

Hooper Water Improvement District

Project #162, 4500 West Water Line

Contract Documents

Prepared By



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**Hooper Water Improvement District
Project #162, 4500 West Water Line**

PART 1

SECTION 1.1 – INVITATION TO BID

INVITATION TO BID

Sealed or PDF Bids for the construction of the Project #162, 4500 West Water Line will be received by Hooper Water Improvement District at the District office, 5555 W 5500 S, Hooper Utah 84315 or scottc@hooperwater.net, until **2:00 PM** local time on **October 4, 2022**, at which time the Bids received will be publicly opened and read aloud.

The Project consists of: Furnish and install approximately 1/2 mile of 12-inch DR 18 C-900 PVC waterline located in UDOT right of way. Work includes crossing Davis County Drainage box culvert.

The project shall be governed by the contract documents.

Work takes place in UDOT rights-of-way, West Point City, Davis County, Utah. The successful bidder will be responsible for meeting all bonding, traffic control, encroachment permit and other requirements imposed by UDOT at no additional cost to OWNER.

Bid security shall be furnished in accordance with the Instructions to Bidders. The contract will be awarded, if it is to be awarded based on this solicitation, to the responsive, responsible bidder (please refer specifically to Article 3 in Section 1.2) submitting the lowest bid. The District reserves the right to reject any or all bids.

The Issuing Office for the Bidding Documents is: Gardner Engineering; 968 East Chambers St. Unit 5, South Ogden UT 84403; 801.476.0202; Contact: Mike Durtschi, P.E., Miked@gecivil.com. **PDF copies of the Bidding Documents may be obtained after September 8, 2022, free of charge, by sending a request to Miked@gecivil.com. A pre-bid conference will be held on Thursday, September 15, 2022. The meeting will convene at 9:00 AM at the District Office and conclude with a site drive-through. Attendance at the pre-bid conference is highly encouraged but is not mandatory.**

In accordance with Utah Code 63G-6a-112(2)(b)(iii) this Invitation is posted on the District's website.

SECTION 1.2 - INSTRUCTIONS TO BIDDERS

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.

ARTICLE 2 - Copies of Bidding Documents

- 2.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office in the number and format stated in the advertisement or invitation to bid.
- 2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 - Qualifications of Bidders

- 3.01 To demonstrate Bidder's qualifications to perform and oversee coordination of the Work, Bidder shall submit with its Bid the following information:
- A. GENERAL CONTRACTOR: Evidence of successful completion and management of at least five projects of a similar scope in the last 5 years, including contact information for the owner and engineer of said projects, one of which must be the Owner if the Bidder has worked under contract with the Owner in the last 5 years. Any and all actual or threatened legal proceedings or disputes related to such prior projects shall be disclosed in sufficient detail to allow the Owner to determine the scope and outcome of any such proceedings or disputes.
1. References will be checked. The successful bidder shall receive positive reviews from at least 80% of the references on the 5 projects provided, as related to quality of work, reasonableness of change orders, promptness, and safety procedures. **Selection will be based on value to the District, not necessarily lowest bid price.**
- B. Attachments as enumerated in Article 7 of the Bid Form.
- C. Subcontractor and Supplier qualification information; coordinate with provisions of Article 12 of these Instructions, "Subcontractors, Suppliers, and Others."
- 3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.
- 3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 - Site and Other Areas; Existing Site Conditions; Examination of Site; Owner's Safety Program; Other Work at the Site

4.01 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.
 - 1. Use of the Site and/or adjacent properties by the Contractor requires that the Contractor restore the Site and and/or adjacent properties, together with any fences or structures thereon, to a condition as close as reasonably possible to, or better than, the condition of said properties before the commencement of the Work, or as otherwise explicitly noted in the Contract Documents.
 - 2. Property either owned by the Owner or within permanent or temporary easements are as shown on the Drawings.

4.02 Existing Site Conditions

- A. Subsurface and Physical Conditions; Hazardous Environmental Conditions
 - 1. The Supplementary Conditions identify:
 - a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.
 - b. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
 - 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: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.
- C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data

furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous

4.03 Site Visit and Testing by Bidders

- A. Bidder shall conduct any desired Site visit, that may be in addition to the pre-bid meeting, if held, as stated in Section 1.1, by appointment only, during normal working hours, and shall not disturb any ongoing operations at the Site.
 - 1. Site visit appointments may be arranged by contacting the Owner at least 24 hours in advance of the desired Site visit.
- 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 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.
- D. Bidder shall 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 shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.04 Owner's Safety Program

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

4.05 Other Work at the Site

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

ARTICLE 5 - Bidder's Representations

5.01 It is the responsibility of each Bidder before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;
- B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;

- D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;
- E. consider 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 Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;
- F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;
- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and
- J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the

ARTICLE 6 - Pre-Bid Conference

- 6.01 *A pre-bid conference will be held on Thursday, September 15, 2022. The meeting will convene at 9:00 AM at the District Office and conclude with a site drive-through.*

ARTICLE 7 - Interpretations and Addenda

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all parties recorded as having received the Bidding Documents. Questions received less than two days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents.

