Claims*

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

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

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

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

### **13.01 *Cost of the Work***

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

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

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

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

c. *Construction Equipment Rental*

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

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

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

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

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

D. *Contractor's Fee*

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

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

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

### 13.02 Allowances

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

### 13.03 Unit Price Work

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

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

E. *Adjustments in Unit Price*

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

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

14.01 *Access to Work*

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

14.02 *Tests, Inspections, and Approvals*

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

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

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

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

#### 14.03 *Defective Work*

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

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

#### 14.04 *Acceptance of Defective Work*

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

#### 14.05 *Uncovering Work*

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

#### 14.06 *Owner May Stop the Work*

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

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

#### 14.07 *Owner May Correct Defective Work*

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

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

#### 15.01 *Progress Payments*

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

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

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

C. *Review of Applications*

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

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

*D. Payment Becomes Due*

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

*E. Reductions in Payment by Owner*

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

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

15.02 *Contractor's Warranty of Title*

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

15.03 *Substantial Completion*

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

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

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

#### 15.04 *Partial Use or Occupancy*

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

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

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

#### 15.05 *Final Inspection*

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

#### 15.06 *Final Payment*

##### A. *Application for Payment*

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

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

#### 15.07 *Waiver of Claims*

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

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

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

15.08 *Correction Period*

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

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

## **ARTICLE 16—SUSPENSION OF WORK AND TERMINATION**

### **16.01 *Owner May Suspend Work***

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

### **16.02 *Owner May Terminate for Cause***

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

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

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

#### 16.03 *Owner May Terminate for Convenience*

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

#### 16.04 *Contractor May Stop Work or Terminate*

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

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

## **ARTICLE 17—FINAL RESOLUTION OF DISPUTES**

### *17.01 Methods and Procedures*

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

## **ARTICLE 18—MISCELLANEOUS**

### *18.01 Giving Notice*

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

### *18.02 Computation of Times*

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

18.03 *Cumulative Remedies*

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

18.04 *Limitation of Damages*

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

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

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

18.09 *Successors and Assigns*

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

18.10 *Headings*

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

# SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

## TABLE OF CONTENTS

	Page
Article 1— Definitions and Terminology.....	2
Article 2— Preliminary Matters .....	2
Article 3— Contract Documents: Intent, Requirements, Reuse .....	2
Article 4— Commencement and Progress of the Work .....	2
Article 5— Site, Subsurface and Physical Conditions, Hazardous Environmental Conditions .....	3
Article 6— Bonds and Insurance.....	4
Article 7— Contractor’s Responsibilities .....	8
Article 8— Other Work at the Site.....	8
Article 9— Owner’s Responsibilities .....	<b>Error! Bookmark not defined.</b>
Article 10— Engineer’s Status During Construction .....	8
Article 11— Changes to the Contract .....	10
Article 12— Claims.....	10
Article 13— Cost of Work; Allowances, Unit Price Work.....	10
Article 14— Tests and Inspections; Correction, Removal, or Acceptance of Defective Work.....	10
Article 15— Payments to Contractor, Set Offs; Completions; Correction Period .....	10
Article 16— Suspension of Work and Termination .....	10
Article 17— Final Resolutions of Disputes .....	11
Article 18— Miscellaneous .....	11
Exhibit A— Software Requirements for Electronic Document Exchange.....	<b>Error! Bookmark not defined.</b>
Exhibit B— Foreseeable Bad Weather Days .....	<b>Error! Bookmark not defined.</b>
Exhibit C— Geotechnical Baseline Report Supplement to the Supplementary Conditions	<b>Error! Bookmark not defined.</b>

# SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, "Paragraph SC-4.05."

## ARTICLE 1—DEFINITIONS AND TERMINOLOGY

No Supplementary Conditions in this Article.

## ARTICLE 2—PRELIMINARY MATTERS

### 2.01 *Copies of Documents*

SC-2.02 Delete Paragraph 2.02.A in its entirety and insert the following new paragraph in its place:

- A. Owner shall furnish to Contractor **one** printed copies of conformed Contract Documents incorporating and integrating all Addenda and any amendments negotiated prior to the Effective Date of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies of the conformed Contract Documents will be furnished upon request at the cost of reproduction.

## ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

No Supplementary Conditions in this Article.

## ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

### 4.05 *Delays in Contractor's Progress*

SC-4.05 Amend Paragraph 4.05.C by adding the following subparagraphs:

5. *Weather-Related Delays*
  - a. If "abnormal weather conditions" as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Times, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled.

- b. The existence of abnormal weather conditions will be determined on a month-by-month basis in accordance with the following:
  - 1) Every workday on which one or more of the following conditions exist will be considered a “bad weather day”:
    - i) Total precipitation (as rain equivalent) occurring between 7:00 p.m. on the preceding day (regardless of whether such preceding day is a workday) through 7:00 p.m. on the workday in question equals or exceeds **one inch** of precipitation.

**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:

Report Title	Date of Report	Technical Data
None		[Identify Technical Data]

- 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:

Drawings Title	Date of Drawings	Technical Data
None		[Identify Technical Data]

- G. Contractor may examine copies of reports and drawings identified in SC-5.03.E and SC-5.03.F that were not included with the Bidding Documents at [location] during regular business hours, or may request copies from Engineer.

**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:

Report Title	Date of Report	Technical Data
None		[Identify Technical Data]

Report Title	Date of Report	Technical Data

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:

Drawings Title	Date of Drawings	Technical Data
None		[Identify Technical Data]

## 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).
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).

### 6.02 Insurance—General Provisions

SC-6.02 Add the following paragraph immediately after Paragraph 6.02.B:

1. Contractor may obtain worker’s compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the Project is located, (b) is certified or authorized as a worker’s compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker’s compensation insurance for similar projects by the state within the last 12 months.

### 6.03 Contractor’s Insurance

SC-6.03 Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:

- D. *Other Additional Insureds:* As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following: **None**
- E. *Workers’ Compensation and Employer’s Liability:* Contractor shall purchase and maintain workers’ compensation and employer’s liability insurance, including, as applicable, United States Longshoreman and Harbor Workers’ Compensation Act, Jones Act, stop-gap employer’s liability coverage for monopolistic states, and foreign voluntary workers’ compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

<b>Workers' Compensation and Related Policies</b>	<b>Policy limits of not less than:</b>
<b>Workers' Compensation</b>	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory

- F. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:
1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
  2. damages insured by reasonably available personal injury liability coverage, and
  3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- G. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage.
    - a. Such insurance must be maintained for three years after final payment.
    - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
  2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
  3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
  4. Underground, explosion, and collapse coverage.
  5. Personal injury coverage.
  6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
  7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:

1. Any modification of the standard definition of “insured contract” (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
2. Any exclusion for water intrusion or water damage.
3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
4. Any exclusion of coverage relating to earth subsidence or movement.
5. Any exclusion for the insured’s vicarious liability, strict liability, or statutory liability (other than worker’s compensation).
6. Any limitation or exclusion based on the nature of Contractor’s work.
7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.

I. *Commercial General Liability—Minimum Policy Limits*

<b>Commercial General Liability</b>	<b>Policy limits of not less than:</b>
General Aggregate	<b>\$1,000,000</b>
Products—Completed Operations Aggregate	<b>\$1,000,000</b>
Personal and Advertising Injury	<b>\$1,000,000</b>
Bodily Injury and Property Damage—Each Occurrence	<b>\$1,000,000</b>

- J. *Automobile Liability:* Contractor shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

<b>Automobile Liability</b>	<b>Policy limits of not less than:</b>
<b>Bodily Injury</b>	
Each Person	<b>\$1,000,000</b>
Each Accident	<b>\$1,000,000</b>
<b>Property Damage</b>	
Each Accident	<b>\$1,000,000</b>

- K. *Umbrella or Excess Liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer’s liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

<b>Excess or Umbrella Liability</b>	<b>Policy limits of not less than:</b>
Each Occurrence	<b>\$1,000,000</b>
General Aggregate	<b>\$3,000,000</b>

- L. *Using Umbrella or Excess Liability Insurance to Meet CGL and Other Policy Limit Requirements:* Contractor may meet the policy limits specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy's policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein. If such umbrella or excess liability policy was required under this Contract, at a specified minimum policy limit, such umbrella or excess policy must retain a minimum limit of **\$3,000,000** after accounting for partial attribution of its limits to underlying policies, as allowed above.
- M. *Contractor's Pollution Liability Insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage, including cleanup costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance must be maintained for no less than three years after final completion.

<b>Contractor's Pollution Liability</b>	<b>Policy limits of not less than:</b>
Each Occurrence/Claim	<b>\$N/A</b>
General Aggregate	<b>\$N/A</b>

- N. *Contractor's Professional Liability Insurance:* If Contractor will provide or furnish professional services under this *Contract*, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance must cover negligent acts, errors, or omissions in the performance of professional design or related services by the insured or others for whom the insured is legally liable. The insurance must be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. The retroactive date on the policy must pre-date the commencement of furnishing services on the Project.

<b>Contractor's Professional Liability</b>	<b>Policy limits of not less than:</b>
Each Claim	<b>\$1,000,000</b>
Annual Aggregate	<b>\$1,000,000</b>

6.04 *Builder's Risk and Other Property Insurance*

SC-6.04 Delete Section 6.04.

**ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES**

SC-7.07.A. Add the following sentence at the end of Paragraph 7.07.A:

The Contractor shall not subcontract out more than 49% of the construction of the project on a cost basis based on the initial base bid plus any alternates.

**ARTICLE 8—OTHER WORK AT THE SITE**

No Supplementary Conditions in this Article.

**ARTICLE 9—OWNER'S RESPONSIBILITY**

No Supplementary Conditions in this Article.

**ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION**

10.03 *Resident Project Representative*

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.B:

- C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:
  - 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), and as appropriate prepare and circulate copies of minutes thereof.
  - 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 11—CHANGES TO THE CONTRACT**

No Supplementary Conditions in this Article.

## **ARTICLE 12—CLAIMS**

No Supplementary Conditions in this Article.

## **ARTICLE 13—COST OF WORK; ALLOWANCES, UNIT PRICE WORK**

### 13.03 *Unit Price Work*

SC-13.03 Delete Paragraph 13.03.E in its entirety and insert the following in its place:

#### 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 extended price of a particular item of Unit Price Work amounts to **five** percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than **25** percent 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**

No Supplementary Conditions in this Article.

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

15.01 *Progress Payments; Applications for Payment Delete Paragraph 15.01.B.2 in its entirety and insert the following in its place:*

2. No Payment will be made for stored materials.

## **ARTICLE 16—SUSPENSION OF WORK AND TERMINATION**

No Supplementary Conditions in this Article.

## **ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES**

### 17.03 *Attorneys' Fees*

SC-17.01 Add the following new paragraph immediately after Paragraph 17.01.

### 17.02 *Attorneys' Fees*

- A. For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

## **ARTICLE 18—MISCELLANEOUS**

No Supplementary Conditions in this Article.



**CHANGE ORDER NO.: [Number of Change Order]**

Owner:  
 Engineer:  
 Contractor:  
 Project:  
 Contract Name:  
 Date Issued:

Owner's Project No.:  
 Engineer's Project No.:  
 Contractor's Project No.:

Effective Date of Change Order:

The Contract is modified as follows upon execution of this Change Order:

Description:

**[Description of the change]**

Attachments:

**[List documents related to the change]**

Change in Contract Price	Change in Contract Times [State Contract Times as either a specific date or a number of days]
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for final payment: _____
<b>[Increase] [Decrease]</b> from previously approved Change Orders No. 1 to No. <b>[Number of previous Change Order]</b> : \$ _____	<b>[Increase] [Decrease]</b> from previously approved Change Orders No.1 to No. <b>[Number of previous Change Order]</b> : Substantial Completion: _____ Ready for final payment: _____
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for final payment: _____
<b>[Increase] [Decrease]</b> this Change Order: \$ _____	<b>[Increase] [Decrease]</b> this Change Order: Substantial Completion: _____ Ready for final payment: _____
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for final payment: _____

Recommended by Engineer (if required)

Authorized by Contractor

By: \_\_\_\_\_

\_\_\_\_\_

Title: \_\_\_\_\_

\_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_

Authorized by Contractor

Approved by Funding Agency (if applicable)

By: \_\_\_\_\_

\_\_\_\_\_

Title: \_\_\_\_\_

\_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_



**MISSISSIPPI DEPARTMENT OF TRANSPORTATION**

**SPECIAL PROVISION NO. 907-234-1**

**CODE: (SP)**

**DATE: 10/13/2021**

**SUBJECT: Silt Fence**

Section 234, Silt Fence, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

**907-234.02--Materials.** Delete the first paragraph of Subsection 234.02 on page 181, and substitute the following.

Materials used in silt fence and super silt fence may be accepted by certification per Subsection 700.05.1. Geotextile fabric, posts, staples and woven wire backing, when required, shall meet the requirements of Subsection 714.13.

**907-234.05--Basis of Payment.** Add the “907” prefix to the pay items listed on page 183.

# MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-618-12

CODE: (SP)

DATE: 05/03/2024

SUBJECT: Traffic Control Management

Section 618, Maintenance of Traffic and Traffic Control Plan, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

**907-618.01--Description.**

**907-618.01.2--Traffic Control Management.** Delete subparagraph (g) of Subsection 618.01.2 on page 441, and substitute the following.

- g) Perform a minimum of once-a-week inspections from the Notice to Proceed until a Partial or Final Maintenance Release is obtained. Once work begins, daily daytime inspections and weekly nighttime inspections are required on projects with predominantly daytime work, and daily nighttime inspections and weekly daytime inspections are required on projects with predominantly nighttime work. Weekly inspections will be allowed for periods outside of active construction. When lane closures are present or any non-fixed signs or traffic handling devices such as cones or barrels are in place, inspections shall be performed daily whether work is being performed or not.

**907-618.05--Basis of Payment.** Delete pay item 618-A on page 449 and substitute the following.

907-618-A: Maintenance of Traffic

- lump sum

**SECTION 31 23 33**  
**EXCAVATION, BACKFILL & COMPACTION**  
**FOR UNDERGROUND PIPING**

---

**1.0**     **GENERAL**

1.1     The Work in this Section shall consist of furnishing all materials, equipment, and labor necessary for the excavation, bedding, backfilling, and compaction required for installing underground piping, culverts, and associated appurtenances.

1.2     **RELATED SECTIONS**

33 11 00         Piping

1.3     **MEASUREMENT AND PAYMENT**

Payment for Work in this Section will not be measured separately for payment but shall be included in the unit price/lump sum price of the water or sewer piping being installed.

1.4     **REFERENCES**

The publications listed below form part of this specification. Each publication shall be the latest revision and addendum in effect on the date this specification is issued for construction unless noted otherwise. Except as modified by the requirements specified herein or the details of the Drawings, Work included in this specification shall conform to the applicable provisions of these publications.

ASTM C33         Standard Specification for Concrete Aggregate  
ASTM D1557        Test Methods for Moisture-Density Relations of Soil and Soil-Aggregate Mixtures using 10-pound Rammer and 18-inch Drop  
ASTM D2487        Standard Test Method for Classification of Soils for Engineering Purposes  
ASTM D2488        Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)  
ASTM D4253        Standard Test Methods for maximum Index Density of Soils using a Vibratory Table  
ASTM D4254        Standard Test Methods for Minimum Index Density of Soils and Calculation of Relative Density

OSHA Constructions Industry Standards, Title 29, Code of Federal Regulations, Part 1926, Safety and Health Regulations for Construction.

1.5     **DEFINITIONS**

1.5.1   Suitable Backfill Material: Soil classified per ASTM D2487 or ASTM D2488 as one of the following:

- gravel (GW, GP, GM, GC)
- sand (SW, SP, SM, SC)
- inorganic lean clay (CL)
- inorganic silt (ML)
- a gravel-silt, gravel-clay, sand-silt, sand-clay mixture containing 5 to 12 percent fines (e.g., GW-CL, SP-ML)

Suitable backfill material shall be free from frozen lumps, refuse, rocks larger than 3 inches in any dimension, or other material that might cause damage to the pipe, prevent proper compaction, or cause the completed backfill to have insufficient bearing capacity for the expected superimposed loads.

1.5.2   Unsuitable Material: Soil or other material having insufficient strength or stability to carry the loads that will be superimposed on the completed backfill without excessive consolidation or loss of stability; material containing refuse, frozen lumps, large rocks, debris, or other materials that could damage the pipe or cause the backfill not to compact; and organic soils (Pt, OH, OL).

- 1.5.3 Select Backfill Material: Must meet the requirements outlined in the Materials section
- 1.5.4 Cohesive Material: Soils classified per ASTM D2487 or ASTM D2488 as GC, SC, ML, CL, or materials classified as GM or SM when their fine fraction (material passing No. 40 sieve) has a plasticity index of 4 or greater.
- 1.5.5 Rock: Solid homogenous interlocking crystalline material with firmly cemented, laminated, or foliated masses or conglomerate deposits, that cannot be removed without the use of backhoe-mounted pneumatic hole punchers or rock breakers; also large boulders, buried masonry, or concrete other than pavement exceeding 1/2 cubic yard in volume.
- 1.5.6 Unyielding Subgrade: Rock or soil containing large stones (over 3 inches in any dimension) that if allowed to remain at the trench bottom, would likely cause uneven or point loading on the pipe.
- 1.5.7 Unstable Subgrade: Material in the trench bottom that lacks sufficient firmness to maintain the alignment of the pipe, or to prevent joints in the pipe from separating during backfilling. This may be material that is otherwise suitable but has been disturbed or is saturated with water.
- 1.5.8 Modified Proctor Density: The maximum dry density achieved per ASTM D1557 when testing a sample of material representative of that to be compacted in the field.
- 1.5.9 Optimum Moisture Content: Modified Proctor Density is achieved.
- 1.5.10 Relative Density: The degree of compactness of a free draining granular soil with respect to the loosest and densest conditions of the soil as determined by ASTM D4253 and ASTM D4254.
- 1.5.11 Soil Classification Symbols: Where used in this specification, symbols for soil classification (e.g., GW, SW, CH) shall be understood to be the soil classification group symbol based on the Unified Soil Classification System as determined per ASTM D2487 or ASTM D2488.
- 1.5.12 Topsoil: Natural, friable, fertile, fine, loamy soil containing no less than 1.5 percent organic materials when tested per AASHTO T194, and generally representative of agriculturally productive soils in the vicinity, that is free from appreciable quantities of hard clods, stiff clay, gravel, brush, large roots, and other deleterious materials.
- 1.5.13 Pipe Embedment Zone: The area of the trench in the immediate vicinity of the installed pipe, including special foundations when required (see pipe bedding details on the drawings), where special materials and construction techniques are required by this specification to ensure proper installation of the pipeline.
- 1.5.14 Load-bearing Subgrade: The soil lying beneath and up to 5 feet outside of the edge of pavements and structures (either existing or to be constructed), and the soil lying within such other limits of load-bearing subgrade as may be indicated on the drawings or elsewhere in the contract documents.