ARTICLE 8 - Bid Security

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the

form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents or the comparable American Institute of Architects (AIA) form) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.

ARTICLE 9 - Contract Times

- 9.01 The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 - Liquidated Damages

- 10.01 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 11 - Substitute and "Or-Equal" Items

- 11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those "or-equal" or substitute materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an "or-equal" or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer at least 3 days prior to the date for receipt of Bids. Each such request shall comply with the requirements of Paragraphs 7.04 and 7.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.
- 11.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 12 - Subcontractors, Suppliers, and Others

- 12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 12.02 Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.
- 12.03 The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed to supply or provide materials or services exceeding \$5,000.00.

If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. Information submitted and review of such shall be substantially the same as that required of the General Contractor in Article 3.01 A. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent

Successful Bidder shall submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

- 12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity 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 7.06 of the General Conditions.

ARTICLE 13 - Preparation of Bid

- 13.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."
- 13.02 A Bid by a corporation shall 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 shall be shown.
- 13.03 A Bid by a partnership shall 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 shall be shown.
- 13.04 A Bid by a limited liability company shall 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 shall be shown.
- 13.05 A Bid by an individual shall show the Bidder's name and official address.
- 13.06 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.07 All names shall be printed in ink below the signatures.
- 13.08 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.09 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.10 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 - Basis of Bid

- 14.01 Lump Sum
- A. Bidders shall submit a Bid on a lump sum basis as set forth in the Bid Form.

14.05 Unit Price

- A. Bidders shall 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 15 - Submittal of Bid

- 15.01 A copy of the Bid Form (or the equivalent AIA form) is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 7 of the Bid Form.
- 15.02 A Bid shall be received no later than the date and time prescribed and at the place and in the manner indicated in the advertisement or invitation to bid.
 - A. If a hard copy is submitted, it shall be enclosed in a plainly marked package with the Project title, the name and address of Bidder, and shall 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 shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to **Hooper Water Improvement District, 5555 W 5500 S, Hooper Utah 84315.**
 - B. If a Bid is submitted as a PDF via email, the Subject Line shall include the Owner's name, the Project Name, The Bidder's name, the words, "Bid Form Attached." And include all information and forms required in Article 7 of the Bid Form. Pages of the PDF shall be consistently sized and consecutively organized so that the Owner may, if so desired by the Owner, easily print a legible and organized submittal package for review. There shall be no indication of the content of the Bid Form in the subject line or text of the email: all information relating to the content of the bid shall only be included in the attached PDF. An emailed bid shall be sent to **scottc@hooperwater.net** with a cc: to **Miked@gecivil.com**.
 - C. Acknowledgement of addenda and resulting bid submittal changes may be submitted electronically prior to Bid Opening to the Contact listed in the Invitation to Bid and will be considered valid.
- 15.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 16 - Modification and Withdrawal of Bid

- 16.01 A Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date

and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

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

ARTICLE 17 - Opening of Bids

- 17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly (or in the case of electronic submittals, a previously-printed copy will be read). 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 18 - Bids to Remain Subject to Acceptance

- 18.01 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 19 - Evaluation of Bids and Award of Contract

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. 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, then the Owner may reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.
- 19.02 If Owner awards the contract for the Work, such award shall be based on the following:
 - A. The Contract will be awarded to the responsible bidder with more than 80% of the references providing a positive review of the Bidder as related to quality of work, reasonableness of change orders, promptness, and safety procedures.
 - B. The lowest bid price of Bidders satisfying the positive review threshold given in A, above.
- 19.03 Evaluation of Bids
 - A. In evaluating Bids, Owner will consider whether or not 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. For the determination of the apparent low Bidder, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- 19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

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

ARTICLE 20 - Bonds and Insurance

- 20.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

ARTICLE 21 - Signing of Agreement

- 21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 10 days thereafter, Successful Bidder shall 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 ten days thereafter, Owner shall 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 22 - Miscellaneous Requirements

- 22.01 Status Verification: The successful bidder shall register and participate in the Status Verification System outlined in Utah Code 63G-12-302.

SECTION 1.3 - BID FORM

Hooper Water Improvement District - Project #162, 4500 West Water Line

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

Hooper Water Improvement District

5555 W 5500 S, Hooper Utah 84315

Or

scottc@hooperwater.net

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 – BIDDER’S ACKNOWLEDGEMENTS

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

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.

Addendum Date

_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent

to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

- E. 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 any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. 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.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. 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;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. "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;

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.

ARTICLE 5 – BASIS OF BID

- 5.01 Bidder will complete the Work in accordance with the Contract Documents for the following prices:

**Hooper Water Improvement District
Project #162, 4500 West Water Line**

Work Order 162 4500 West, 700 S. - 200 S. and SR 193, Cold Springs Road					
Item No.	Description	Qty	Unit	Unit Price	Item Price
M	Mobilization/Demobilization	1	LS		
1	New 12" C900 DR18 PVC waterline	2,940	LF		
2	New 1" service long sided w/ 2" sleeve	14	EA		
3	New 1" service short sided	5	EA		
3.1	New Relocate Water Meter	5	EA		
4	New 12" 45° Elbow	6	EA		
5	New 12" butterfly valve	14	EA		
6	New connect to existing 12" at 700 S, STA 3+30	1	EA		
7	New connect to existing 8" at 625 South, STA 5+22	1	EA		
8	New connect to existing 8" at 530 South, STA 14+80	1	EA		
9	New elementary school stub, STA 19+20 & 22+90	2	EA		
10	New connect to existing 4" at 200 S, STA 28+70	1	EA		
11	New connect to existing 4" at 200 S, STA 29+45	1	EA		
12	New connect to existing 6" north tie in, STA 29+95	1	EA		
13	New fire hydrant assembly	4	EA		
14	Remove fire hydrant	2	EA		
15	Abandon valve below grade	5	EA		
16	Sewer crossing - 16" steel casing	36	LF		
17	Culvert Crossing - 24" steel casing	52	LF		
18	12" (2) fitting vertical loop	9	EA		
19	UDOT Crossing - 16" Steel Casing	35	LF		
20	Remove and Dispose of Trees	1	LS		
21	Flowfill Abandon Line	3,040	LF		
22	New connect to 12" class pipe, Cold Springs Rd.	1	LS		
23	SR 193 crossing - 24" steel casing	100	LF		
24	New combination air/vac valve	1	EA		
25	Adjust SD concrete collar	1	EA		
26	Sewer crossing structural support	1	EA		
27	Remove and install t-post fencing	1	LS		
28	2" mill and fill	1,380	SY		
29	Temporary Patch - Remove and replace asphalt	160	TON		
30	Permanent Patch - Remove and replace asphalt	260	TON		
31	Pipe foundation material	470	TON		
32	Pipe bedding material	1,980	TON		
33	Select backfill	4,130	TON		
34	Road base	880	TON		
35	Traffic Control	1	LS		
36	Site protection and restoration	1	LS		
			TOTAL		

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 Bid items will be based on actual quantities, determined as provided in the Contract Documents.

Total Bid Price (In words) _____

Bonds required under Paragraph 6.01 of the General Conditions will be based on the Contract Price.

ARTICLE 6 – TIME OF COMPLETION

- 6.01 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.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security (See Article 8 of Section 1.2);
 - B. List of Proposed Subcontractors (See Section 1.7);
 - C. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
 - D. Contractor's License No.: **[or]** Evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - E. Required Bidder Qualification Statement with supporting data (See Section 1.6);

ARTICLE 8 – DEFINED TERMS

- 8.01 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 9 – BID SUBMITTAL

BIDDER: [Indicate correct name of bidding entity]

By:

[Signature] _____

[Printed name] _____

(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

Telephone Number: _____

Contact Name and e-mail address: _____

Bidder's License No.: _____

SECTION 1.4 - MEASUREMENT AND PAYMENT SUMMARY

- 1.4.1 GENERAL: Refer to General Conditions for general definitions and responsibilities.
- 1.4.2 QUANTITIES DETERMINATION: All work completed under this contract shall be in accordance with the plans and specifications and will be measured by the ENGINEER. The quantities appearing on the Bid Schedules are approximate only, and are prepared for the comparison of bids. Payment to the Contractor on bid items with unit prices other than "Lump Sum" will be made for actual quantities of work performed and accepted, or material furnished in accordance with the Contract. The scheduled quantities of work to be done and materials to be furnished may be increased or decreased. The OWNER will not pay restocking charges for materials not used and returned to the supplier.
- 1.4.3 LINEAL FOOT MEASUREMENT: Where payment for piping is to be made at a unit price per lineal foot, measurement shall be made along the centerline of the pipe through valves, manholes, and fittings, to centerlines or ends of connecting lines and to limits of payment for other bid items.
- 1.4.4 BROKEN OR DAMAGED MATERIALS: Broken or damaged materials will not be accepted or paid for. Payment will be made by the OWNER only for the materials listed in the Bid Schedule, installed, complete and in place.
- 1.4.5 LUMP SUM: The term "Lump Sum" when used as an item of payment will mean complete payment for the work described in the contract. When a complete structure, portion of work, or unit is specified "Lump Sum" as the unit of measurement, the unit will include fittings, accessories, and all work necessary to complete the work as shown on the plans and as specified.
- 1.4.6 MOST NEARLY ACCOMMODATING UNIT BID ITEM: Unless otherwise provided in the specifications, payment for work items for which no bid item specifically provides for separate measurement and payment shall be made as a part of the price shown on the bid which such item most nearly accommodates.
- 1.4.7 FULL COMPENSATION: The CONTRACTOR shall receive and accept compensation provided for in the contract as full payment for furnishing all materials and for performing all work under the contract in a complete and acceptable manner and for all risk, loss, damage, or expense of whatever character arising out of the work or the execution thereof.
- 1.4.8 PAYMENT AND TEST REQUIREMENTS: Payment will be withheld for any material or work not completed in accordance with these specifications and/or not passing specified prepayment tests.
- 1.4.9 NON-PAYMENT ITEMS: Non-Payment Items. The Contractor shall not be paid separately for the following items, unless specifically included as a separate bid item. The costs associated with these items should be included in the unit prices for other items on the Bid Schedules.
- A. All materials, labor and equipment required to excavate, uncover, remove, replace, or reconstruct any facility or improvement that was not properly inspected and tested at the time of installation as required by these specifications.
 - B. All construction de-watering and dust control costs.
 - C. All items required to be finished on the final inspection "Punch List".
 - D. All removal and replacement of concrete, road base or bituminous materials required due to faulty materials or workmanship.

- E. All over excavation required due to errors or other judgmental decisions and assumptions on the part of the Contractor.
- F. Repairs to any existing utilities including, but not limited to power lines, water laterals, gas lines and irrigation/sprinkler lines.
- G. Damage to public or other physical facilities resulting from the Contractor's negligence or construction operations, etc.
- H. Restoration of existing surface improvements.
- I. Saw cutting any existing asphalt required to complete the project.
- J. Coordination and scheduling delivery of the construction materials with material suppliers and inspection of the materials upon delivery.
- K. All costs associated with the removal and replacement of materials that are unable to meet testing or warranty requirements. This includes, but is not limited to, excavation, disposal, replacement, shipping and installation costs.
- L. All costs associated with providing quality control inspection and testing required under Section 2.8 including preparation of a written report to summarize and certify results.
- M. All costs associated with providing traffic control during construction.
- N. All costs associated with coordination of utility relocation with utility companies.
- O. Pot-holing to determine location of existing utilities.

1.4.10 BID ITEM DESCRIPTIONS – Bid Item descriptions are given by Schedule

BID ITEM NO. M – Mobilization/Demobilization: Payment for this item shall be made on a lump sum basis.

The work associated with this Bid Item includes, but is not limited to, mobilizing the Contractor's equipment to the Project site, Storm Water Pollution Prevention plan preparation and permitting as required by the UDOT, site cleanup and demobilization, administrative costs, insurance and bonding, bid preparation. Note that UDOT encroachment, inspection and material testing fees shall be reimbursed directly to the Successful Bidder at face value of the fee upon submittal of an invoice for said fees from the mentioned entity. Coordination and bonding related to obtaining said permits shall be included in this Bid Item. Said fees shall not be included in this Bid Item. All items not specifically addressed nor reasonably related to a single Bid Item in the Bid Schedule shall be included in this Bid Item. Up to seventy percent (70%) of this Bid Item shall be paid upon 10% of the project being completed. The balance of the bid amount shall be paid upon final acceptance and complete cleanup and demobilization.

BID ITEM NO. 1 – 12" PVC C900 DR18 Waterline and Fittings: Payment for this item shall be made on a per lineal foot installed basis.

The work associated with this Bid Item includes the furnishing and installation of the type, size and class pipe shown on the drawings and further described in the specifications. Measurement shall be along the centerline of the pipe as measured in the field following construction. No deduction in length for payment will be made for valves & fittings. Payment will be made per Bid Item only after related surface restoration has been completed and accepted.

Payment shall be full compensation for all unclassified excavation; shoring; trench dewatering; trench plating for traffic; trench backfill, labor and equipment (materials for backfill shall be native, when appropriate compaction can be obtained, or imported when native materials are not adequate; imported granular materials will be paid for under separate Bid Items); location wire; warning tape; storing and installing the pipe, fittings, elbows and couplings; furnishing, storing and installing pipe, fittings, pipe restraints, couplings and other appurtenances not specifically mentioned as another Bid Item; bracing of utility poles; investigative potholing for other utilities; compaction; pressure testing; flushing; disinfecting; dechlorination; placing the line into service and any other operations and materials related to installing and putting a waterline into service that are not otherwise included as being specific bid items.