## 1.6 SUBMITTALS

The following shall be submitted in accordance with Section 7.16 of the General Conditions, in sufficient detail to show full compliance with the specification:

SD-01 Pre-Construction: Prior to starting construction, Contractor shall submit the following:

- a. Trenching Safety Plan: The Contractor shall submit a trench safety plan which meets OSHA requirements no less than 10 days before the scheduled start date for trenching. The plan shall indicate the systems, methods, and techniques to be used to ensure that all trench sidewalls will be properly guarded for the protection of personnel and existing facilities and structures in the vicinity of the work.
- b. Water Control Plan: The Contractor shall submit a water control plan no less than 10 days before the scheduled start date for trenching. The plan shall indicate the systems, methods, and techniques to be used to ensure trench remains free of water. No piping shall be installed with water in the trench. The Contractor shall control all surface and ground water during installation.

**2.0 PRODUCTS**

**2.1 MATERIALS**

**2.1.1 Commercial Sand (Com. Sand)**

2.1.1.1 Sand shall be clean granular material and may contain natural or artificial mixtures free of organic matter and shall be graded as follows:

Sieve Designation	Percent by Weight Passing Square Mesh Sieve
No. 10	100
No. 40	80 - 100
No. 60	30 - 100
No. 100	10 - 25
No. 200	2 - 8

**2.1.2 Sand Clay**

2.1.2.1 Sand clay shall consist of natural or artificial mixtures of clay or soil binder and gravel, sand or other aggregates. The material shall be free from organic matter and shall be graded as follows:

Sieve Designation	Percent by Weight Passing Square Mesh Sieve
1 Inch	100
No. 10	65 - 100

Soil mortar shall be that portion passing the No. 10 sieve, shall be a liquid limit of less than 25 and a plastic index of less than 10, and shall be graded as follows:

Sieve Designation	Percent by Weight Passing Square Mesh Sieve
No. 10	100
No. 20	55 - 90
No. 40	35 - 70
No. 200	8 - 25

**2.1.3 Limestone or Rock:**

2.1.3.1 Foundation Stabilization: Limestone or rock 1" maximum size and shall be well graded. The foreign matter content of the processed material, as determined by washing, shall not exceed three (3) percent of the dry weight of the material.

2.1.4 Granular Bedding Material: Well-graded sand (SW or SW-SM), gravel (GW or GW-GM), or manufactured aggregate containing no particles larger than 1/2 inch, and free from roots, debris, or any other substance that would harm the pipe or might impair the performance of the material as bedding for the pipe.

2.1.5 Plastic Marking Tape: Plastic marking tape shall be acid and alkali-resistant polyethylene film, 2-inches wide with minimum thickness of 0.004 of an inch. Tape shall have a minimum strength of 1750 psi lengthwise and 1500 psi crosswise. The tape shall be manufactured with integral wires, foil backing or other means to enable detection by a metal detector when the tape is buried up to 3 feet deep. The tape shall be of a type specifically manufactured for marking and locating underground utilities. The metallic core of the tape shall be encased in a protective jacket or provided with other means to protect it from corrosion. Tape color shall be as specified in Table 1 and shall bear a continuous printed inscription describing the specific utility.

Table 1. Tape Color	
Red	Electric
Yellow	Gas, Oil, and Dangerous Materials
Orange	Telephone, Telegraph, Television, Police, and Fire Communications
Blue	Water Systems
Green	Sewer Systems

2.1.6 Tracer Wire: 12 gauge long plastic-coated wire taped directly to the pipe prior to installing backfill, unless noted otherwise in Section 33 11 00 or any piping material subsection following Section 33 11 00. Terminate wire at all valves, meters, cleanouts, etc.

## 2.2 QUALITY CONTROL

### 2.2.1 TESTING

2.2.1.1 Testing: An independent testing agency shall be retained by the Contractor to perform field and laboratory testing and soil evaluations to verify compliance of the work with the requirements of this specification and to ensure the achievement of the intents and purposes of the work. The performance or lack of performance of such tests and inspections shall not be construed as granting relief from the requirements of these specifications or the other contract documents.

## 3.0 **EXECUTION**

### 3.1 APPLICATION

3.1 Removal of Unsuitable Material: All material determined unsuitable shall be removed from the construction site. Disposal shall be in accordance with Section 02200 of these specifications.

3.2 Certification: Prior to delivery of materials to the site, the Contractor shall submit certificates of compliance of such materials with these specifications.

3.3 Unsuitable Material: Any material containing cinders, ashes, refuse, vegetable or organic material, boulders, rocks or stones, frozen soils or other material that is determined to be unsuitable. Moisture shall not be a material that determines unsuitability.

### 3.2 EXAMINATION

3.2.1 Prior to excavating, thoroughly investigate the line of the proposed trench to ascertain the existence and location of any underground structures or other items that might interfere with the pipe installation. Notify Engineer of any obstructions that will prevent installation of the pipe or appurtenance as indicated on the drawings.

### 3.2 PREPARATION

3.2.1 Fills and Embankments: Where the pipeline is to be installed in an area of fill or embankment, verify that such work has been completed to an elevation at least 3 feet above the top of the pipeline to be installed.

3.2.2 Construction Layout: Unless otherwise stipulated elsewhere in the contract documents, the work covered by this specification shall include the performance of all calculations, and the setting of all marks and stakes necessary to ensure that the work conforms to the required lines, grades, and dimensions. Relate all such layout to the coordinate grid system, elevation datum, and related survey control monuments and bench marks identified on the drawings or elsewhere in the contract documents.

- 3.2.3 Stripping and Stockpiling Topsoil: Strip topsoil in areas to be excavated and stockpile separately from other excavated materials. Protect topsoil stockpiles from contamination during progress of the work until their materials have been used in finish operations.
- 3.2.4 Pavement Removal: Where trenches must be excavated in areas of existing paving, remove the pavement using neat, straight, and square or parallel saw cuts no less than 1 foot outside of the line of intersection between the excavation sidewall and the pavement subgrade surface. In the case of Portland cement concrete pavement, the line of removal may be the nearest existing pavement joint outside of the 1 foot limit. Cut steel reinforcement exposed by the pavement removal and carefully bend it out of the way of the trenching work. Leave a sufficient amount of the reinforcement projecting within the removed area to allow for the lap splice with the new replacement reinforcement required for restoration of the pavement.
- 3.2.5 Erosion and Siltation Control, Prevention, and Abatement: Before starting earthwork operations in any particular area of the project site, install measures for the control, prevention, and abatement of erosion and siltation for that area as required by any applicable federal, state, or local codes or regulations.
- 3.2.6 Trenching Safety: Before the start of trenching, plan for and assemble materials and equipment required to stabilize trench walls as necessary to ensure the safety of personnel working in the trench, and to protect from damage existing facilities and structures in the vicinity of the work. The systems, methods, and techniques used shall meet or exceed all applicable requirements of the OSHA Construction Industry Standards, and all other local, state, and federal codes and regulations.

### 3.3 PROTECTION

#### 3.3.1 Slope Stabilization

1. Stabilize the sides of excavations as necessary to prevent slope failure or any other earth movement which might injure personnel or damage existing buildings, structures, or other facilities in the vicinity of the work. The stabilization method employed shall comply with all pertinent requirements of the OSHA Construction Industry Standards, and all other applicable federal, state, and local codes and regulations.
2. Remove sheeting, bracing, and shoring systems employed for slope stabilization as the progress of the work eliminates their need, unless they are permitted or required to remain by other provisions of these specifications or the other contract documents. Carefully remove such systems to prevent subsidence or other soil movement that might damage any existing or newly constructed structure or other facility.

3.3.2 Existing or Complete Utilities: When crossing existing pipelines or other structures, alignment and grade shall be adjusted as necessary, with the approval of the Engineer, to provide clearance as required by federal, state, or local regulations or as deemed necessary by the Engineer to prevent future damage or contamination of either structure. Carefully move machinery and equipment over existing or newly installed pipes and utilities during construction so as not to damage completed work. Do not use power-driven equipment to excavate closer than 2 feet from any existing utility or structure. For work immediately adjacent to, or for excavation exposing an existing utility or other structure, use manual or light equipment excavating techniques. Start manual or light equipment excavation before reaching the obstruction and continue until the obstruction is uncovered, or until clearance for the new pipe or utility is ensured. Support uncovered pipes and other existing work affected by the excavation until they are properly supported by backfill. Report immediately to the Engineer any damage to existing utility lines or other subsurface facilities.

3.3.3 Structures and Surfaces: Protect newly backfilled areas and adjacent structures, slopes, or grades from damage. Repair and re-establish damaged grades and slopes. Protect existing streams, ditches, and other stormwater facilities from silt accumulation and erosion.

### 3.4 CONTROL OF WATER

3.4.1 Prevent or control water flow into excavations, or water accumulation in excavations, to ensure that the bottoms and sides of all excavations remain in a firm and stable condition throughout construction operations.

3.4.2 Surface Waters: Plan and conduct excavation operations so as to minimize the disruption of stormwater drainage in the vicinity of the work. Provide diversion ditches, dikes, and other suitable measures to control and direct runoff around and away from the excavation. Protect the sides of excavations from erosion and sloughing caused by stormwater runoff. Promptly remove stormwater accumulations in excavations. The systems and equipment for control of surface water shall be of sufficient capacity to accommodate the runoff rate that can be expected from the 2 year (50 percent annual chance) rainfall event, with no significant

disruption of the construction schedule, or damage to existing features or facilities in the vicinity of the work. Submit water control plan for approval prior to excavation.

- 3.4.3 Groundwater: When the bottom of the trench must be carried to an elevation below the groundwater piezometric surface, or to such proximity to the piezometric surface that the excavation bottom will become soft due to its being saturated by groundwater, take measures to lower the piezometric surface sufficiently to maintain the stability of the excavation bottom. Design the groundwater control system using accepted professional methods of design and engineering consistent with the best modern practice. The system shall include trenches and sumps with pumps, well points, and such other equipment, appurtenances, and related earthwork necessary to achieve the groundwater control needs of the work. Carefully design and operate the system to avoid damage to existing structures and other facilities in the vicinity of the work.
- 3.4.5 Disposal of Removed Water: Convey water removed by the water control systems to an existing stormwater drainage facility with sufficient capacity to accommodate the flow rates involved without damage. Secure permits or other approval required from authorities having jurisdiction for such stormwater discharge.
- 3.4.6 System Removal: After completing construction operations needing water control, remove materials, equipment, and other facilities used for that purpose, and clean up and restore affected areas as required.

### 3.5 EXCAVATION

- 3.5.1 Carefully excavate trenches to the minimum depths and widths necessary for installing the pipeline and associated appurtenances in accordance with the requirements of this specification, and the lines and grades indicated on the plans or elsewhere in the contract documents. Over-excavation of trench width or depth not directed by the Engineer shall be at the Contractor's expense. In the pipe embedment zone, the trench sidewalls shall be as nearly vertical as practical. From the top of the pipe embedment zone to the surface, the trench sidewalls shall be either sloped sufficiently to prevent sloughing or cave-in, or shall be properly supported. Stockpile excavated materials in an orderly manner a sufficient distance from the trench sidewalls to avoid endangering the stability of the bank. All excavation of every description and of whatever substances encountered shall be performed to the depths indicated or as otherwise specified. During excavation, material suitable for backfilling shall be piled in an orderly manner a sufficient distance from the banks of the trench to avoid over-loading and to prevent slides or cave-ins. All excavated materials not required or suitable for backfill shall be removed and disposed of off-site at the Contractor's expense. Grading shall be done as necessary to prevent surface water from flowing into trenches or other excavations, and any water accumulating therein shall be removed by pumping or by other approved methods. Sheet piling and shoring shall be done as necessary for the protection of the work and for the safety of personnel. Excavation shall comprise all materials encountered, including rock and filled-in material of whatever nature is involved. Do not install any work until excavations are free of water, mud, and loose earth. Do not install any work on frozen ground.
- 3.5.2 Unstable Subgrade: When soft, yielding, or otherwise unstable soil conditions are encountered at the required trench bottom elevation, over excavate the trench to a depth of no less than 12 inches below the required pipe bottom elevation, and backfill with granular bedding material as directed by the Engineer. If conditions are so severe that over excavating and backfilling will not achieve a stable condition, notify the engineer immediately so that appropriate corrective measures may be identified.
- 3.5.3 Unyielding Subgrade: Whenever rock, stone, masonry, or other hard, unyielding material is encountered at or above the required trench bottom elevation, remove it to provide a clearance of no less than 6 inches below and on each side of pipes and associated fittings, valves, and other appurtenances. Backfill the over-excavated area with granular bedding material.
- 3.5.4 Previous Excavations: In the event that the trench passes over a sewer or through any other previous excavation, carefully compact the bottom of the trench to a density equal to or greater than that of the native soil adjacent to the previous excavation. Perform this compaction carefully to avoid damaging the previously installed facility.
- 3.5.6 Excavation for Appurtenances:
  - 1. Excavations for precast manholes, catch basins, drainage inlets, and other similar structures shall be of sufficient size to permit proper placement of the structures in their intended positions, and to permit proper placement and compaction of backfill around the structures after their placement. For cast-in-place appurtenances, excavations shall be of sufficient size to permit placement and removal of necessary formwork.

2. When concrete is to be placed against the bottom or sides of an excavation, take care not to disturb the native soils that the concrete bears against. Excavate to final line and grade just before the concrete or masonry is to be placed. Remove loose or unstable materials. Clean rock of loose material and other debris, and cut to a firm and stable surface that is either level, stepped, or serrated; remove loose or deteriorated rock and thin strata.

### 3.6 BEDDING

- 3.6.1 After the excavation reaches the required trench bottom elevation and any unacceptable subgrade conditions are corrected as specified where noted on the plans or directed by Engineer, prepare the bottom of the trench for placement of the pipe by spreading in the trench a layer of loose granular bedding material to attain a level just above the required grade of the outside bottom of the pipe. Carefully shape the surface of this layer of loose material to ensure that uniform and continuous support is provided to the bottom quadrant of each pipe section along its entire length. In the prepared trench bottom, excavate small depressions (bell holes) of the minimum size necessary to allow removing the pipe handling slings, to allow assembly of pipe joints, and to avoid the development of bearing loads on the pipe bells or flanges. Bedding thickness and width shall be in accordance with the appropriate pipe bedding details shown on the drawings. Bedding in excess of the width and depth specified without direction from the Engineer shall be at the Contractor's expense.

### 3.7 PIPE LAYING AND ASSEMBLY

- 3.7.1 Place the pipe, pipe assemblies, and fittings on the prepared trench bottom, embedding the bottom of the pipe into the loosely placed bedding materials true to the required line and grade. Ensure that the barrel of each pipe section is uniformly supported along its entire length, and that no point loads are developed on bells, flanges, or elsewhere. Assemble joints in accordance with the applicable piping system requirements.

### 3.8 HAUNCHING

- 3.8.1 After placing the pipe and assembling joints in accordance with the applicable system installation specifications, carefully fill bell holes with bedding material and place compact bedding material under the sides of the pipe to the pipe spring line. Take care during placement and compaction of this material to ensure sound support is developed for the sides of the pipe while avoiding either vertical or lateral displacement of the pipe from its intended position. Place haunching area material and compact to the required density in uniform lifts of not over 6 inches loose thickness using manual or mechanical tamping techniques.

### 3.9 COORDINATION WITH SYSTEM TESTING

- 3.9.1 Coordinate initial and final backfilling with the applicable piping system installation specification testing requirements to ensure that required visual examinations are accomplished before the pipeline is obscured by backfill.

### 3.10 INITIAL BACKFILL

1. Place and compact select backfill from the spring line of the pipe to the top of the pipe embedment zone in uniform horizontal lifts of not over 6 inches loose thickness. Bring up the level of backfill uniformly on opposite sides of the pipe along the full length of each pipe section. Take care not to damage the pipe or any protective coating it may have.
2. When installing high density polyethylene (HDPE) pipe, polyvinyl chloride (PVC) pipe, corrugated metal pipe (CMP), or any other flexible type pipe, give special attention to proper compaction of the materials in the pipe haunch area and sides to ensure that adequate side support of the pipe is developed while avoiding any vertical or lateral displacement of the pipe. For flexible type pipe, the material directly above the pipe in the pipe embedment zone shall be only lightly compacted to avoid distorting the pipe. Compacted density requirements do not apply to materials in this area directly over flexible type pipe.
3. Install tracer wire on all non-ferrous pipe prior to backfill. Tape wire with 2" PVC tape on approximate 6' center and on each side of fittings.