BID ITEMS NO. 2 and 3 – New 1" Service (long sided w/ 2" sleeve, long side w/2" sleeve by trenchless method, short sided,): Payment for these items shall be made on a per unit installed basis.

The work associated with this item shall include all materials, labor, and equipment necessary to install a new 1" service from the new waterline to reconnect each meter to the new waterline, including new saddle, corp. stop, service line, fittings, setter, saw cutting, trenching. No couplings will be permitted between meter and main. A 3' poly pipe from meter coupled to existing service lateral on home owner side of meter is required on all services. Removal and disposal of the existing meter yoke or setter, furnishing and installation of a new setter shall be included in the scope of work for these Bid Items. All existing boxes, rings and lids shall be reused. All compaction and restoration of surrounding improvements shall be included. Contractor shall record, on as built plans, the type of material of existing service lateral on the home owner side of meter.

Contractor shall be entirely responsible to secure and adhere to the terms of a UDOT encroachment permit.

Contractor shall saw cut trench outside lane striping to gain access to existing main/saddle and is required to locate existing line prior to saw cutting in the lane, typical for all services.

Long Sided w/ 2" sleeve: All long sided laterals shall be installed with a new service lateral from the new waterline to the existing meter location unless noted otherwise on the Plans. New lateral shall be installed by a trenchless method (using existing lateral to pull new sleeve if possible). Note that no additional compensation will be made for repairs to other utilities that arise from the completion of these bid items.

A 2" CTS DR 9 poly pipe shall be furnished and installed from the meter to the main on all long sided services.

Short Sided:

All short-sided laterals shall be replaced from the new main to the existing meter. Installation of these short-sided laterals may be open cut. Existing service laterals may be used to accommodate pulling the new laterals if pulling is preferable to open cutting, at the Contractor's preference.

BID ITEMS NO. 3.1 – Relocate Water Meter: Payment for these items shall be made on a per each basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the relocation of existing meter box as indicated on the Construction Drawings. Items include trenching, dewatering, compaction and surface restoration etc.

BID ITEMS NO. 4 – New 45° elbow: Payment for these items shall be made on a per each basis.

The work associated with each item shall include all labor, equipment, and materials required to install a new restrained ductile iron elbow as indicated on the Construction Drawings and meeting the District Standards. Items included in this Bid Item include, but are not limited to sleeves, ductile iron fittings, mechanical joint restraints and thrust blocks.

BID ITEMS NO. 5 – New butterfly valve: Payment for these items shall be made on a per each basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the connection to the existing system as indicated on the Construction Drawings. Items include all investigative potholing, trenching, dewatering, etc. Items included in this Bid Item include, but are not limited to sleeves, ductile iron fittings, mechanical joint restraints, valves, valve boxes, surface repair valve box adjustment, thrust blocks and concrete collars.

BID ITEM NO. 6 – New connect to existing 12" at 700 S, STA 3+30: Payment for this item shall be made on a lump sum basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the connection to the existing system as indicated on the Construction Drawings. Items include all investigative potholing, trenching, dewatering, etc. Items included in this Bid Item include, but are not limited to, removal of existing 6" x 12" reducer in the north west quadrant of the intersection, incidental pipe, repair sleeves, mechanical joint restraints, thrust blocks, temporary blowoff and abandonment of associated existing lines. Item shall include installing a restrained cap fitting on 6" abandoned line. New mainline pipe, valves and granular materials will be measured and paid for under separate bid items.

BID ITEM NO. 7 – New connect to existing 8" at 625 South, STA 5+22: Payment for this item shall be made on a Lump Sum basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the connection to the existing system as indicated on the Construction Drawings. Items include all investigative potholing, trenching, dewatering, etc. Items included in this Bid Item include, but are not limited to, 12" x 8" MJ x FLG tee, 8" FLG x MJ gate valve, 8" pipe, 8" sleeve, 8" elbows, mechanical joint restraints, thrust blocks, temporary blowoff and abandonment of associated existing lines. Item shall include installing a restrained cap fitting on 6" abandoned line. New mainline pipe, 12" valves and granular materials will be measured and paid for under separate bid items.

BID ITEM NO. 8 – New connect to existing 8" at 530 South, STA 14+80: Payment for this item shall be made on a Lump Sum basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the connection to the existing system as indicated on the Construction Drawings. Items include all investigative potholing, trenching, dewatering, etc. Items included in this Bid Item include, but are not limited to, 12" x 8" MJ x FLG tee, 8" FLG x MJ gate valve, 8" pipe, 8" sleeve, 8" elbows, mechanical joint restraints, thrust blocks, temporary blowoff and abandonment of associated existing lines. Item shall include plugging abandoned line. New mainline pipe, 12" valves and granular materials will be measured and paid for under separate bid items.

BID ITEM NO. 9 – New elementary school stub, STA 19+20 & 22+90: Payment for this item shall be made on a Lump Sum basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the connection to the existing system as indicated on the Construction Drawings. Items include all investigative potholing, trenching, dewatering, etc. Items included in this Bid Item include, but are not limited to, 12" x 8" MJ x FLG tee, 8" FLG x MJ gate valve, 8" pipe, 8" restrained cap, mechanical joint

restraints, thrust blocks, temporary blowoff. New mainline pipe, 12" valves and granular materials will be measured and paid for under separate bid items.

BID ITEM NO. 10 – New connect to existing 4" at 200 S, STA 28+70: Payment for this item shall be made on a Lump Sum basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the connection to the existing system as indicated on the Construction Drawings. Items include all investigative potholing, trenching, dewatering, etc. Items included in this Bid Item include, but are not limited to, 12" x 8" MJ tee, 8" MJ gate valve, 8" elbow, 8" pipe, 8" restrained gaskets, removal of 6" tee and piping, (2) 6" restrained caps, 8" x 4" reducer MJ x PE, 4" elbows, 4" pipe, 4" sleeve, mechanical joint restraints, thrust blocks, temporary blowoff and abandonment of associated existing lines. Item shall include plugging abandoned 4" line. New mainline pipe, 12" valves and granular materials will be measured and paid for under separate bid items.

BID ITEM NO. 11 – New connect to existing 4" at 200 S, STA 29+45: Payment for this item shall be made on a Lump Sum basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the connection to the existing system as indicated on the Construction Drawings. Items include all investigative potholing, trenching, dewatering, etc. Items included in this Bid Item include, but are not limited to, 12" x 8" MJ tee, 8" MJ gate valve, 8" pipe, 8" x 4" reducer MJ x PE, 4" sleeve, 4" elbows, 4" pipe, mechanical joint restraints, thrust blocks, temporary blowoff and abandonment of associated existing lines. Item shall include plugging abandoned 4" line. New mainline pipe, 12" valves and granular materials will be measured and paid for under separate bid items.

BID ITEM NO. 12 – New connect to existing 6" north tie in, STA 29+95: Payment for this item shall be made on a lump sum basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the connection to the existing system as indicated on the Construction Drawings. Items include all investigative potholing, trenching, dewatering, etc. Items included in this Bid Item include but, are not limited to a 12" x 6" MJ reducer, 6" elbows, 6" pipe, 6" sleeves, mechanical joint restraints, thrust blocks, temporary blowoff and abandonment of associated existing lines. Item shall include plugging abandoned line. New mainline pipe, valves and granular materials will be measured and paid for under separate bid items.

BID ITEM NO. 13 – New Fire Hydrant Assembly: Payment for this item shall be made on a per unit installed basis.

Payment shall be full compensation for furnishing and installing all materials and labor required for a functioning 5 1/4" three-nozzle fire hydrant at the location shown on the Construction Drawings and per the District Standards. Materials include but are not limited to: a tee at the mainline, a gate valve, valve box, concrete collar around valve, piping, fittings, fire hydrant assembly, SnakePit tracer wire termination with concrete collar, thrust blocking, joint restraints (e.g. Mega Lug) and 1 cubic yard gravel sump.

BID ITEM NO. 14 – Remove fire hydrant: Payment for this item shall be made on a per unit basis.

Payment shall be full compensation for removing an existing fire hydrant below grade, salvaging hydrant to the district, installing 6" restrained cap on lateral, removing lateral to place new main. Also included

is removal of the associated buried gate valve's valve box. Surface shall be restored to existing condition after removal.

BID ITEM NO. 15 – Abandon valve below grade: Payment for this item shall be made on a per unit completed basis.

The work associated with each item shall include all labor, equipment, and materials required to abandon an existing waterline valve as indicated on the Construction Drawings by removing the concrete collar, at least the top section of the valve box and filling the bottom section so that settlement will not occur, replacement of all material. Imported trench materials and surface restoration will be paid for separately under other Bid Items.

BID ITEM NO. 16 – Sewer crossing - 16" steel casing: Payment for this item shall be made on a per linear foot completed basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the installation of a 16" diameter steel casing (0.375" thick), 18' long, to house on stick of 12" pipe as indicated on the plans. Items included in this Bid Item include, but are not limited to all investigative potholing, trenching, dewatering, shoring, trench plating, etc., casing spacers, end seals, repair sleeves. New mainline pipe, valves and granular materials will be measured and paid for under separate bid items.