### 3.11 FINAL BACKFILL

- 3.11.1 Place and compact suitable backfill material in 8 inch maximum loose thickness lifts to restore the required finished surface grade. During final backfill for plastic or other non-ferrous pipelines, install plastic marking tape above the pipeline at a depth of 1 to 2 feet below the required finished grade.

### 3.12 COMPACTION

#### 3.12.1 Equipment

- 3.12.1.1 Compact bedding and backfill materials using vibratory or impact type compaction equipment suitable for use in confined areas, and operated at the frequency and amplitude recommended by the equipment manufacturer for the type of material and lift thickness involved in the work.

#### 3.12.2 Moisture Content

- 3.12.2.1 At the time of compaction, the moisture content of the material shall be such that the specified compacted density will be obtained and the completed backfill will be in a firm and stable condition. Adjust the moisture content as necessary to achieve a condition suitable for compactions.

- 3.12.2.2 For cohesive materials, the moisture content at the time of compaction shall be within plus or minus 3 percent of optimum.

#### 3.12.3 Compacted Density

- 3.12.3.1 Pipe Embedment Zone: Compact bedding and backfill material placed in the pipe embedment zone compacted to a density of no less than 92 percent of Modified Proctor Density or, if a free-draining granular material, to a density of no less than 70 percent relative density.

#### 3.12.3.2 Final Backfill:

- a. Except in areas of load bearing subgrade, compact final backfill composed of suitable materials from the original trenching excavation to a density equal to or greater than that of the existing undisturbed material immediately adjacent to the trench. Where the excavated material is unsuitable for use as backfill and, therefore, imported materials are used, compact the backfill to no less than 90 percent of Modified Proctor Density.
- b. In areas of load bearing subgrade, compact final backfill materials to a density of no less than 92 percent of Modified Proctor Density, with the top 12 inches compacted to no less than 95 percent of Modified Proctor Density, unless noted otherwise on plans.

### 3.13 RESTORATION AND CLEAN UP

- 3.13.1 After completing backfill placement and compaction, restore or replace shrubbery, turf, fences, and other features, surfaces, and structures disturbed during the work, except as otherwise indicated. Return restored features and facilities to a condition equal or superior to that which existed before the work began.

- 3.13.2 Pavement Restoration: Restore removed pavement to a condition equal or superior to that existing prior to its removal. Replace removed reinforcing steel with new material of a size, quality, and grade equal or superior to that which was removed. Install replacement steel with lap splices of no less than 36 bar diameters or 12 inches for wire fabric.

- 3.13.3 Clean Up: Remove off the jobsite and properly dispose of surplus piping materials, soils, temporary structures, and other debris resulting from the work. Leave the site in a neat and clean condition, ready to receive topsoil, seeding, or whatever final surface treatment is indicated.

### 3.14 TESTING

- 3.14.1 The Contractor shall retain an independent testing agency to perform field and laboratory testing and soil evaluations to verify compliance of Work with requirements of specifications. Density tests along pipe installations shall be taken each 8" lift at a frequency of no less than one test per 300 linear foot of trench.

\*\*\* END OF SECTION \*\*\*

**SECTION 33 05 23.13**  
**DIRECTIONAL DRILLING**

---

**1.0 GENERAL**

- 1.1 Provide all necessary tools, materials, and equipment to successfully complete the installation of directionally drilled piping as specified herein and shown on the drawings. The Contractor shall be responsible for the final constructed product, and for furnishing the qualified labor and superintendence necessary for this method of construction.
- 1.1.1 Furnish all items necessary to perform the horizontal directional drilling operation and construct the pipe to the lines and grade shown on the drawings.
- 1.1.2 Boring must use techniques of creating or directing a borehole along a predetermined path to a specified target location. This must involve use of mechanical and hydraulic deviation equipment to change the boring course and must use instrumentation to monitor the location and orientation of the boring head assembly along a predetermined course.
- 1.1.3 Drilling must be accomplished with fluid-assist mechanical cutting. Boring fluids shall be a mixture of bentonite and water or polymers and additives. Bentonite sealants and water will be used to lubricate and seal the mini-tunnel. Certify to the Engineer in writing that any chemicals to be added are environmentally safe and not harmful or corrosive to the facility. Identify the source of water for mixing the drilling fluid. Approvals and permits are required for obtaining water from such sources as streams, rivers, ponds, or fire hydrants. Any water source used other than a potable water may require a pH test. It is mandatory that minimum pressures and flow rates be used during drilling operation as not to fracture the sub-grade material around and or above the bore.
- 1.1.4 The mobile drilling system shall utilize small diameter fluid jets to fracture and mechanical cutters to cut and excavate the soil as the head advances forward.
- 1.1.5 Steering shall be accomplished by the installation of an offset section of drill stem that causes the cutter head to turn eccentrically about its centerline when it is rotating. When steering adjustments are required, the cutter head offset section is rotated toward the desired direction of travel and the drill stem is advanced forward without rotation.
- 1.1.6 The mobile drilling system must be capable of being launched from the surface at an inclined angle and drilling a 2 inch to 3 inch diameter pilot hole. The pilot hole will then be enlarged with reamers as required.
- 1.1.7 Product Bore Hole Diameter: To minimize potential damage from soil displacement/settlement by limiting the ratio of the bore hole to the product size. The size of the back reamer bit or pilot bit, if no back reaming is required, will be limited relative to the product diameter to be installed as follows:

<b>Maximum Pilot or Back-Reamer Bit Diameter When Rotated 360 Degrees</b>	
<b>Nominal Inside Pipe Diameter Inches</b>	<b>Bit Diameter Inches</b>
2	4
3	6
4	8
6	10
8	12
10	14
12 and greater	Maximum Product OD plus 6

**1.2 RELATED SECTIONS**

Section C-700 General Conditions  
Section 33 11 00 Piping – General

## 1.3 MEASUREMENT AND PAYMENT

Payment for work in this section shall be included in the unit price / lump sum price as outlined in the Bid Form. Bid price shall include all cost of labor, materials, and incidentals complete. Payment to the Contractor shall be based on the actual length of the installation, measured in place along the surface of the ground, complete and accepted. No additions or deductions will be made, for sweeps in either the vertical or horizontal direction to complete the installation. No payment shall be made for an abandoned bore.

## 1.4 REFERENCES

The publications listed below form part of this specification. Each publication shall be the latest revision and addendum in effect on the date this specification is issued for construction unless noted otherwise. Except as modified by the requirements specified herein or the details of the drawings, Work included in this specification shall conform to the applicable provisions of these publications.

American Association of State Highway and Transportation Officials (AASHTO)

American Society for Testing and Materials (ASTM)

ASTM A 139 Grade B Standard Specification for Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over)

ASTM D 3350 Standard Specification for Polyethylene Plastics Pipe and Fittings Materials

ASTM F 714 Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter

ASTM 2513 Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings

American Water Works Association (AWWA)

AWWA C 200 Steel Water Pipe, 6 In. (150 mm) and Larger

American Petroleum Institute (API)

API 2B Specification for the Fabrication of Structural Steel Pipe

National Electrical Manufacturers Association (NEMA)

Material Standards for HDD Installation		
Material Type	Non-Pressure	Pressure
Polyethylene (PE)	ASTM D 2447	ASTM 2513 ASTM D 2447
High Density Polyethylene (HDPE)	ASTM D 2447 ASTM D 3350 ASTM F 714	ASTM D 2447 ASTM D 3350 ASTM F 714 ASTM 2513
Polyvinyl-Chloride (PVC)	ASTM F 789	N/A
Steel	ASTM A 139 Grade B API 2B	AWWA C 200 API 2B

## 1.5 SUBMITTALS

The following shall be submitted in accordance with Section 7.16 of the General Conditions, in sufficient detail to show full compliance with the specification:

SD-01 Pre-Construction: The Contractor shall submit for review complete construction drawings with a written description identifying details of the proposed method of construction and the sequence of operations to be performed during construction, as required by the method of tunnel excavation approved. The drawings and descriptions shall be sufficiently detailed to demonstrate to the Engineer whether the proposed materials and procedures will meet the requirements of this specification.

The Contractor's construction drawings submitted shall address the following items:

- a. Complete details of the equipment, methods and procedures to be used, including but not limited to primary lining installation, timing of installation in relation to the excavation plan, and sequence.
- b. Grouting techniques, including equipment, pumping procedures, pressure grout types, mixtures, and plug systems.
- c. Method of controlling line and grade of excavation.
- d. Details of muck removal, including equipment type, number, and disposal location.
- e. Proposed contingency plans for critical phases and areas of directional drilling.

SD-02 Quality Control:

1. At least 10 days prior to the start of directional drilling, Contractor shall submit a description of his quality control methods he proposes to use in his operations to the Engineer. The submittal shall describe:
  - a. Procedures for checking line and grade.
  - b. Field forms for checking line and grade.
2. The Contractor shall furnish a Bore Path Report to the Engineer within seven days of the completion of each bore path. Include the following in the report:
  - a. Location of project and the engineer's project number including the permit number assigned.
  - b. Name of person collecting data, including title, position, and company name.
  - c. Product installation location on the project (Contract plans station number and reference to permanent structures (at least three) within the project)
  - d. Identification of the detection method used.
  - e. Elevations and offset dimensions.

SD-03 Contract Close-Out: The Contractor shall provide the Engineer a complete set of As-Built Plans showing all bores (successful and failed) within 30 calendar days of completing the bore. The Contractor shall ensure that the plans are dimensionally correct and include copies of the contract plans, actual boring location, and any differing subsurface conditions. The plans must show appropriate elevations and be referenced to control points in the contract plans. Plans must be same scale in black ink on white paper, of the same size and weight as the contract plans. Submittal of electronic plans data in lieu of hard copy plans is preferred and may be approved by the Engineer if compatible with the Engineer's software. Specific plans content requirements include but may not be limited to the following:

- a. The Contractor shall provide a plan and profile plan for each bore path. Show the ground or pavement surface and crown elevation of each facility installed, or installed and placed out of service, to an accuracy within plus or minus 1/2 inch. If the plan and profile plan for the bore path is not made on a copy of one of the contract plans, use a 10 to 1 vertical exaggeration on the profile.
- b. If during boring operations an obstruction is encountered which prevents completion of the installation in accordance with the design location and specification, and the product is left in place and taken out of service, the contractor shall show the failed bore path along with the final bore path on the plans. Note the failed bore path as "Failed Bore Path - Taken Out of Service". Also show the name of the

Utility owner, location and length of the drill head and any drill stems not removed from the failed bore path.

- c. The Contractor shall show the top elevation, diameter and material type of all utilities encountered and physically observed during the subsoil investigation. For all other obstructions encountered during a subsoil investigation or the installation, the Contractor shall show the type of material, horizontal and vertical location, top and lowest elevation observed location, and note if the obstruction continues below the lowest point observed.
- d. The Contractor shall include bore notes on each plan stating the final bore path diameter, product diameter, drilling fluid composition, composition of any other materials used to fill the annular void between the bore path and the product, or facility placed out of service. The Contractor shall note if the product is a casing, as well as the size and type of the carrier pipe placed within the casing as part of the Contract work.

## 1.6 QUALITY ASSURANCE

- 1.6.1 The Contractor shall ensure the proposed methods of excavation, lining, and groundwater control are compatible.

## 1.7 PROJECT/SITE CONDITIONS

### 1.7.1 Air Quality

- 1.7.1.1 The Contractor shall conduct directional drilling operations by methods and with equipment, which will positively control dust, fumes, vapors, gases, or other atmospheric impurities in accordance with applicable safety requirements.

## 2.0 PRODUCTS

### 2.1 MATERIALS

- 2.1.1 Refer to Section 33 11 00 Piping – General and Section 33 11 04 – Detail Specifications High Density Polyethylene Pipe.

## 3.0 EXECUTION

### 3.1 GENERAL

- 3.1.1 The Contractor shall be responsible for his means and methods of directional drilling construction and shall ensure the safety of the work, the Contractor's employees, the public, and adjacent property, whether public or private.
- 3.1.2 The Contractor shall be responsible for anticipating the portions of the drilled excavation that will be below the groundwater table.
- 3.1.3 The Contractor shall be responsible for complying with all local, state, and federal laws, rules, and regulations at all times to prevent pollution of the air, ground, and water.

### 3.2 DAMAGE RESTORATION

- 3.2.1 The Contractor shall take responsibility for restoration for any damage caused by heaving, settlement, separation of pavement, and escaping of the drilling fluid (frac-out) from the directional drilling operation at no cost to the Owner.

### 3.3 REMEDIATION PLANS

- 3.3.1 When need for remediation arises and when required by the Engineer, the Contractor shall provide detailed plans which show how damage to any infrastructure will be remedied. These details will become part of the As-Built Plans Package. Remediation Plans must follow the same guidelines for development and

presentation as the As-Built Plans. When remediation plans are required, they must be approved by the Engineer before any work proceeds.

3.4 FAILED BORE PATH

3.4.1 If conditions warrant removal of any materials installed in a failed bore path, as determined by the Engineer. The Contractor shall promptly fill all voids by injecting all taken out of service products that have any annular space with excavatable flowable fill, at no cost to the Owner.

3.5 EQUIPMENT

The Contractor shall ensure that appropriate equipment is provided to facilitate the installation of the product:

<b>HDD Equipment</b>				
System Description	Pipe (1) Diameter Inches	Bore Length Feet	Torque Ft-Lbs	Trust/Pullback Lbs
Maxi-HDD	18 & >	1000 +	10,000 +	70,000 +
Midi-HDD	Up to 16	Up to 1000	1,900 to 9,999	20,001 to 69,999
Mini-HDD	Up to 6	Up to 600	Up to 1,899	Up to 20,000

3.5.1 Equipment shall be matched to the size of pipe being installed. Installations differing from the above chart must be approved by the Engineer. The Contractor shall ensure that the drill rod can meet the bend radius required for the proposed installation.

3.5.2 Diesel, electrical, or air-powered equipment will be acceptable, subject to applicable federal and state regulations.

3.5.3 Any method or equipment that the Contractor can demonstrate will produce the specified results will be considered.

3.5.4 The Contractor shall employ equipment that will be capable of handling the various anticipated ground conditions. In addition, the equipment shall:

3.5.4.1 Be capable of minimizing loss of ground ahead of and around the machine and providing satisfactory support of the excavated face at all times.

3.5.4.2 The Contractor shall provide a system to indicate whether the amount of earth material removed is equivalent to that displaced by the advance of the machine such that the advance rate may be controlled accordingly.

3.5.5 The Contractor shall provide adequate secondary containment for any and all portable storage tanks.

3.6 CONTROL OF THE TUNNEL LINE AND GRADE

3.6.1 Construction Control:

3.6.1.1 The Contractor shall establish and be fully responsible for the accuracy of his own control for the construction of the entire project, including structures, tunnel line, and grade.

3.6.1.2 The Contractor shall establish control points sufficiently far from the tunnel operation not to be affected by construction operations.

3.6.1.3 The Contractor shall maintain daily records of alignment and grade and shall submit three copies of these records to the Engineer. However, the Contractor remains fully responsible for the accuracy of his work and the correction of it, as required.

3.6.2 Product Locating and Tracking: The method of locating and tracking the drill head during the pilot bore will be shown in the plans submitted by the Contractor. The Engineer recognizes walkover, wire line, and

wire line with surface grid verification, or any other system as approved by the Engineer, as the accepted methods of tracking directional bores. The Contractor shall use a locating and tracking system capable of ensuring that the proposed installation is installed as intended. The locating and tracking system must provide information on:

- a. Clock and pitch information
- b. Depth
- c. Transmitter temperature
- d. Battery status
- e. Position (x, y, & z)
- f. Azimuth, where direct overhead readings (walkover) are not possible (i.e. subaqueous or limited access transportation facility)
- g. The Contractor shall ensure proper calibration of all equipment before commencing directional drilling operation.
- h. The Contractor shall take and record alignment readings or plot points such that elevations on top of and offset dimensions from the center of the product. The Contractor shall tie these points to the control points for the project and to permanent fixed features on the project (at least three). Such permanent fixed feature must have prior approval of the Engineer. The Contractor shall provide elevations and dimensions at all bore alignment corrections (vertical and horizontal) with a maximum distance between points along the bore path of 25 feet. The Contractor shall provide a sufficient number of elevations and offset distances to accurately plot the vertical and horizontal alignment of the installed product. The Contractor shall install all facilities such that their location can be readily determined by electronic designation after installation. The Contractor shall attach a minimum of two separate and continuous conductive tracking materials (tone wire), either externally, internally, or integral with the product. Use either a continuous green sheathed solid conductor copper wire line (minimum #10 AWG) or a coated conductive tape. Conductors must be located on opposite sides when installed externally. Connect any break in the conductor line before completing the installation with a NEMA approved direct bury electrical clamp or solder method. The connection shall be coated with a rubber or plastic waterproof insulator to maintain the integrity of the connection from corrosion. Clamp connections must be made of brass or copper and of the butt end type with wires secured by compression. Soldered connections must be made by tight spiral winding of each wire around the other with a finished length minimum of 3 inches overlap. Tracking conductors must extend to tracer wire boxes installed beyond bore termini. The contractor shall be responsible for testing all locator conductors for continuity. No deductions are allowed for failed tracking conductors (a minimum of two separate and continuous conductive tracking materials (tone wire) must function at the completion of the project). Failed conductor ends must be wound into a small coil and left attached for future use.

### 3.7 DISPOSAL OF EXCESS MATERIAL

- 3.7.1 Where such effort is necessary, the cost for groundwater control during the course of the tunnel work shall be included in the unit contract price for the directional bore.
- 3.7.2 Dewatering required during the course of the project to lower water table, to remove standing water, surface drainage seepage, or to protect ongoing work against rising waters shall be considered incidental to the work being performed.
- 3.7.3 Within 48 hours of completing installation of the boring product, the Contractor shall clean the work site of all excess slurry or spoils. Take responsibility for the removal and final disposition of excess slurry or spoils. Ensure that the work site is restored to a pre-construction condition or as identified on the plans.