BID ITEM NO. 17 – Culvert crossing - 24" steel casing: Payment for this item shall be made on a per linear foot completed basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the installation of a 24" diameter steel casing (0.375" thick) to house 12" pipe as indicated on the plans. Items included in this Bid Item includes, but are not limited to all investigative potholing, trenching, dewatering, shoring, etc., casing spacers, end seals, repair sleeves, restrained gaskets, and receiving pits. The casing shall be placed using Jack and Bore method as required by Davis County Flood Permit. New mainline pipe, valves and granular materials will be measured and paid for under separate bid items.

This scope of work will be one under the terms of a license with the Davis County Flood Permit. HWID has made application to Davis County to obtain the license. The Successful Bidder will be bound by the terms of the license as an assignee of the District.

BID ITEM NO. 18 – 12" (2) fitting vertical loop: Payment for this item shall be made on a per unit completed basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the installation of a restrained, 2-fitting, loop as indicated on the Plans. Items included in this Bid Item include, but are not limited to all investigative potholing, trenching, dewatering, repair sleeves, ductile iron fittings, mechanical joint restraints, thrust blocks and any other item needed to complete the loop.

BID ITEM NO. 19 – UDOT Crossing - 16" Steel Casing: Payment for this item shall be made on a per linear foot completed basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the installation of a 16" diameter steel casing (0.375" thick) to house 8" pipe as indicated on the plans. Items included in this Bid Item include, but are not limited to all investigative potholing, trenching, dewatering, shoring, etc., casing spacers, end seals, repair sleeves and restrained gaskets. New mainline pipe, valves and granular materials will be measured and paid for under separate bid items.

BID ITEM NO. 20 – Remove and Dispose of Trees: Payment for this item shall be made on a lump sum basis.

The work associated with this item shall include all labor and equipment required to complete the removal of one large tree and several smaller trees, trees shall be removed above and below grade as needed to install waterline as indicated on the plans. Item includes removal, haul off and disposal of said trees.

BID ITEM NO. 21 – Flowfill Abandon Line: Payment for this item shall be made on a linear foot completed basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the installation a low strength material flowable fill in all abandoned pipes as indicated on the plans. Opening of pipe at intervals necessary to install the flowable fill and to release air as needed are included in this item. Material use for flowable fill shall meet UDOT specification. Granular materials will be measured and paid for under separate bid items.

BID ITEM NO. 22 – New connect to 12" class pipe, Cold Springs Rd.: Payment for this item shall be made on a lump sum basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the connection of the main line on the north and south side of the SR 193 right of way. Bid Item includes, but are not limited to all investigative potholing, trenching, dewatering and repair sleeves. New mainline pipe, valves and granular materials will be measured and paid for under separate bid items.

BID ITEM NO. 23 – SR 193 crossing - 24" steel casing: Payment for this item shall be made on a per linear foot completed basis.

The work associated with this item shall include all labor, equipment and fittings required to complete the installation of a 24" diameter steel casing (0.375" thick) to house 12" pipe as indicated on the plans. Items included in this Bid Item include, but are not limited to all investigative potholing, trenching, dewatering, shoring, etc., casing spacers, end seals, repair sleeves, restrained gaskets. New mainline pipe, valves and granular materials will be measured and paid for under separate bid items.

BID ITEM NO. 24 – New combination air/vac valve: Payment for this item shall be made on a per unit completed basis.

The work associated with this item shall include all labor, equipment, materials and fittings required to complete the installation of a combination air/vac valve as shown and on the Plans.

BID ITEM NO. 25 – Adjust SD concrete collar: Payment for this item shall be made on a per unit completed basis.

The work associated with this item shall include all labor, equipment and materials required to complete adjustment and replacement of man hole and valve covers in preparation to place asphalt surface as shown on the Plans. Bid Item includes, but not limited to, removal of concrete collar, covering box to prevent material entering box, saw cutting asphalt and replacement of concrete collar and existing ring and cover

BID ITEM NO. 26 – Sewer crossing structural support: Payment for this item shall be made on a per unit completed basis.

The work associated with this item shall include all labor, equipment and materials required to complete the installation of concrete structural support as indicated on the Plans. Bid Item includes, but not limited to all investigative potholing, trenching, dewatering, shoring, etc., concrete, water stop and any coordination with North Davis Sewer District.

BID ITEM NO. 27 – Remove and install t-post fencing: Payment for this item shall be made on a lump sum basis.

The work associated with this item shall include all labor, equipment and materials required to complete the installation of temporary t-post with 4 barb wire fence, removal of existing fence, replacement of existing t-post with 4 barb wire fencing in place of removed fence and removal of temporary t-post fence as indicated on the Plans.