\*\*\* END OF SECTION \*\*\*

**SECTION 33 05 23.16**  
**IN CASED CROSSINGS PLACED BY BORING OR OPEN**  
**TRENCH**

---

**1.0     GENERAL**

1.1     The Work in this Section shall include boring and jacking under railroads, highways, and other locations, as shown on the drawings.

1.1.1   Insurance: The contractor shall provide insurance as outlined in the General Conditions and required by the appropriate MDOT & CSX permits.

**1.2     RELATED SECTIONS**

Section C-700	General Conditions
33 11 00	Piping – General
33 11 04	Detail Piping Specification High Density Polyethylene Pipe

**1.3     MEASUREMENT AND PAYMENT**

Payment for work in this section shall be included in the unit price / lump sum price as outlined in the Bid Form. Bid price shall include all cost of labor, materials and incidentals complete. Payment to the Contractor shall be based on the actual length of the installation, measured in place along the surface of the ground, complete and accepted. No payment shall be made for an abandoned bore.

**1.4     REFERENCES**

The publications listed below form part of this specification. Each publication shall be the latest revision and addendum in effect on the date this specification is issued for construction unless noted otherwise. Except as modified by the requirements specified herein or the details of the drawings, Work included in this specification shall conform to the applicable provisions of these publications.

ASTM	American Society for Testing and Materials
ASTM D 2447	Standard Specification for Polyethylene (PE) Plastic Pipe, Schedules 40 and 80, Based on Outside Diameter
ASTM D 2513	Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings
ASTM D 3350	Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
ASTM F 714	Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter
ASTM A 139 (Grade B)	Standard Specification for Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over)
AWWA	American Water Works Association
AWWA C 200	Standard for Steel Water Pipe
API	American Petroleum Institute
API 2B	Specification for the Fabrication of Structural Steel Pipe
AASHTO	American Association of State Highway and Transportation Officials
CSXT	Transportation Design and Construction Standard Specifications (current edition)

**1.5     DEFINITIONS**

1.5.1 Contractor's construction drawings shall be defined as drawings by which the Contractor proposes to construct, operate, build, etc., the referenced item from. The submission of these drawings shall be required for the sole purpose of providing the sufficient details to verify that the Contractor's plan is in accordance with the intent of the design and contract documents.

## 1.6 SYSTEM REQUIREMENTS

### 1.6.1 DESIGN REQUIREMENTS

1.6.1.1 Permits and easements are available for review at the engineer's offices.

1.6.1.2 The Contractor shall submit plans and description of the boring and jacking arrangement to be used to the Engineer for approval and no work shall proceed until such approval is obtained.

### 1.6.2 PERFORMANCE REQUIREMENTS

1.6.2.1 When boring and jacking is performed on State highways, the contractor shall be responsible for complying with all requirements of the Mississippi Department of Transportation.

1.6.2.2 When boring and jacking is performed on railroad rights-of-way, the contractor shall be responsible for complying with all requirements of the railroad company.

1.6.2.3 Any method that employs simultaneous boring and jacking for pipes over 8 inches in diameter that does not have the above approved arrangement will not be permitted. For pipe 8 inches and less in diameter, augering or boring without this arrangement may be considered for use only as approved by the Engineer.

## 1.7 SUBMITTALS

The following shall be submitted in accordance with Section 7.16 of the General Conditions, in sufficient detail to show full compliance with the specification:

### SD-01 Pre-Construction

1. Construction Drawings: Contractor shall submit the following:
  - a. The Engineer will base the review of submitted details and data on the requirements of the completed work, safety of the work in regards to the public, potential for damage to public or private utilities and other existing structures and facilities, and the potential for unnecessary delay in the execution of the work. Contractor shall not commence work on any items requiring Contractor's construction drawings or other submittals until the drawings and submittals are reviewed and accepted by the Engineer.
  - b. The Contractor shall submit for review complete construction drawings with a written description identifying details of the proposed method of construction and the sequence of operations to be performed during construction. The drawings and descriptions shall be sufficiently detailed to demonstrate to the Engineer whether the proposed materials and procedures will meet the requirements of this specification.
  - c. Complete details of the equipment, methods and procedures to be used, including but not limited to the mechanical arrangement or devices that will positively prevent the auger from leading the pipe so that no unsupported excavation is ahead of the pipe, the mechanical arrangement or devices that will positively prevent the free flow of soft or poor material thru the auger and casing pipe, timing of installation of the casing pipe in relation to the excavation plan for the bore pits, and the proposed sequence of construction methods to complete the jack and bore.
  - d. Grouting techniques, including equipment, pumping procedures, pressure grout types, mixtures, and plug systems should a void occur.
  - e. Method of controlling line and grade of excavation.
  - f. Details of muck removal, including equipment type, number, and disposal location.
  - g. Proposed contingency plans for critical phases and areas of jack and bore operation.

#### SD-02 Quality Control

- a. Certification: Certification from the manufacturer that casing pipes at each crossing meets the requirements of these specifications, MDOT, and CSXT.
- b. Quality Control Methods: At least 10 days prior to the start of the jack and bore operation, the contractor shall submit a description of his quality control methods he proposes to use in his operations to the Engineer. The submittal shall describe:
  1. Procedures for checking line and grade.
  2. Field forms for checking line and grade.
  3. Compatibility of Methods:
  4. The Contractor shall ensure the proposed methods of excavation, jack & bore, and groundwater control are compatible.
- c. Boring Path Report: The Contractor shall furnish a Bore Path Report to the Engineer within seven days of the completion of each bore path. Include the following in the report:
  1. Location of project and the engineer's project number including the permit number assigned.
  2. Name of person collecting data, including title, position, and company name.
  3. Product installation location on the project (Contract plans station number and reference to permanent structures (at least three) within the project)
  4. Identification of the detection method used.
  5. Elevations and offset dimensions.

#### SD-03 Contract Closeout

- a. As-Built Plans: The Contractor shall provide the Engineer a complete set of As-Built Plans showing all bores (successful and failed) within 30 calendar days of completing the work. The Contractor shall ensure that the plans are dimensionally correct and include copies of the contract plans, actual boring location, and any differing subsurface conditions. The plans must show appropriate elevations and be referenced to control points in the contract plans. Plans must be same scale in black ink on white paper, of the same size and weight as the contract plans. Submittal of electronic plans data in lieu of hard copy plans is preferred and may be approved by the Engineer if compatible with the Engineer's software. Specific plans content requirements include but may not be limited to the following:
  1. The Contractor shall provide a plan and profile plan for each bore path. Show the ground or pavement surface and crown elevation of each facility installed, or installed and placed out of service, to an accuracy within plus or minus 1/2 inch. If the plan and profile plan for the bore path is not made on a copy of one of the contract plans, use a 10 to 1 vertical exaggeration on the profile.
  2. If during boring operations an obstruction is encountered which prevents completion of the installation in accordance with the design location and specification, and the product is left in place and taken out of service, the contractor shall show the failed bore path along with the final bore path on the plans. Note the failed bore path as "Failed Bore Path - Taken Out of Service". Also show the name of the Utility owner, location and length of the drill head and any drill stems not removed from the failed bore path.
  3. The Contractor shall show the top elevation, diameter and material type of all utilities encountered and physically observed during the subsoil investigation. For all other obstructions encountered during a subsoil investigation or the installation, the Contractor shall show the type of material, horizontal and vertical location, top and lowest elevation observed location, and note if the obstruction continues below the lowest point observed.
  4. The Contractor shall include bore notes on each plan stating the final bore path diameter, product diameter, composition of any other materials used to fill the annular void between the bore path and the product, or facility placed out of service. The Contractor shall note if the product is a casing, as well as the size and type of the carrier pipe placed within the casing as part of the Contract work.

### 1.8 PROJECT/SITE CONDITIONS

#### 1.8.1 AIR QUALITY

- 1.8.1.1 The Contractor shall conduct jack and bore operations by methods and with equipment, which will positively control dust, fumes, vapors, gases, or other atmospheric impurities in accordance with applicable safety requirements.

## **2.0 PRODUCTS**

### **2.1 MATERIALS**

- 2.1.1 Carrier Pipe: The carrier pipe shall be as specified in the applicable specification Section 33 11 00 for Piping General and Section 33 11 04 for Detail Specifications High Density Polyethylene Pipe.
- 2.1.2 Casing Pipe: Casing pipe shall be steel pipe with a minimum yield strength of 35,000 psi. Joints shall be welded and leak proof. Casing wall thickness shall be 0.375 inches minimum. The outside of casing shall be coated with Wohl coating DD-2 or approved equal.
- 2.1.3 Casing Seals: Pull on end seals shall be made of synthetic rubber and have a minimum thickness of 1/8 inch.
- 2.1.4 Casing Spacers: Casing spacers shall be made from 14 gauge, 304 stainless steel. PVC extrusion shall line the interior of the spacer to prevent slippage. Risers shall be 10 gauge, 304 stainless steel welded to the spacer and reinforced if over 6 inches in height. Position spacers such that interior pipe is centered within the casing pipe.
- 2.1.5 Support Bands: ½-inch wide by 0.02 inch thick, 304 stainless steel.

## **3.0 EXECUTION**

### **3.1 PREPARATION**

- 3.1.1 The Contractor shall be responsible for his means and methods of jack and bore construction and shall ensure the safety of the work, the Contractor's employees, the public, and adjacent property, whether public or private.
- 3.1.2 The Contractor shall be responsible for anticipating the portions of the drilled excavation that will be below the groundwater table.
- 3.1.3 The Contractor shall be responsible for complying with all local, state, and federal laws, rules, and regulations at all times to prevent pollution of the air, ground, and water.

### **3.2 INSTALLATION**

#### **3.2.1 EQUIPMENT**

- 3.2.1.1 The Contractor shall ensure that appropriate equipment is provided to facilitate the installation of the jack and bore operation.
- 3.2.1.2 Diesel, electrical, or air-powered equipment will be acceptable, subject to applicable federal and state regulations.
- 3.2.1.3 The Contractor shall employ equipment that will be capable of handling the various anticipated ground conditions. In addition, the equipment shall be capable of minimizing loss of ground ahead of and around the machine and providing satisfactory support of the excavated face at all times.
- 3.2.1.4 The Contractor shall provide adequate secondary containment for any and all portable storage tanks.

#### **3.2.2 CONTROL OF THE TUNNEL LINE AND GRADE**

- 3.2.2.1 The Contractor shall establish and be fully responsible for the accuracy of his own control for the construction of the entire project, including structures, tunnel line, and grade.

- 3.2.2.2 The Contractor shall establish control points sufficiently far from the jack and bore operation not to be affected by construction operations.
- 3.2.2.3 The Contractor shall maintain daily records of alignment and grade and shall submit three copies of these records to the Engineer. However, the Contractor remains fully responsible for the accuracy of his work and the correction of it, as required.
- 3.2.3 CASING INSTALLATION
- 3.2.3.1 Dry Boring: The casing pipe shall be installed by the dry bore method.
- 3.2.3.2 Water bearing sand and mucky soils will be well pointed as necessary prior to commencing the bore.
- 3.2.3.2.1 Where such effort is necessary, the cost for groundwater control during the course of the jack and bore installation shall be included in the unit contract price for the jack and bore.
- 3.2.3.2.2 Dewatering required during the course of the project to lower water table, to remove standing water, surface drainage seepage, or to protect ongoing work against rising waters shall be considered incidental to the work being performed.
- 3.2.3.3 The boring operation shall be progressed on a 24-hour basis without stoppage (except for adding lengths of pipe) until the leading edge of the pipe has reached the receiving pit.
- 3.2.3.4 The over cut by the cutting head shall not exceed the outside diameter of the pipe by more than ½ inch. If voids should develop or if the bored hole diameter is greater than the outside diameter of the pipe (plus coating) by more than approximately 1 inch, grouting or other methods approved by the engineer, shall be employed to fill such voids.
- 3.2.3.5 The front of the pipe shall be provided with mechanical arrangement or devices that will positively prevent the auger from leading the pipe so that no unsupported excavation is ahead of the pipe. The auger and cutting head arrangement shall be removable from within the pipe in the event an obstruction is encountered.
- 3.2.3.6 Care should be exercised at all times to keep the auger properly positioned within the encasement pipe and to maintain sufficient forward pressure upon the encasement pipe to quickly run through any pockets of loose soil. The face of the cutting head shall be arranged to provide a reasonable obstruction to the free flow of soft or poor material.
- 3.2.3.7 The Contractor shall provide a system to indicate the amount of cuttings removed by the jack and bore operation for comparison to the volume calculated from diameter of the bore together with the distance the auger has traveled. Excessive amounts of cuttings removed from the bore may indicate caving or spalling of the bore wall and the bore shall be stopped until a method for completing the bore acceptable to the Engineer has been agreed upon.
- 3.2.4 CARRIER PIPE INSTALLATION
- 3.2.4.1 The first length and each successive length of carrier pipe shall be installed by using stainless steel spacers to guide the carrier pipe into the casing. One (1) spacer with four (4) risers shall be used - two (2) for the bottom and two (2) on top to prevent sag or movement of the interior pipe.
- 3.2.4.2 After completion of installation and line testing, the casing ends shall be sealed using treated synthetic rubber seals.
- 3.2.5 All cased crossings shall be marked with signs in accordance with the details shown on the drawings.

3.3 CLEANING

3.3.1 Within 48 hours of completing installation of the boring product, the Contractor shall clean the work site of all excess spoils. Take responsibility for the removal and final disposition of excess spoils. Ensure that the work site is restored to a pre-construction condition or as identified on the plans.

3.4 PROTECTION

3.4.1 Damage Restoration: The Contractor shall take responsibility for restoration for any damage caused by heaving, settlement, and separation of pavement from the jack and bore operation at no cost to the Owner.

3.4.2 Remediation Plans: When a need for remediation arises and when required by the Engineer, the Contractor shall provide detailed plans which show how damage to any infrastructure will be remedied. These details will become part of the As-Built Plans Package. Remediation Plans must follow the same guidelines for development and presentation as the As-Built Plans. When remediation plans are required, they must be approved by the Engineer before any work proceeds.

3.4.3 Failed Bore Path: If conditions warrant removal of any materials installed in a failed bore path, as determined by the Engineer. The Contractor shall promptly fill all voids by injecting all taken out of service products that have any annular space with excavatable flowable fill, at no cost to the Owner.

\*\*\* END OF SECTION \*\*\*

# SECTION 33 11 00 PIPING – GENERAL

---

## 1.0 **GENERAL**

1.1 This section covers the work necessary to furnish and install, complete, the piping specified herein, and as further specified in the Detail Piping Specifications hereinafter.

### 1.2 RELATED SECTIONS

Section C-700	General Conditions
Section 31 23 33	Excavation, Backfill & Compaction for Underground Piping
Section 33 11 01	Detail Piping Specification Polyvinyl Chloride (PVC) Pipe and Fittings
Section 33 11 02	Detail Piping Specification Ductile Iron Pipe and Fittings
Section 33 11 03	Detail Piping Specification Polyvinyl Chloride (PVC) Pipe and Fittings for Gravity Service
Section 33 11 04	Detail Piping Specification HDPE Pipe

### 1.3 MEASUREMENT AND PAYMENT

Payment for work in this section shall be included in the unit price / lump sum price as outlined in the Bid. Bid price shall include all cost of labor, materials and incidentals complete.

### 1.4 REFERENCES

The publications listed below form part of this specification. Each publication shall be the latest revision and addendum in effect on the date this specification is issued for construction unless noted otherwise. Except as modified by the requirements specified herein or the details of the drawings, Work included in this specification shall conform to the applicable provisions of these publications.

AWWA C207	Steel Pipe Flanges for Waterworks Service—Sizes 4 In. Through 144 In. (100 mm Through 3,600 mm)
AWWA C509	Resilient-Seated Gate Valves for Water Supply Service
AWWA C651	Disinfecting Water Mains
AWWA M23	PVC Pipe - Design and Installation, Second Edition

MDEQ Design Guidance Section 23.7.5      Deflection Test

### 1.5 SUBMITTALS

The following shall be submitted in accordance with Section 7.16 of the General Conditions, in sufficient detail to show full compliance with the specification:

#### SD-01 Quality Control:

a. Certificates: Provide a manufacturer certificate of compliance that the materials supplied meet the requirements of these specifications.

## 2.0 **PRODUCTS**

### 2.1 MANUFACTURER'S

2.1.1 Like items of material provided hereunder shall be the end products of one manufacturer.

2.1.2 Pipe Hangers and Supports: Grinnel, Fee & Mason, Unistrut, Super Strut, or equal.

2.1.3 Pipe Hanger Isolation Shield: Pipe Shields, Inc., Insul-Shield, or equal.

2.1.4 Isolation Pads: Mason Industries, Korfund, or equal.

2.2 MATERIALS

2.2.1 Unless otherwise noted on the drawings, the piping material schedule shall be as follows:

2.2.1.1 Pressure Sewer and Potable Water: PVC per 33 11 01. Provide HDPE per 33 11 04 in areas shown on the drawings.

2.2.1.2 Buried Pressure Sewer where specified and fittings: Ductile Iron Per 33 11 02.

2.2.1.3 Buried Gravity Sewer: PVC per 33 11 03.

2.2.2 Pipe Joints for Exposed Piping:

2.2.1 Flange joints shall be used on exposed ductile iron pipe.

2.2.2 Flanges shall be used for pipe joints when specifically shown on the drawings.

2.3 Pipe Ends for Buried Pressure Piping:

2.3.1 Push-on joint restrained each way at all fittings for the lengths indicated. Joints for buried pressure pipe at pump station shall be mechanical joints, anchored by retainer glands with setscrews. Joints for the PVC force main and water mains should be push-on joints restrained for the following lengths:

<u>Fittings</u>	<u>Length of Restrained Joint Pipe (Each Way)</u>
90°	72
45°	54
22°	36

Restrain all pipe installed inside casings, whether gravity or pressure, for the entire length of the casing.

2.3.2 Within the limitations noted above, all pipe materials and joints do not necessarily have to be the same for all lines in a specific service, except that the materials and joints for any particular structure or between any two structures or for any particular buried line, shall be the same. An exception to this is where ends must be changed from grooved to flange to accommodate valves or fittings.

2.4 Restraint: PVC pipe shall be restrained by megalug as manufactured by EBBA Manufacturing Co., Series 1300 as manufactured by Uni-Flange or equal. Ductile iron pipe shall be restraint by restraining gaskets or manufacturer's standard restraining joint.

**3.0 EXECUTION**

3.1 GENERAL

3.1.1 Piping shall be supported as described hereinafter. Manufacturers; catalog figure numbers are typical of the types and quality of standard pipe supports and hangers to be employed.

3.1.2 No attempt has been made to show all required pipe supports in all locations, either on the drawings or in the details. The absence of pipe supports and details on any drawing shall not relieve the Mechanical Contractor of the responsibility for furnishing and installing them throughout.

3.1.3 The design intent is to provide sound and vibration isolation on all pumped systems. No metal-to-metal contact will be allowed between the pipe and any support bracket, hanger, or clamp.

3.1.4 All submerged piping supports, guides, and fasteners or those installed below channel and wetwell cover slabs shall be Type 316 stainless steel. Concrete anchors and anchor bolts shall be as specified in Section FABRICATED METALWORK AND CASTINGS.

3.2.15 Where piping connects to equipment, it shall be supported by a pipe support and not by the equipment.

3.1.6 Pipe support system components shall withstand the dead loads imposed by the weight of the pipes filled with water plus any insulation, and shall have a minimum safety factor of 5.

## 3.2 PREPARATION

### 3.2.1 Pipe Preparation and Handling:

3.2.1.1 Each pipe and fitting shall be carefully inspected before the exposed pipe or fitting is installed or the buried pipe or fitting is lowered into the trench. The interior and exterior protective coating shall be inspected, and all damaged areas patched in the field with material similar to the original. Clean ends of pipe thoroughly. Remove foreign matter and dirt from inside of pipe and keep clean during and after laying.

3.2.1.2 Use proper implements, tools, and facilities for the safe and proper protection of the pipe. Carefully handle pipe in such a manner as to avoid any physical damage to the pipe. Do not drop or dump pipe into trenches under any circumstances.

### 3.2.2 Preparation of Trench:

#### 3.2.2.1 Line and Grade:

3.2.2.2 Do not deviate more than 1-inch from line or 1/4-inch from grade. The grade should be measured from the invert as opposed to the top of pipe due to the likely scenario that there will be permissible variation in pipe wall thickness. Readings shall be obtained in Mean Sea Level Datum for reading deflection is not allowed for establishing or verifying grade.

3.2.2.3 Grade the bottom of the trench by hand to the line and grade to which the pipe is to be laid with proper allowance for pipe thickness and for shell cushion when specified or indicated. Remove hard spots that would prevent a uniform thickness of bedding. Before laying each section of the pipe, check the grade with a straightedge and correct any irregularities found. The trench bottom shall form a continuous and uniform bearing and support for the pipe at every point between bell holes, except that the grade may be disturbed for the removal of lifting tackle.

3.2.3 Bell (Joint) Holes: At the location of each joint, dig bell (joint) holes of ample dimensions in the bottom of the trench and at the sides where necessary to permit easy visual inspection of the entire joint.

3.2.4 Removal of Water: Provide and maintain ample means and devices at all times to remove and dispose of all water entering the trench during the process of pipe laying. The trench shall be kept dry until the pipe laying and jointing are completed.

3.2.5 Prevent Trench Water and Animals from Entering Pipe: When the pipe laying is not in progress, including the noon hours, the open ends of pipe shall be closed, and no trench water, animals, or foreign material shall be permitted to enter the pipe.

3.2.6 Pipe Cover: Minimum pipe cover shall be 3 feet unless otherwise indicated.

## 3.3 PIPE SUPPORTS

3.3.1 Unless detailed otherwise on the drawings, pedestal pipe supports shall be adjustable, with stanchion, saddle, and anchoring flange as shown, Grinnel Figure 264 or 259, or Fee & Mason Figure 291 or 259. Provide neoprene waffle isolation pad under anchoring flanges adjacent to equipment or where otherwise required to provide vibration isolation. Pads shall be Mason Industries, Inc., Type W or Korfund Type Korpad.

3.3.2 Vertical piping hangers and supports shall be channel and pipe straps manufactured by Unistrut or Super Strut.

3.3.3 Piping supports for vertical piping passing through floors shall be galvanized steel riser clamps, Grinnel Figure 261 or Fee & Mason Figure 241.

3.3.4 All piping shall be supported in a manner which will prevent undue stress on any valve, fitting, or piece of equipment. In addition, pipe support shall be provided at changes in directions or elevation, adjacent to flexible couplings, and where otherwise shown. Pipe supports and hangers shall not be installed in equipment access areas.

### 3.4 SUPPORT SPACING

3.4.1 Unless otherwise noted on the drawings, pipe support spacing for steel or ductile iron pipe shall be as follows:

<u>Pipe Size</u>	<u>Max. Support Spacing</u>
1-inch & smaller	6 feet
1-1/4-inch thru 2-inch	8 feet
3-inch thru 4-inch	10 feet
6-inch thru 8-inch	12 feet
10-inch thru 12-inch	14 feet
14-inch thru 16-inch	16 feet
18-inch	16 feet
20-inch thru 24-inch	18 feet

3.4.2 Support spacing for plastic piping shall be as recommended by the manufacturer for the fluid temperature in the pipe.

3.4.3 Joint for Dissimilar Pipe: Joints between dissimilar buried pipe shall be made with flexible mechanical compression joint coupling with No. 305 stainless steel bands as manufactured by Joints, Inc. (Calder) of Gardena, CA; Fernco Joint Sealer Co. of Ferndale, MI; or equal with a concrete closure collar as directed by the Engineer.

3.4.5 Slab, Floor, Wall and Roof Penetrations and Closures: All piping penetrations of slabs, floors, walls, and roof shall be ductile iron wall pipes with integrally cast seep rings, unless otherwise noted on the drawings. It shall be the Contractor's responsibility to verify the size and location of all building and structure penetrations prior to pouring concrete.

### 3.5 WALL PIPES

3.5.1 Provide wall pipes of the proper diameter and with ends as shown on the drawings for connection to adjacent pipes where they pass through concrete walls, floors, slabs or roofs that are to be watertight. Wall pipes shall be of a thickness equal to or greater than the remainder of the pipe in the line, and shall comply with the requirements for fittings in the applicable Detail Piping Specification.

### 3.6 PIPE SLEEVES

3.6.1 Piping passing through concrete or masonry shall be installed through galvanized steel pipe sleeves. Holes drilled with a suitable rotary drill will be considered in lieu of sleeves in existing walls.

3.6.2 All sleeves in exterior or water-bearing walls shall have a center flange for water stoppage. The annular space between pipes shall be caulked with one-part polyurethane sealant conforming to Federal Specification TT-S-00230, Type II, Class A, N/S; Mameco Vulkem 116; Sika Sikaflex IA; or equal, or sealed by a modular mechanical unit consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the pipe and wall sleeve.

### 3.7 LAY BURIED PIPE

3.7.1 All buried pipe shall be prepared as herein before specified and shall be laid on the prepared granular base and bedded to ensure uniform bearing. No pipe shall be laid in water or when, in the opinion of the Engineer, trench conditions are unsuitable. Joints shall be made as herein specified for the respective types. Take all precautions necessary to prevent uplift and floating of the pipe prior to backfilling.

- 3.7.2 Where the pipe is connected to concrete structures, the connection shall be made as shown. If the connection is not shown, make connection such that a standard pipe joint is located no more than 18 inches from the structure.
- 3.7.3 Connecting Dissimilar Pipe Materials: Connect dissimilar pipe materials by means of a flexible coupling specified under JOINTS FOR DISSIMILAR PIPE or a concrete closure collar as directed by the Engineer. Install couplings in strict accordance with the manufacturer's recommendations.
- 3.7.4 Pipe Restraint: Install the restraint in strict accordance with manufacturer's recommendations. All bolts shall be sheared utilizing a torque wrench and the torque required to shear the bolts shall be recorded.

3.8 FIELD QUALITY CONTROL

3.8.1 Testing:

3.8.1.1 Conduct final acceptance tests on buried pressure piping that is to be hydrostatically tested after the trench has been completely backfilled. The Contractor may, if field conditions permit, as determined by the Engineer, partially backfill the trench and leave the joints open for inspection and conduct an initial service leak test. The acceptance test shall not, however, be conducted until all backfilling has been completed.

3.8.2 Equipment: Furnish the following equipment for the hydrostatic tests:

<u>Amount</u>	<u>Description</u>
2	Graduated containers
2	Pressure gauges
1	Hydraulic force pump with a water meter on the discharge line with suitable hose and suction pipe as required

3.8.3 Where any section of pipe is provided with concrete thrust blocking, do not make the pressure test until at least 5 days have elapsed after the thrust blocking is installed. If high-early cement is used for thrust blocking, the time may be reduced to 2 days. When testing cement-mortar lining piping, slowly fill the section of pipe to be tested with water and allow standing for 24 hours under slight pressure to allow the cement-mortar lining to absorb water.

3.8.3.1 Expel all air from the piping system prior to testing and apply and maintain the specified test pressure by means of the hydraulic force pump.

3.8.4 Hydrostatic Pressure and Leakage Tests:

3.8.4.1 All newly installed pipelines and appurtenances shall be tested by a hydrostatic pressure test conducted at a minimum of 150 psig, or static pressure plus 50% whichever is greater.

3.8.4.2 After the pipelines or isolated sections of the pipeline have been filled with water, the pressure shall be increased to the test pressure by means of a hydraulic force pump. The leakage test shall be in accordance with AWWA M23.

3.8.4.3 The CONTRACTOR shall furnish all necessary equipment, material, make all taps in pipe and provide all labor for conducting the tests.

3.8.4.4 The duration of the hydrostatic leakage test shall be two (2) hours or as specified by the Engineer.

3.8.4.5 The source of water for the pump suction shall be potable water from the City's distribution system. The vessel used must be approved by the Engineer.

3.8.4.6 All interior valves including valves on fire hydrants and other appurtenances shall be open during all tests.

3.8.4.7 The maximum leakage per hour for ductile iron and P.V.C. pipe shall be as calculated from the following formula (All rubber gasket or O-ring joints):

$$\frac{L = ND \sqrt{P}}{7400}$$

- L = allowable leakage, (gallons per hour)
- N = number of joints
- D = nominal diameter of pipe, (inches)
- P = average test pressure during test, (psig)

- 3.8.4.8 After the specified test pressure has been applied the entire pipeline shall be checked in the presence of the Engineer's representative giving particular attention to that part of the pipeline and those appurtenances that are exposed.
- 3.8.4.9 After the CONTRACTOR has taken the necessary action to repair or replace any part of the pipeline or appurtenances where leaks were apparent or if no leaks were apparent, the water lines shall be subjected to a leakage test at the pressure specified with a meter inserted in the test pump discharge line.
- 3.8.4.10 If any test of pipe laid discloses leakage greater than the allowable leakage as calculated from above formula or table, the CONTRACTOR shall, at his expense, locate the leak or leaks and perform whatever work and/or replace whatever material that is require din order to remedy the defect and stop the leak. All corrective work must be approved by the Engineer.

3.8.5 Air Testing of Gravity Sewer Lines

3.8.5.1 The CONTRACTOR shall perform the testing of manhole construction, pipe materials and/or other materials incorporated into the construction of the sanitary sewer system to determine leakage and water tightness. Testing is to be supervised by the Engineer.

3.8.5.2 All gravity sewer lines shall be tested in accordance with the following procedures:

- (a) Plug all pipe outlets with suitable test plugs. Brace each plug securely.
- (b) Pipe air supply to the pipeline to be tested in such a manner that the air supply may be shut off, pressure observed and air pressure released from the pipe without workmen entering the manhole.
- (c) Add air slowly to the portion of pipe under test until the internal pressure of the lien is raised to approximately 4 psig but less than 5 psig.
- (d) Shut the air supply off and allow at least two minutes for the air pressure to stabilize.
- (e) When the pressure has been bled down to 3 ½ psig and stabilized, start the test.
- (f) If the pipe section does not drop below 3.0 psig in the allotted time the section passes the test.

3.8.5.3 Gravity Sewer Air Testing Time Requirements

Minimum Time Requirements for 0.5 PSIG  
 Pressure drop from 3.5 PSIG to 3.00 PSIG  
 (Not less than shown between manholes)

<u>Pipe Size</u>	<u>Time</u>
8" .....	5.0 minutes
10" .....	6.5 minutes
12" .....	7.5 minutes
15" .....	9.5 minutes
18" .....	11.5 minutes
24" .....	13.5 minutes

3.8.6 Testing Safety Precautions

3.8.6.1 The low-pressure air test may be dangerous to personnel if, through lack of understanding or carelessness, a line is over pressurized or plugs are installed improperly. It is extremely important that the various plugs be installed so as to prevent the sudden expulsion of a poorly inflated plug. As an example of the hazard, a force of 250 pounds is exerted on an 8" plug by an internal pressure of 5 psi. Observe the following safety precautions:

3.8.6.2 No person shall be allowed in the manholes during the test or when a plugged pipe is under pressure.

3.8.6.3 Gauges, air piping manifolds and valves shall be located at the top of the ground. Install and brace all plugs securely.

3.8.7 Ground Water Elevation

3.8.7.1 If the pipeline to be tested is below the ground water level, the starting test pressure shall be increased by 0.43 psi for each foot the groundwater level is above the invert of the sewer pipe. In no case shall the starting test pressure exceed 9.0 psig.

3.8.8 Test Equipment

3.8.8.1 All necessary equipment to perform the air test in accordance with this specification shall be provided by the CONTRACTOR. The test gauge shall have incremental division of 0.10 psig.

3.8.9 Deflection Test: Per MDEQ Design Guidance Section 23.7.5 using a mandrel.

3.8.9.1 Deflection tests shall be performed on all flexible pipe. The test shall be conducted after the final backfill has been in place at least 30 days.

3.8.9.2 No pipe shall exceed a deflection of 5%.

3.8.9.3 The mandrel (go/no-go) device shall be cylindrical in shape and constructed with either 9 or 16 evenly spaced arms or prongs. Mandrels with fewer arms will be rejected as not sufficiently accurate. The contact length of the mandrel's arms shall equal or exceed the nominal inside diameter of the sewer to be inspected. Critical mandrel dimensions shall carry a tolerance of plus or minimum 0.01". The mandrel and all necessary equipment for the mandrel test shall be provided by the CONTRACTOR. No hand made mandrel devices shall be used for testing.

3.8.9.4 The mandrel shall be hand-pulled by the CONTRACTOR through all flexible pipe sewer lines no earlier than 30 days after the trench has been completely backfilled. Any sections of the sewer not passing the mandrel shall be uncovered and the CONTRACTOR shall re-bed, re-round or replace the sewer to the satisfaction of the Engineer. Any repaired section shall be re-tested.

3.8.9.5 The outside diameter of the mandrel shall be set according to the following table:

<u>NOMINAL DIAMETER (IN) MANDREL O.D. (IN)</u>	
8" .....	7.28"
10" .....	9.08"
12" .....	10.79"
15" .....	13.20"
18" .....	16.12"

3.8.10 Manhole Vacuum Testing

3.8.10.1 The manhole vacuum test shall be performed with suitable apparatus made for such purpose and shall draw a vacuum of 10" of mercury (Hg). The test shall pass if the vacuum remains at 10" of mercury (Hg) or drops to not less than 9" of mercury (Hg) in one minute. Vacuum test will be performed by construction CONTRACTOR. Test shall be witnessed and documented by the Engineer. If, after three (3) attempts to perform a satisfactory vacuum test have failed, the Engineer may require that the manhole be removed and replaced/poured.

3.9 ACCEPTANCE OF INSTALLATION

3.9.1 No gravity sewer or manhole will be accepted that does not comply with the minimum requirements of tests described within these specifications.

3.10 CLEANING

3.10.1 Interim Cleaning: Care shall be exercised during fabrication to prevent the accumulation of weld rod, weld spatter, pipe cuttings and filings, gravel, cleaning rags, etc. within piping sections. All piping shall be examined

to assure removal of these and other foreign objects prior to assembly. Shop cleaning may employ any conventional commercial cleaning method if it does not corrode, deform, swell, or otherwise alter the physical properties of the material being cleaned.

3.10.2 Final Cleaning: Following assembly and testing and prior to final acceptance, all pipelines installed under this section shall be flushed with water and all accumulated construction debris and other foreign matter removed. Flushing velocities shall be a minimum of 2.5 feet per second.

3.11 DISINFECTION

3.11.1 Potable water pipelines shall be disinfected before placing in service. Disinfecting procedures shall conform to AWWA C651, as hereinafter modified or expanded.

3.11.2 Flushing: Before disinfecting, flush all foreign matter from the pipeline. The contractor shall provide hoses, temporary pipes, ditches, etc. as required to dispose of flushing water without damage to adjacent properties. Flushing velocities shall be at least 2.5 fps. For larger diameter pipe where it is impractical or impossible to flush the pipe at 2.5 fps velocity, clean the pipeline in place from the inside by brushing and sweeping, then flush the line at a lower velocity.

3.11.3 Disinfecting Mixture:

3.11.3.1 Disinfecting mixture shall be a chlorine-water solution having a free chlorine residual of 40 to 50 ppm. The disinfecting mixture shall be prepared by injecting: (1) a liquid chlorine gas-water mixture; (2) dry chlorine gas; or (3) a calcium or sodium hypochlorite and water mixture into the pipeline at a measured rate while fresh water is allowed to flow through the pipeline at a measured rate so that the combined mixture of fresh water and chlorine solution or gas is of the specified strength.

3.11.3.2 The liquid chlorine gas-water mixture shall be applied by means of a standard commercial solution feed chlorinating device. Dry chlorine gas shall be fed through proper devices for regulating the rate of flow and providing effective diffusion of the gas into the water within the pipe being treated. Chlorinating devices for feeding solutions of the chlorine gas or the gas itself must provide means for preventing the backflow of water into the chlorine cylinder.

3.11.3.3 If the calcium hypochlorite procedure is used, first mix the dry powder with water to make a thick past, then thin to approximately a 1 percent solution (10,000 ppm chlorine). If the sodium hypochlorite procedure is used, dilute the liquid with water to obtain a 1 percent solution. The following proportions of hypochlorite to water will be required:

<u>Product</u>	<u>Quantity</u>	<u>Water</u>
Calcium Hypochlorite (1) (65-70 percent C1)	1 lb.	7.5 gal.
Sodium Hypochlorite (2) (5.25 percent C1)	1 gal.	4.25 gal.

(1) Comparable to commercial products known as HTH, Perchloron, and Pittchlor.

(2) Known as liquid laundry bleach, Clorox, Purex, etc.

3.11.3.4 Point of Application: Inject the chlorine mixture into the pipeline to be treated at the beginning of the line through a corporation stop or suitable tap in the top of the pipeline. Clean water from the existing system or another source shall be controlled so as to flow slowly into the newly installed piping during the application of chlorine. The rate of chlorine mixture flow shall be in such proportion to the rate of water entering the pipe that the combined mixture shall contain 40 to 50 ppm of free available chlorine. Valves shall be manipulated so that the strong chlorine solution in the line being treated will not flow back into the line supplying the water. Use check valves if necessary.

3.11.4 Retention Period:

- 3.11.4.1 Treated water shall be retained in the pipeline long enough to destroy all nonspore-forming bacteria. With proper flushing and the specified solution strength, 24 hours is adequate. At the end of the retention period, the disinfecting mixture shall have a strength of at least 10 ppm of chlorine.
- 3.11.4.2 Operate all valves, hydrants, and other appurtenances during disinfection to assure that the disinfecting mixture is dispersed into all parts of line, including dead ends, new services, and similar areas that otherwise may not receive the disinfecting solutions.
- 3.11.4.3 Do not place concentrated quantities of commercial disinfectants in the line before it is filled with water.
- 3.11.4.4 After chlorination, flush the water from the permanent source of supply until the water through the line is equal chemically and bacteriologically to the permanent source of supply.
- 3.11.4.5 Disposal of Disinfecting Water: Dispose of disinfecting water in an acceptable manner that will protect the public and publicly used receiving waters from harmful or toxic concentrations of chlorine. Do not allow disinfecting water to flow into a waterway without adequate dilution or other satisfactory method of reducing chlorine concentrations to a safe level.
- 3.11.4.6 After completion of the disinfecting of water distribution, the contractor shall arrange for at least two consecutive samples to be collected by the Mississippi State Department of Health, consulting engineer or owner for bacteriological examination. If the water in the line is indeed disinfected, the chlorine concentration in the water will be minuscule. Two consecutive samples with no coliform bacteria per 100 ml and no confluent growth indicated shall constitute a satisfactory disinfected system when analyzed by the Mississippi Department of Health Laboratory or a laboratory certified by the Mississippi State Department of Health. The contractor will be responsible for the cost of the test.

### 3.12 CLEARANCE BETWEEN SEWER AND WATER LINES

- 3.12.1 The clearance between water lines and sewer lines shall not be closer horizontally than ten feet.
- 3.12.2 A minimum vertical separation of 18 inches shall be maintained between the water and sewer mains with water mains always above sewer mains, unless otherwise directed by the Project Engineer. Where it is necessary for waterlines and sewer lines to cross, both the waterlines and sewer lines shall be constructed of mechanical joint cast iron or ductile iron pipe for a distance of ten feet on each side of the crossing with no joint located within eight feet of the crossing; or the sewer line shall be encased in concrete with a minimum of four inch thickness at the bells at ten feet on either side of the crossing.

\*\*\* END OF SECTION \*\*\*



**SECTION 33 11 01**  
**DETAIL PIPING SPECIFICATION**  
**POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS**

---

**1.0 GENERAL**

1.1 The Work in this Section shall include furnishing all materials, equipment, and labor necessary for installation of the piping specified herein, and as further specified in the Detail Pipe Specifications hereinafter, and as specified further in Section PIPING - GENERAL.

1.2 RELATED SECTIONS

Section C-700	General Conditions
Section 33 11 00	Piping – General
Section 33 11 02	Detail Piping Specification Ductile Iron Pipe and Fittings

1.3 MEASUREMENT AND PAYMENT

Payment for Work in this Section shall be included in the unit price/lump sum price as outlined in the Bid. Bid price shall include all cost of labor, materials, and incidentals complete.

1.4 REFERENCES

The publications listed below form part of this specification. Each publication shall be the latest revision and addendum in effect on the date this specification is issued for construction unless noted otherwise. Except as modified by the requirements specified herein or the details of the Drawings, Work included in this specification shall conform to the applicable provisions of these publications.

ASTM F477      Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

1.5 SUBMITTALS

The following shall be submitted in accordance with Section 7.16 of the General Conditions, in sufficient detail to show full compliance with the specification:

SD-01 Quality Control:

a. Certificate of Compliance: Provide a manufacturer certificate of compliance that the materials supplied meet the requirements of these specifications.

**2.0 PRODUCTS**

2.1 MANUFACTURERS

2.1.1 All piping system components shall be the products of one manufacturer

2.2 MATERIALS

2.2.1 Pressure Pipe: PVC, AWWA C900, C905, DR18.

2.2.2 Fittings: Ductile iron mechanical joint with retainer glands.

2.2.3 Flanges: One piece, molded hub type flat faced flanges, 12-pound standard as specified under fittings herein before.

2.2.4 Nipples: Same as pipe, except threaded nipples shall be Schedule 80.

- 2.2.5 Gaskets: Fabricated from ethylene propylene rubber (EPR) per manufacturer's specification in conformance with ASTM F477.
- 2.2.5.1 Full-faced, 1/8-inch thick, fabricated from ethylene propylene rubber (EPR).
- 2.2.5.2 When mating flange has raised face, use flat ring gasket and provide filler gasket between OD of raised face and flange OD to protect PVC flange from bolting moment.
- 2.2.6 Bolting: Per 33 11 02.
- 2.2.7 Thread Lubricant: Teflon tape.
- 2.2.8 Identification Tape:
  - 2.2.8.1 The location of all PVC mains installed under these specifications shall be marked by the use of a continuous 2 inch wide detachable identifying tape buried in the trench above the line and a tracing wire buried in the trench taped to the pipe.
  - 2.2.8.2 The identifying tape shall be an inert, bonded layer plastic material with a metalized foil coil and shall be highly resistant to alkalis, acid or other chemical components likely to be encountered in the soils. The tape shall be brightly color to contrast with the soil and shall bear an imprint identifying the type of line located below. The tape shall be green and impressed with "Caution: Buried Sewer Line Below" or blue and impressed with "Caution: Buried Water Line Below", respectively. Identification tape shall be Terra Tape D as manufactured by Griffolyn, Inc., Houston, Texas; Magnatec as manufactured by Thor Enterprises; or equal.
  - 2.2.8.3 The tracing wire shall be copper AWG #10 coated single wire. Bring tracing wire to the surface around valve boxes and inside air relief manholes.

### **3.0 EXECUTION**

#### **3.1 INSTALLATION**

- 3.1.1 All rigid PVC pipe shall be cut, made up, and installed in accordance with the pipe manufacturer's recommendations.
- 3.1.2 Use Schedule 80 threaded nipple where necessary to connect to threaded valve or fitting.
- 3.1.3 Only strap wrenches shall be used for tightening threaded plastic joints, and care shall be taken not to overtighten these fittings. Pipe shall not be laid when the temperature is below 40 degrees F, nor above 90 degrees F when exposed to direct sunlight. Ends to be joined shall be shielded from direct sunlight prior to and during the laying operation.
- 3.1.4 Provide adequate ventilation when working with pipe joint solvent cement.
- 3.1.5 Supports and Hangers: In accordance with the manufacturer's recommendations.
- 3.1.6 Identifying Tapes and Tracing Wire: Identifying tapes shall be buried in the utility line trench directly above the installation to be identified and shall be protected with the maximum possible vertical distance between the installation and the marking tape. The tape shall be placed in the trench with printed side up and shall be essentially parallel with the finished surface. The Contractor shall take necessary precautions to ensure that the tape is not pulled, distorted, or otherwise misplaced in completing the trench backfill. The tracing wire shall be taped to the pipe on approximately 10 foot centers. The wires shall be terminated in valve boxes or at test stations on 500 foot intervals.
- 3.1.7 Thrust Restraint: Thrust restraint shall be accomplished in accordance with PIPING - GENERAL section of these specifications.

3.2 FIELD QUALITY CONTROL

3.2.1 Testing

3.2.1.1 All lines shall be hydrostatically tested at the pressures and on the test procedures as specified in Section PIPING GENERAL.

\*\*\* END OF SECTION \*\*\*



**SECTION 33 11 02**  
**DETAIL PIPING SPECIFICATION**  
**DUCTILE IRON PIPE AND FITTINGS**

---

**1.0     GENERAL**

1.1     The Work in this Section shall include furnishing all materials, equipment, and labor necessary to install ductile iron pipe and gray cast iron or ductile iron fittings specified herein, and as specified further in Section 33 11 00 Piping – General.

1.2     RELATED SECTIONS

Section C-700    General Conditions  
Section 33 11 00 Piping – General

1.3     MEASUREMENT AND PAYMENT

Payment for Work in this Section shall be included in the unit price/lump sum price as outlined in the Bid. Bid price shall include all cost of labor, materials, and incidentals complete.

1.4     REFERENCES

The publications listed below form part of this specification. Each publication shall be the latest revision and addendum in effect on the date this specification is issued for construction unless noted otherwise. Except as modified by the requirements specified herein or the details of the Drawings, Work included in this specification shall conform to the applicable provisions of these publications.

ANSI B16.1	Cast Iron Pipe Flanges and Flanged Fittings
ANSI B16.21	Nonmetallic Flat Gaskets for Pipe Flanges
ASTM A47	Standard Specification for Ferritic Malleable Iron Castings
ASTM A193	Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications
ASTM A307	Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A563	Standard Specification for Carbon and Alloy Steel Nuts
ASTM D2000	Standard Classification System for Rubber Products in Automotive Applications
AWWA C100	AWWA Standard Specifications for Cast Iron Water Pipes and Special Castings
AWWA C104/A21.4	Cement-Mortar Lining for Ductile-Iron Pipe and Fittings
AWWA C105	Polyethylene Encasement for Ductile-Iron and Gray-Iron Fittings
AWWA C110	Ductile-Iron and Gray-Iron Fittings
AWWA C111	Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
AWWA C115	Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges
AWWA C207	Steel Pipe Flanges for Waterworks Service – Sizes 4 in. through 144 in.
AWWA C210.78	AWWA Standard for Coal Tar Epoxy Coating System for the Interior and Exterior of Steel Water Pipe
AWWA C606	AWWA Standard for Grooved and Shouldered Joints

## 1.5 SUBMITTALS

The following shall be submitted in accordance with Section 7.16 of the General Conditions, in sufficient detail to show full compliance with the specification:

### SD-01 Quality Control:

- a. Certificate of Compliance: Provide a manufacturer certificate of compliance that the materials supplied meet the requirements of the specifications.

## 2.0 PRODUCTS

### 2.1 MATERIALS

#### 2.1.1 Pipe:

2.1.1.1 Water Service: Centrifugally cast, Grade 60-42-10 iron, lined and seal-coated in accordance with ANSI A21.4, 150 psi minimum working pressure. All ductile iron pipe shall be Class 52 unless otherwise indicated on the drawings.

2.1.1.2 Sewer Service: Centrifugally cast, Grade 60-42-10 iron, P-401 lined, 150 psi minimum working pressure. All ductile iron pipe shall be Class 52 unless otherwise indicated on the drawings.

#### 2.1.2 Joints:

2.1.2.1 Grooved end, flanged, mechanical joint, or push-on as specified in Section PIPING - GENERAL.

2.1.2.2 Grooved end joints shall be rigid type, radius cut grooved, conforming to AWWA C606.

2.1.3 Fittings: Gray or ductile iron, 150 psi minimum working pressure, lined and seal-coated per the services listed in 2.1.1.1 and 2.1.1.2. Where taps are shown on fittings, tapping bosses shall be provided. Field-brazed or field-welded fittings (seep rings, bosses, etc.) are not acceptable.

2.1.3.1 Grooved End           ANSI/AWWA C100, AWWA/ANSI C606, & ANSI B16.1, radius cut grooved, rigid joint, as manufactured Victaulic Company of America, Gustin Bacon, or equal

2.1.3.2 Flanged               ANSI/AWWA C110 & ANSI B16.1, faced & drilled 125-pound ANSI Standard

2.1.3.3 Mechanical Joint   ANSI/AWWA C110 & ANSI/AWWA C111

2.1.3.4 Push-on             ANSI/AWWA C110 & ANSI/AWWA C111, American Pipe, or U.S. Pipe and Foundry, or equal

2.1.3.5 Restraint Joint     Manufacturer Standard, American Pipe, U.S. Pipe and Foundry, equal; or restraining gaskets

2.1.3.6 Note: Compact fittings are acceptable in lieu of full body fittings.

#### 2.1.4 Flanges:

2.1.4.1 ANSI A21.15/AWWA C115, threaded, 250 psi working pressure ANSI 125-pound drilling.

2.1.4.2 Grooved end pipe adapter flanges shall be malleable iron, ASTM A 47, or ductile iron, ASTM A 536, Victaulic Style 31, Gustin-Bacon, or equal.

2.1.5 Couplings: Grooved end pipe couplings shall be malleable iron, ASTM A 47, or ductile iron, ASTM A 536, Victaulic Style 31, Gustin-Bacon, or equal.

#### 2.1.6 Gaskets:

- 2.1.6.1 Gaskets for grooved end joints shall be manufacturer's flush-seal type specifically designed for cast surfaces. Properties shall be as designated in ASTM D 2000 for the required service. Dimensions shall conform to AWWA C606.
- 2.1.6.2 Gaskets for mechanical or push-on joints shall be rubber, conforming to ANSI A21.11, AWWA C111.
- 2.1.6.3 Gaskets for flanged joints shall be 1/8-inch thick, cloth-inserted rubber conforming to applicable parts of ANSI B16.21 and AWWA C207. Gasket material shall be free from corrosive alkali or acid ingredients and suitable for use in sewage or potable waterlines. Gaskets shall be full-face type for 125-pound FF flanges.
- 2.1.7 Bolts:
  - 2.1.7.1 For Class 125 FF Flanges (above grade) Carbon Steel, ASTM A 307, Grade A hex head bolts and ASTM A 563, Grade A hex head nuts
  - 2.1.7.2 For Grooved End or Mechanical Joint Manufacturer's standard
  - 2.1.7.3 Buried Flanges 316 stainless steel, ASTM A 193
- 2.1.8 Lubricant: Lubricant for grooved end or mechanical joint end piping shall be manufacturer's standard.
- 2.1.9 Coatings: All pipe shall be externally coated with an approved coal tar based paint in accordance with ANSI A21.4.
- 2.1.10 Lining: All wastewater piping shall be coal tar epoxy lined in accordance with ANSI/AWWA C210.78. Polyethylene lining is prohibited.
- 2.1.11 Encasement: All buried ductile iron pipe shall be encased in polyethylene in accordance with and conforming to ASTM G-1248-68 and AWWA/ANSI C105/A21.5. Joints shall be wrapped with tape supplied by pipe manufacturer.

## 2.2 FABRICATION

- 2.2.1 Flanged pipe shall be fabricated in the shop, not in the field, and delivered to the jobsite with flanges in place and properly faced. Threaded flanges shall be individually fitted and machine tightened on matching threaded pipe by the manufacturer. Flanges shall be faced after fabrication in accordance with ANSI A21.15/AWWA C115. Flange to pipe threaded joints shall be hydrostatically shop tested to ensure joint integrity.

## 3.0 EXECUTION

### 3.1 PREPARATION

- 3.1.1 Handling Pipe: Care shall be taken not to damage the lining when handling the pipe.
- 3.1.2 Cutting Pipe: Cut pipe with milling type cutter, rolling pipe cutter, or abrasive saw cutter. Do not flame cut or squeeze cut.
- 3.1.3 Dressing Cut Ends
  - 3.1.3.1 Dress cut ends of pipe in accordance with the type of joint to be made.
  - 3.1.3.2 Dress cut ends of mechanical joint pipe to remove sharp edges or projections which may damage the rubber gasket.
  - 3.1.3.3 Dress cut ends of pipe for flexible couplings, flanged coupling adapters, and grooved end pipe couplings as recommended by the coupling or adapter manufacturer.

## 3.2 INSTALLATION

### 3.2.1 Jointing Pipe

3.2.1.1 Groove End: Installation shall be in accordance with the manufacturer's printed instructions.

3.2.1.2 Flanged: Prior to connecting flange pipe, the faces of the flanges shall be thoroughly cleaned of all oil, grease, and foreign material. The rubber gaskets shall be checked for proper fit and thoroughly cleaned. Care shall be taken to assure proper seating of the flange gasket. Bolts shall be tightened so that the pressure on the gasket is uniform. Torque-limiting wrenches shall be used to ensure uniform bearing insofar as possible. If joints leak when the hydrostatic test is applied, the gaskets shall be removed and reset and bolts retightened.

3.2.1.3 Mechanical, Push-On or Restraint Joint: Join pipe with mechanical, push-on or restraint type joints in accordance with the manufacturer's recommendations. Provide all special tools and devices, such as special jacks, chokers, and similar items required for proper installation. Lubricant for the pipe gaskets shall be furnished by the pipe manufacturer, and no substitutes will be permitted under any circumstances.

### 3.2.2 Supports and Hangers

3.2.2.1 As specified in Section 33 11 00 Piping – General.

### 3.2.3 Pipe Restraint

3.2.3.1 As specified in Section 33 11 00 Piping – General.

## 3.3 FIELD QUALITY CONTROL

### 3.3.1 Testing

3.3.1.1 All lines shall be hydrostatically tested at the pressure listed in the Piping Schedule shown on the drawings. Test procedures shall be as specified in Section 33 11 00 Piping – General.

## 3.4 PROTECTION

### 3.4.1 Corrosion Protection

3.4.1.1 As specified in Section 33 11 00 Piping – General.

\*\*\* END OF SECTION \*\*\*

**SECTION 33 11 04**  
**DETAIL PIPING SPECIFICATION**  
**HIGH DENSITY POLYETHYLENE PIPE**

---

**1.0     GENERAL**

1.1     The Work in this Section shall include furnishing all materials, equipment, and labor necessary for installation of high-density polyethylene (HDPE) pipe, complete.

1.2     **RELATED SECTIONS**

Section C-700    General Conditions  
Section 33 11 00   Piping – General

1.3     **MEASUREMENT AND PAYMENT**

Payment for Work in this Section shall be included in the unit price/lump sum price as outlined in the Bid. Bid price shall include all cost of labor, materials, and incidentals complete.

1.4     **REFERENCES**

The publications listed below form part of this specification. Each publication shall be the latest revision and addendum in effect on the date this specification is issued for construction unless noted otherwise. Except as modified by the requirements specified herein or the details of the Drawings, Work included in this specification shall conform to the applicable provisions of these publications.

ANSI/AWWA C901	POLYETHYLENE (PE) PRESSURE PIPE AND TUBING, 1/2 IN. (13 MM) THROUGH 3 IN. (76 MM), FOR WATER SERVICE
ANSI/AWWA C906	POLYETHYLENE (PE) PRESSURE PIPE AND FITTINGS, 4 IN. THROUGH 65 IN. (100 MM THROUGH 1,650 MM), FOR WATERWORKS
ASTM D638	Standard Test Method for Tensile Properties of Plastics
ASTM D790	Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
ASTM D1238	Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer
ASTM D1505	Standard Test Method for Density of Plastics by the Density-Gradient Technique
ASTM D1693	Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics
ASTM D2513	Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings
ASTM D2837	Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products
ASTM D3350	Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
ASTM F1473	Standard Test Method for Notch Tensile Test to Measure the Resistance to Slow Crack Growth of Polyethylene Pipes and Resins
ISO 13478	Thermoplastics Pipes for the Conveyance of Fluids — Determination of Resistance to Rapid Crack Propagation (RCP) — Full-Scale Test (FST)
49 CFR 192	Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards

## 1.5 SUBMITTALS

The following shall be submitted in accordance with Section 7.16 of the General Conditions, in sufficient detail to show full compliance with the specification:

### SD-01 Quality Control:

- a. Reports: The Contractor shall furnish certified lab reports from the pipe manufacturer to verify that the physical properties of the materials supplied meet these specifications.
- b. Certificate of Compliance: Provide a manufacturer certificate of compliance that the materials supplied meet the requirements of these specifications.

## 1.6 DELIVERY, STORAGE AND HANDLING

### 1.6.1 Acceptance at Site

- 1.6.1.1 Inspect each shipment of pipe and make provisions for a timely replacement of any damaged material. Damaged material shall be replaced and removed from the site.

### 1.6.2 Storage and Handling

- 1.6.2.1 Pipe stockpiled for more than 30 days shall be covered to protect it from the sun's rays. Provide for air circulation through the stockpile.

## 2.0 **PRODUCTS**

### 2.1 MANUFACTURERS

- 2.1.1 The pipe shall be Polypipe as manufactured by Polypipe Industries, Gainesville, Texas; Driscopipe as manufactured by Phillips Driscopipe, Inc., Dallas, Texas; or equal.

### 2.2 MATERIALS

- 2.2.1 High density polyethylene (HDPE) pipe and fittings shall be fabricated from ultra-high molecular weight high density polyethylene PE4710 material meeting all requirements of the following ASTM requirements: D1693, F1473, and D3350. HDPE Pipe to be used for potable water or sanitary sewer use shall also meet the requirements for ANSI/AWWA C901 or ANSI/AWWA C906. HDPE Pipe for use for gas distribution shall meet the requirements of ASTM D2513, NSF Gas, and DOT 49 CFR 192.

- 2.2.2 Fittings: Same as 2.2.1 above.

- 2.2.3 Joints: All pipe joints and fittings shall be joined together by Thermal Butt Fusion. Polyethylene pipe lengths, fittings and flanged connections to be used shall be of the same type, grade and class of polyethylene compound and shall be supplied by the same raw material supplier.

- 2.2.4 Pipe Classification: The pipe shall have a nominal diameter and an average outside diameter, standard dimension ratio (SDR) and Class rating as shown on the drawings and/or bid schedule.

### 2.5 FABRICATION

#### 2.5.1 Shop/Factory/Finishing

- 2.5.1.1 Surfaces: The inside and outside surface of all material shall be free from nicks, scratches, and other surface defects and blemishes. The pipe shall be homogeneous throughout, free of any bubbles, voids, or inclusions.

- 2.5.1.2 Jointing Areas: The jointing areas of each length of pipe shall be free from dents and gouges.

2.6 SOURCE QUALITY CONTROL

2.6.1 Testing

2.6.1.1 HDPE Pipe

<u>Property</u>	<u>Standard</u>	<u>Value</u>
Material Designation	ASTM D2513	PE4710
Cell Class	ASTM D3350	445574C
Density [4]	ASTM D1505	0.961 g/cm <sup>3</sup> (black); > 0.947 (colored)
Melt Index [4]	ASTM D1238	0.08 g/ 10 min.
Flexural Modulus [5]	ASTM 790	>120,000 psi
Tensile Strength [5]	ASTM D638 Type IV	>3,500 psi
SCG (PENT) [7]	ASTM F1473	>2000 hours
HDB at 73° F (23°C) [4]	ASTM D2837	1,600 psi
Color, UV Stabilizer [C] [E]	ASTM D3350	Black Color
RCP <sup>1</sup> , Full Scale, at 32°F (0°C)	ISO 13478	>667 psi (>46 bar)

3.0 EXECUTION (Not Used)

\*\*\* END OF SECTION \*\*\*



# SECTION 33 12 16

## VALVES

---

### 1.0 GENERAL

1.1 This section covers the work necessary to furnish and install, complete, the valves specified herein.

### 1.2 RELATED SECTIONS

Section C-700	General Conditions
Section 31 23 33	Excavation, Backfill & Compaction for Underground Piping
Section 33 11 01	Detail Piping Specification Polyvinyl Chloride (PVC) Pipe and Fittings
Section 33 11 02	Detail Piping Specification Ductile Iron Pipe and Fittings
Section 33 11 03	Detail Piping Specification Polyvinyl Chloride (PVC) Pipe and Fittings for Gravity Service
Section 33 11 04	Detail Piping Specification HDPE Pipe
Section 33 11 07	Detail Piping Specification for Stainless Steel Pipe

### 1.3 MEASUREMENT AND PAYMENT

Payment for work in this section shall be included in the unit price / lump sum price as outlined in the Bid. Bid price shall include all cost of labor, materials and incidentals complete.

### 1.4 REFERENCES

The publications listed below form part of this specification. Each publication shall be the latest revision and addendum in effect on the date this specification is issued for construction unless noted otherwise. Except as modified by the requirements specified herein or the details of the drawings, Work included in this specification shall conform to the applicable provisions of these publications.

AWWA C500	Gate Valves: 3-Inch Through 48-Inch For Water and Other Liquids
AWWA C501	Sluice Gate Valves
AWWA C504	Rubber-Seated Butterfly Valves.
AWWA C506	Backflow Prevention Devices: Reduced Pressure Principle and Double Check Valve Types.
AWWA C507	Ball Valves, Shaft or Trunnion-Mounted, 6-Inch Through 48-Inch, For Water Pressure up to 300 PSIG.
AWWA C508	Swing Check Valves for Ordinary Waterworks Service.
AWWA C509	Resilient-Seated Gate Valves for Water Supply Service
AWWA C520	Knife Gate Valves: 2" to 24"
AWWA C651	Disinfecting Water Mains

### 1.5 SUBMITTALS

The following shall be submitted in accordance with Section 7.16 of the General Conditions, in sufficient detail to show full compliance with the specification:

#### SD-01 Quality Control:

a. Certificates: Provide a manufacturer certificate of compliance that the materials supplied meet the requirements of these specifications.

### 2.0 PRODUCTS

### 2.2 VALVES

#### 2.2.1 General:

1. All valves shall have manufacturer's name and working pressure cast in raised letters on valve body.
2. All manual valve operators shall turn right to close unless otherwise specified. Valves shall indicate the direction of operation.
3. Unless otherwise specified all flanged valves shall have ends conforming to ANSI B16.1, Class 125.

4. All buried valves shall be provided with adjustable three piece valve boxes and provided with extension stems, operating nuts and covers unless otherwise shown or specified.
5. All bolts, nuts and studs on or required to connect buried or submerged valves shall be stainless steel.
6. All bolts and studs embedded in concrete required to connect wall pipes to valves and appurtenances specified herein shall be stainless steel.
7. All other bolts, nuts and studs shall, unless otherwise approved, conform to ASTM A 307, Grade B cadmium plated, hot dipped galvanized or stainless steel.
8. Bolts and nuts shall have hexagon heads and nuts.
9. Gasket material and installation shall conform to manufacturer's recommendations.

2.2.2 Air Release Valves:

1. Type: Float with compound lever.
2. Size: As shown on the Drawings.
3. Construction:
  - a. Body and Cover: Semi-steel or cast iron.
  - b. Float: Stainless steel.
  - c. Seat: BUNA-N.
  - d. Lever Arms: Bronze or stainless steel.
4. Manufacturer:
  - a. APCO.
  - b. Val-Matic.
  - c. Or equal.

2.2.3 Air and Vacuum Valves:

1. Type: Float.
2. Construction:
  - a. Body, Cover and Baffle: Cast iron.
  - b. Float: Stainless steel.
  - c. Seat: Buna-N.
  - d. Other Internal Parts: Bronze.
3. Manufacturer:
  - a. APCO.
  - b. Val-Matic.
  - c. Or equal.

2.2.4 Air and Vacuum Valves for JCUA Projects:

1. Type: Float
2. Construction:
  - a. Reinforced nylon body with stainless steel disc, ball valve, float, and spring
3. Manufacturer:
  - a. ARI, D-26 Model (250 psi max) or equal.

2.2.5 Vacuum Breakers:

1. Type: Pressure.
2. Construction:
  - a. Body, Seat and Bonnet: Bronze.
  - b. Check Valve and Vent Disc: Silicone rubber.
  - c. Hood: Stainless steel.
3. Components:
  - a. Two non-rising stem gate valves for shutoff.
  - b. Two test cocks.
  - c. Operation: A drop in line pressure to 1 psi or lower actuates the spring loaded disc float opening the atmospheric vent. The spring loaded check valve then closes the inlet.
4. Manufacturer:
  - a. Watts.
  - b. Or equal.

2.2.6 Backflow Preventor Assemblies: 2 inches and larger

1. Type: Reduced pressure principle.
2. Components:

- a. Two independently acting spring loaded toggle lever check valves.
- b. Automatic pressure differential relief valve.
- c. Two AWWA, non-rising stem gate valves for shutoff valves.
- d. Four test cocks.
- 3. Size and Total Pressure Loss:
  - a. 3-inch: 6.4 psi at 320 gpm.
  - b. 4-inch: 8 psi at 500 gpm.
- 4. Construction:
  - a. Body and Cover: Cast Iron, ASTM 126.
  - b. Main Valve Trim: Bronze, ASTM B-61.
  - c. Differential Relief Valve: Bronze, ASTM B-61 with Type 316 stainless steel trim.
- 5. Required Features:
  - a. Maximum Working Pressure: 150 psig.
  - b. Temperature Range: 35°F to 100°F.
  - c. Hydrostatic Test Pressure: 300 psig.
  - d. End Connections: Flanged, conforming to ANSI B16.1, Class 125.
- 6. Manufacturer:
  - a. CLA-VAL Co.
  - b. Or equal.

2.2.7 Ball Valves:

- 1. Type: Standard circular port ball.
- 2. Construction:
  - a. Body and Ball: Bronze.
  - b. Stem: Bronze or composition alloy.
  - c. Seat, Stem Seal and Body Seal: TFE.
  - d. End Connections: Threaded unless otherwise shown.
- 3. Manufacturer:
  - a. American Valve.
  - b. Milwaukee Valve.
  - c. Or equal.

2.2.8 Butterfly Valves:

- 1. Standard: AWWA C504, certified.
- 2. Body Type:
  - a. Exposed Valves: Short body unless otherwise shown.
  - b. Buried Valves: End type as indicated in Valve Schedule.
- 3. Class: As specified in Valve Schedule.
- 4. Construction:
  - a. Body: Cast iron.
  - b. Disc:
    - (1) 20-inch and Smaller: Cast iron with Ni-Chrome or stainless steel edge.
    - (2) 24-inch and larger: Cast iron with Ni-Chrome or stainless steel edge.
  - c. Shaft: 18-8 Type 304 stainless steel.
  - d. Seats: Natural or synthetic rubber.
- 5. Design:
  - a. Valves and their operators shall be designed for a flow velocity meeting their class requirements.
  - b. All valves and operators shall be designed for bi-directional flow.
  - c. Valves 30-inch and larger shall have flow through type vane.
- 6. Manufacturer:
  - a. Val-matic.
  - b. Dezurik.
  - c. Or equal.

2.2.9 Check Valve:

- 1. Swing Check Valve.
  - a. Type: Counterweighted swing check.
  - b. Construction:

- (1) Body, cover, Disc and Levers: Cast iron.
      - (2) Counterweight Arm: Cast iron or manufacturer standard.
      - (3) Shaft: 18-8 Stainless steel.
      - (4) Body Seat: Bronze.
      - (5) Seat Ring: Rubber.
      - (6) Shaft Packing Gland: Compression type.
    - c. Manufacturer:
      - (1) Clow Valve Company.
      - (2) Mueller.
      - (3) Or equal.
  - 2. Double Door Disc:
    - a. Construction:
      - (1) Body: Cast iron
      - (2) Valve Plate, Clamp Plate, Hinge Post, and Fasteners: Aluminum.
      - (3) Elastomer Closing and Sealing Component: Buna-N.
      - (4) End Connections: Flanged, ANSI B16-1 Class 125 unless otherwise specified in the schedule.
    - b. Required Features:
      - (1) Elastomer closes and seals valves without using springs or seats.
      - (2) Valve travel: 45 degrees.
      - (3) Valve and seat rated for air service up to 225°F.
    - c. Manufacturer:
      - (1) Dezurik.
      - (2) Or equal.
- 2.2.10 Corporation Stops:
- 1. Standard: AWWA C800
  - 2. Material: Red brass: 85-5-5-5.
  - 3. Location: As shown on the drawings or otherwise specified.
  - 4. End Connections: Threaded or solder joint.
  - 5. Manufacturer:
    - a. Mueller.
    - b. Ford Meter Box Company, Inc.
    - c. Or equal.
- 2.2.11 Curb Stops:
- 1. Standard: AWWA C800.
  - 2. Material: Red brass: 85-5-5-5.
  - 3. Location: As shown on the drawings or otherwise specified.
  - 4. End Connections: Threaded or solder joint.
  - 5. Manufacturer:
    - a. Mueller Co.
    - b. Ford Meter Box Company, Inc.
- 2.2.12 Flap Valves:
- 1. Type: Heavy duty, permanently lubricated with double pivot point hinge arm design.
  - 2. Construction:
    - a. Flap Gate and Frame: ASTM 126, Class B.
    - b. Seat: Neoprene bonded in machined grooves in body.
    - c. Hinge Pins: Stainless steel, Type 304.
  - 3. Manufacturer:
    - a. Rodney Hunt.
    - b. Dresser.
    - c. Or equal.
- 2.2.13 Gate Valve:
- 1. 2-1/2-inches Diameter and Smaller:
    - a. Type: Rising stem with solid wedge and union bonnet.
    - b. Construction:
      - (1) Body: Bronze

- (2) Packing: TFE impregnated asbestos
    - (3) Trim: Bronze
  - c. End Connections: Threaded or solder joint
  - d. Manufacturer:
    - (1) Crane/Jenkins
    - (2) Watts
    - (3) Or equal
  
- 2. 3-inches Diameter and Larger:
  - a. Standard: AWWA C509.
  - b. Type: Non-Rising Stem and resilient seat.
  - c. Construction:
    - (1) Body and Bonnet: Cast iron or ductile iron.
    - (2) Stem and Stem Nut: bronze.
    - (3) Packing: O-ring.
  - d. End Connections:
    - (1) Exposed Valves: Flanged, conforming to ANSI B16.1, Class 125, unless otherwise shown.
    - (2) Buried Valves: Mechanical joint, conforming to ANSI B21.11.
  - e. Manufacturer:
    - (1) U. S. Pipe.
    - (2) American Flow Control.
    - (3) Or equal.
  
- 2.2.14 Hose Bibbs:
  - 1. Service: Plant water.
  - 2. Type: solid wedge, non-rising stem with cap and chain.
  - 3. Location and Size: As shown on the Drawings or otherwise specified.
  - 4. End Connections: Provide quick connect adapter with female NPT as specified.
  - 5. Construction:
    - a. Body and Trim: Bronze.
    - b. Wedge: Bronze.
    - c. Cap and Chain: Bronze.
  - 6. Manufacturer and Model:
    - a. Crane.
    - b. Or equal.
  
- 2.2.15 Pressure Regulating Valve:
  - 1. Type: Single seated, balanced type, globe body:
    - a. Construction:
      - (1) Body: Bronze.
      - (2) Valve Stem: Bronze or stainless steel.
      - (3) Seating Surface: Rubber.
    - b. Required Features:
      - (1) Inlet Pressure Rating: 175 psig.
      - (2) Diaphragm operated, spring loaded, adjustable over a minimum range of 30 psi.
      - (3) Capable of reducing pressure without shock or jar.
    - c. Size: As shown on the Drawings.
    - d. Manufacturer:
      - (1) Cla-Val.
      - (2) Watts.
      - (3) Or equal.
  
- 2.2.16 Solenoid Valves:
  - 1. Type: 2-way, normally closed.
  - 2. Construction:
    - a. Body: Brass.
    - b. Seals and Disc: Buna-N.
    - c. Solenoid:
      - (1) Parts in Contact with Field: Stainless steel.

- (2) Enclosure: General purpose NEMA 1.
- (3) Coil Insulation: Continuous duty molded Class A, unless otherwise specified.
- (4) Electrical: 120 VAC, single phase, 60 Hz.
- 3. Manufacturer:
  - a. Automatic Switch Co. (ASCO).
  - b. Or equal.

2.2.17 Yard Hydrant:

- 1. Type: Compression, non-freezing.
- 2. Connection:
  - a. 2 inch IPS inlet thread, universal type.
  - b. 1-1/2" outlet thread nozzle with quick connect 1-1/2" adaptor with female NPT as specified in this section.
- 3. Materials:
  - a. Head: Bronze.
  - b. Casing: Steel.
  - c. Supply Pipe: Galvanized steel.
- 4. Field serviceable without digging up hydrant.
- 5. Manufacturer:
  - a. Merrill
  - b. Murdock, Inc.
  - b. Or equal.

2.2.18 Strainers: Type: Y-pattern with removable strainer.

- 1. Strainers 3-Inches and Smaller:
  - a. Construction:
    - (1) Body: Cast bronze.
    - (2) Screen: 20 mesh stainless steel.
  - b. Pressure Rating: 400 psi water service at 100°F temperature.
  - c. End Connections: Threaded.
  - d. Provide blowoff plug.
  - e. Manufacturer:
    - (1) Mueller Steam Specialties.
    - (2) Or equal.
- 2. Strainers 4-Inches and Larger:
  - a. Construction:
    - (1) Body: Iron.
    - (2) Screen: Stainless steel sheet, 1/16" perforations.
    - (3) Pressure Rating: 150 psi water service at 150°F temperature.
  - b. End Connections: Flanged.
  - c. Provide blowoff plug.
  - d. Manufacturer:
    - (1) Mueller Steam Specialties.
    - (2) Or equal.

2.2.19 Drain Cocks:

- 1. Drain cocks, 1 inch and smaller:
  - a. Construction:
    - (1) Body: 125-pound Bronze
    - (2) Valve Stem: Square w/handle
  - b. End Connections: Screwed
  - c. Manufacturer:
    - (1) Crane
    - (2) Lunkenheimer
    - (3) Or equal.

2.2.20 Gauge Cocks:

- 1. Gauge cocks:
  - a. Construction:
    - (1) Body: Bronze

- (2) Valve Stem: Tee head
- b. End Connections: Male and Female ends, rated for 125-pound SWP
- c. Manufacturer:
  - (1) Lunkeheimer
  - (2) Crane.
  - (3) Or equal.

2.2.21 Solenoid Operated Control Valve:

- 1. Type: Globe, pilot operated diaphragm valve, fully open or fully closed, drip tight, fail open.
- 2. NSF 61 Certified
- 3. Manufactured by Watts, ACV Model M113-6 or approved equal.

2.2.22 Sluice Valve:

- 1. Standard: AWWA C501
- 2. Construction:
  - a. Frame: Fabricated stainless steel
  - b. Gate: Fabricated stainless steel
  - c. Guides: Non-metallic UV resistant polyethylene.
  - d. Seal: Resilient lip seal
- 3. Manufacturer:
  - a. Wey or approved equal.

2.2.23 Knife Gate Valve:

- 1. Standard: AWWA C520
- 2. Construction:
  - a. Body: Stainless steel
  - b. Gate: Stainless steel
  - c. Seat: Buna N
  - d. Bolts, Gland, Stem, Yoke: Stainless steel
  - e. Stem nut: Bronze
  - f. Handwheel: D.I.
  - g. Packing: TFE lubricated synthetic
- 3. Manufacturer:
  - a. Townley
  - b. DeZurik
  - c. Henry Pratt
  - d. Or Equal

2.3 VALVE APPURTENANCES

2.3.1 Extension Stems, Stem Guides, Wrenches and Keys:

- 1. Extension stem shall be at least as large as the stem of the valve it operates.
- 2. Intermediate stem guide shall be installed for extensions more than 10 feet long.
- 3. Stem brackets and guides shall be made of cast iron and have fully adjustable bronzed bushed guide block. Fasten brackets to walls with approved expansion bolts.
- 4. Operating nuts about 2 inches square shall be included with extension stem.
- 5. Provide operating key or wrench of suitable length and size for each valve that is not readily accessible to direct operation.

2.3.2 Extension Bonnets: Shall be provided for all of the filter's isolation valves, filter-to-waste valves, and air scour valves. Extension shall be of adequate length to place top of bonnet as shown on the drawings.

2.3.3 Valve Boxes:

- 1. Location: Provide for all buried valves.
- 2. Construction:
  - a. Heavy pattern cast iron box.
  - b. Type: Three-piece adjustable, telescoping.

- c. Inside Diameter: 4-1/2 inches minimum.
- d. Cover: Heavy duty cast iron.
- e. Direction to Open Arrow: Cast in cover.
- 3. Provide extension stem and operating nut.
- 4. Operating nut and stuffing box enclosed by lower section which rests on blocking per detail shown on plans.

#### 2.3.4 Manual Operators:

- 1. Type: Handwheel, lever, chainwheel, chainlever or operating nut.
- 2. Location:
  - a. Handwheel or Lever: Comply with schedule 15100.
  - b. Chainwheel or Chainlever: Provide on all valves more than 6 feet 6 inches above the operating floor level or as otherwise specified in Schedule 15100.
  - c. Operating Nut: Provide on all buried valves or as otherwise specified in Schedule 15100.
- 3. General:
  - a. Conform to the requirements of AWWA C504.
  - b. Maintain valve position in any intermediate position without creep or flutter.
  - c. Designed to prevent over travel of valve at either full open or closed position.
  - d. Designed to produce required torque at a maximum input pull of 80 pounds.
- 4. Gearing:
  - a. Provide worm gear operators for all handwheel and chainwheel operated butterfly valves.
  - b. Design: Totally enclosed.
- 5. Chainwheel Operator Details:
  - a. Chainwheel: Manufacturer's standard design or sprocket wheel bolted directly to valve handwheel.
  - b. Chain:
    - (1) Material: Zinc-coated steel.
    - (2) Length and Size: As reviewed by the ENGINEER.
  - c. Chain Hold Device: Equip each operator with 1/2-inch hook bolt located to keep chain out of walking area.
- 6. Additional Butterfly Valve Operator Details:
  - a. Stop-limiting Devices: Provide for open and closed positions.
  - b. Design: Adequate to avoid damage to all components from 200 lb pull on handwheel or chainwheel operators or 300 ft-lb input torque from operating nuts.

#### 2.3.5 Motor Operators:

- 1. Electric Open/Closed Valve Actuators:
  - a. General:
    - (1) Self contained unit with drive motor and controls, reduction gearing, limit and torque switching gearing, declutching device and auxiliary handwheel;
    - (2) Torque Rating: 1.5 times maximum required torque;
    - (3) Gearing capable of opening or closing valve from one extreme to the other in not less than 30 seconds nor more than 60 seconds;
    - (4) Mechanical Stops: Internal limit stops to prevent overtravel;
    - (5) Rotation: 90 degrees reversible;
    - (6) Limit switches for valve open/closed control;
    - (7) Auxiliary Limit Switches for Remote Position Indication: 4 SPDT required -- 2 for open and 2 for closed indication;
    - (8) Adjustable torque switches to protect motor in the event of excessive torque developed during travel in either direction;
    - (9) Handwheel:
      - (a) Provide integral declutching mechanisms to disengage motor and motor gearing mechanically;
      - (b) Design so handwheel does not rotate during motor operation;
      - (c) Design to produce required torque at maximum input pull of 80 pounds.
    - (10) Enclosure: NEMA 4.
  - b. Electrical Features:
    - (1) Characteristics:
      - (a) Power Supply: 480-volt, 3-phase, 60 Hz;
      - (b) Control Power: 120 volt, single phase, 60 Hz;

- (2) Motor duty rating sufficient for one complete open-close-open or reverse cycle without exceeding motor temperature rating;
- (3) Integral reversing magnetic starter;
- (4) Circuit breaker disconnect with external operating handle;
- (5) 120 volt, single phase space heater;
- (6) Local Controls:
  - (a) Remote/local switch;
  - (b) Open and closed position indicating lights;
  - (c) Reversible, intermittent contact open-stop-closed switch;
  - (d) Mount controls on the cover of the unit.
- c. Manufacturer:
  - (1) Limitorque;
  - (2) AUMA;
  - (3) Or equal.

### 2.3.6 Modulating Valve Actuators:

- 1. General Requirements:
  - a. Comply with all of the specifications for electric open/close valve actuators and as listed below:
    - (1) Equip actuator with integral electronics for accepting a proportional 4-20 mA dc control signal and to position the valve proportional to the control signal;
    - (2) Electronics Power Source Requirements: Internally derived and regulated as required if other than 120 VAC unregulated is required;
    - (3) Equip actuator with zero and span adjustments;
    - (4) Provide actuator with a field set choice of valve positions on loss of signal;
    - (5) Provide position indicator for each actuator;
    - (6) Equip Actuator with integral electronics for output of a 4-20 mA DC position feedback signal for remote indication;
  - b. Electrical Features:
    - (1) Characteristics:
      - (a) Power Supply: 480V 3 Phase 60 Hz;
      - (b) Control power: 120V Single Phase 60 Hz;
      - (c) Control power transformer;
  - c. Manufacturer:
    - (1) Limitorque
    - (2) EIM
    - (3) Or equal

2.3.7 Tapping Sleeves: Tapping sleeves shall be all stainless steel, 18-8 Type 304, with a carbon steel flange, AWWA C207 Class D, ANSI 150lb. drilling, recessed for tapping valve, and with a full circumferential gasket. Tapping sleeves shall be JCM 462, or equal.

## 3.0 **EXECUTION**

### 3.1 Installation

- 3.1.1 Install all valves and appurtenances in accordance with manufacturer's instructions.
- 3.1.2 Install suitable corporation stops at all points shown and required where air binding of pipe lines might occur.
- 3.1.3 Install all valves so that operating handwheels or wrenches may be conveniently turned from operating floor but without interfering with access, and as approved by ENGINEER.
- 3.1.4 Unless otherwise approved install all valves plumb and level. Valves shall be installed free from distortion and strain caused by misaligned piping, equipment or other causes.
- 3.1.5 Valve boxes shall be set plumb, and centered with the bodies directly over the valves. Earth fill shall be carefully tamped around each valve box to a distance of 4 feet on all sides of the box, or to the undisturbed trench face, if less than 4 feet.

- 3.1.6 Hydrants and connecting pipe shall have at least the same depth of cover as the distributing pipe. The hydrants shall be set upon a slab of concrete not less than 4 inches thick and 15 inches square. Where restrained hydrants are not used the side of hydrant opposite the pipe connections shall be firmly blocked against the vertical face of the trench with a concrete thrust block. Not less than 1/2 cubic yard of washed gravel shall be placed around the base of the hydrant at the location of the drain holes.
- 3.2 Manufacturer's Service
  - 3.2.1 CONTRACTOR shall provide the services of a qualified factory-trained serviceman to check and approve the installation of butterfly valves, gate valves, swing check valves, and surge relief valves. He shall instruct OWNERS'S personnel in operation, care and maintenance and supervise initial operation.
- 3.3 Field Test and Adjustments
  - 3.3.1 Adjust all parts and components as required correct operation.
  - 3.3.2 Conduct functional field test of each valve in presence of ENGINEER to demonstrate that each part and all components together function correctly. All testing equipment required shall be provided.

## SECTION 33 32 22

# BYPASS PUMPING

---

### 1.0 GENERAL

1.1 The Work in this Section shall include furnishing all materials, equipment, and labor necessary for providing all temporary bypassing to perform all operations in connection with the flow of wastewater around pipe segment(s), manholes or pump stations. The purpose of bypassing is to prevent wastewater overflows and provide continuous service to all wastewater customers. The contractor shall maintain wastewater flow in the construction area in order to prevent backup and/or overflow and provide reliable wastewater service to the users of the wastewater system at all times.

### 1.2 RELATED SECTIONS

Section C-700 General Conditions of the Construction Contract

### 1.3 MEASUREMENT AND PAYMENT

1.3.1 Bypass pumping will be measured by the required pump size, length of time in hours that the bypass pump is in operation and the size and length of bypass line.

1.3.2 Payment for Work in this Section shall be included in the unit price/lump sum price as outlined in the Bid. Bid price shall include all cost of labor, materials, and incidentals complete.

### 1.4 SUBMITTALS

The following shall be submitted in accordance with Section 7.16 of the General Conditions, in sufficient detail to show full compliance with the specification:

SD-01 Pre-Construction: Prior to starting construction, Contractor shall submit the following:

- a. Bypass Plan: The contractor shall submit a comprehensive written plan to the Engineer or Owner for approval and acceptance that describes the intended bypass for the maintenance of flows during construction. The contractor shall also provide a sketch showing the location of bypass pumping equipment for each pump station or line segment(s) around which flows are being bypassed. The plan shall include any proposed tanker(s), pump(s), bypass piping, backup plan and equipment, work schedule, monitoring log for bypass pumping, monitoring plan of the bypass pumping operation and maintenance of traffic plan. The contractor shall cease bypass operations and return flows to the new and/or existing sewer when directed by the Engineer or Owner or when the work requiring bypass pumping is complete. All piping shall be designed to withstand at least twice the maximum system pressure or a minimum of 50 psi, whichever is greater. During bypassing, no wastewater shall be leaked, dumped, or spilled in or onto, any area outside of the existing wastewater system. When bypass operations are complete, all bypass piping shall be drained into the wastewater system prior to disassembly.

## 2.0 PRODUCTS

### 2.1 GENERAL

2.1.1 The contractor shall provide and maintain adequate equipment, piping, tankers and other necessary appurtenances in order to maintain continuous and reliable wastewater service in all wastewater lines as required for construction. The contractor shall have tankers, backup pump(s), piping and appurtenances ready to deploy immediately.

### **3.0 EXECUTION**

#### **3.1 GENERAL**

- 3.1.1 The contractor shall have all materials, equipment and labor necessary to complete the repair, replacement or rehabilitation on the job site prior to isolating the gravity main segment, manhole, or pump station. The contractor shall demonstrate that the pumping system is in good working order and is sufficiently sized to successfully handle required flows.

#### **3.2 TRAFFIC CONSIDERATIONS**

- 3.2.1 The contractor shall locate bypass pumping suction and discharge lines so as to not cause undue interference with the use of streets, private driveways and alleys to include the possible temporary trenching of piping at critical intersections. Ingress and egress to adjacent properties shall be maintained at all times. Ramps, steel plates or other methods shall be deployed by the contractor to facilitate traffic over surface piping. High traffic commercial properties may require alternate methods.

#### **3.3 BYPASS OPERATION**

- 3.3.1 The Engineer or Owner shall accept the bypass plan prior to implementation of the bypass. The contractor shall plug off and pump down the sewer manhole or line segment in the immediate work area and shall maintain the wastewater system so that surcharging does not occur.
- 3.3.2 Where work requires the line to be blocked beyond normal working hours and bypass pumping is being utilized, the contractor shall be responsible for monitoring the bypass operation 24 hours per day, 7 days per week.
- 3.3.3 The contractor shall ensure that no damage will be caused to private property as a result of bypass pumping operations. The contractor shall complete the work as quickly as possible and satisfactorily pass all tests, inspections and repair all deficiencies prior to discontinuing bypassing operations and returning flow to the sewer manhole or line segment.
- 3.3.4 The contractor shall immediately notify the Engineer and Owner should a sanitary sewer overflow occur and take the necessary action to clean up and disinfect the spillage to the satisfaction of the Engineer, Owner and/or other governmental agency. If sewage is spilled onto public or private property, the contractor shall wash down, clean up and disinfect the spillage to the satisfaction of utilities and/or other governmental agency. When bypassing a pump station, one back-up pump equal to the primary unit shall be required. Bypass pumps shall have a maximum rating of 55 decibels for sound attenuation.

#### **3.4 CONTRACTOR LIABILITY**

- 3.4.1 The contractor shall be responsible for all required pumping, equipment, piping and appurtenances to accomplish the bypass and for any and all damage that results directly or indirectly from the bypass pumping equipment, piping and/or appurtenances. The contractor shall also be liable for all Owner's personnel and equipment costs, penalties and fines resulting from sanitary sewer overflows. It is the intent of these specifications to require the contractor to establish adequate bypass pumping as required regardless of the flow condition.

\*\*\* END OF SECTION \*\*\*