BID ITEM NO. 28 – Temporary Patch - Remove and replace asphalt: Payment for this item shall be made on a per ton installed basis.

The work associated with this item shall include all labor, equipment, materials, and supplies to remove and subsequently place and compact 8" depth of cold patch asphalt at all locations where asphalt was removed to accommodate completion of this project. Removal includes T-patch saw cutting, haul off and disposal. Placement includes cleaning and tack coat. Measurement will be made to the outside edge of repaired asphalt, following placement and before permanent patch. Granular material (e.g. sub-base, road base) placement and compaction will be paid under separate bid items. Asphalt shall be saw cut prior to removal and if needed prior to placement of new asphalt to create a straight, clean edge.

BID ITEM NO. 29 – Permanent Patch - Remove and replace asphalt: Payment for this item shall be made on a per ton installed basis.

The work associated with this item shall include all labor, equipment, materials, and supplies to remove and subsequently place and compact asphalt meeting UDOT asphalt specifications at all locations where asphalt was removed to accommodate completion of this project. Removal includes trench and t-patch saw cutting, haul off and disposal. Placement includes cleaning and tack coat. Measurement will be made to the outside edge of repaired asphalt, following placement and before milling. Granular material (e.g. sub-base, road base) placement and compaction will be paid under separate bid items.

BID ITEM NO. 30 – 2" mill and fill: Payment for this item shall be made on a per square yard installed basis.

The work associated with this item shall include all labor, equipment, materials, and supplies to mill 2" thickness of asphalt and place new asphalt where milling is indicated on the plans or otherwise directed by the Engineer. Milling is to take place after trench restoration and shall be performed to UDOT specifications. Item shall include all labor, equipment, materials, expertise, disposal of milled asphalt and incidental items of work related to the mill and fill operation..

BID ITEMS NO. 31 through 34 – Imported Granular material: Payment for these items shall be made on a per ton installed basis. *The BIDDER is notified that the quantities of these Bid Items shown in the Bid Schedule are estimates only and may or may not be substantially accurate representations of the actual material that will be placed. The HWID inspector, at the time of construction, may permit some portion of the excavated materials to be reused, rather than hauled off, if adequate compaction can be obtained. The contractor is advised to consider the unknown degree of variability in the quantity of granular material haul off and placement before submitting a bid.*

The work associated with these items shall include all necessary materials, equipment, and labor to furnish and install, including compaction, the given material as per these Plans & Specifications and in accordance with the standards of the entity having jurisdiction: UDOT. Weigh tickets shall be submitted to the Engineer with the appropriate pay request to support the tonnages indicated for these materials. Installation, compaction and maintenance of road base through the duration of the contract period shall be provided at no additional cost to the District. **Haul off and disposal of all unsuitable native material shall be included in the per ton unit price.**

BID ITEM NO. 35 – Traffic control: Payment for this item shall be made on a lump sum basis.

The work associated with this item shall include all labor, equipment, materials and supplies to coordinate, plan and implement traffic control to the satisfaction of the right-of-way holder, UDOT. Flaggers and delineators shall be used as needed to maintain clear and safe traffic lanes. No extended lane closures will be allowed without approval from UDOT.

BID ITEM NO. 36 – Site protection and restoration: Payment for this item shall be made on a lump sum basis.

The work associated with this item shall include all labor, equipment, materials and supplies to protect or restore existing structures and improvements to pre-construction condition. Among the items to be protected or restored (protect when feasible, restore when not) are those addressed in Section 5.2.3.9 of the Specifications. Some features for protection and restoration have been called out on the Construction Drawings as a convenience. Such callouts do not imply that all features requiring protection or restoration are called out on the Construction Drawings. *No additional compensation will be made for protection and restoration of improvements other than through the amount bid for this Bid Item.*

Although all improvements shall be protected or restored and the contractor is responsible for such, the most notable improvements include mailboxes (stone/brick and pole-mounted), street signs with b3 slip base (replace damaged signs per UDOT SN series standard drawings), sprinkler systems, sod, concrete curbing and rock driving surfaces. The Contractor shall separate and wind row/stockpile existing rock driving surfaces before excavation takes place, and utilize such stockpiled material in site restoration, to preserve, as much as possible, continuity of appearance.

End of M&P

SECTION 1.5 - BID Bond

Any singular reference to Bidder, Surety, Owner, or other party shall be considered plural where applicable.

BIDDER (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

Hooper Water Improvement District
5555 W 5500 S, Hooper Utah 84315

BID

Bid Due Date: October 4, 2022

Description (*Project Name— Include Location*):

Project #162, 4500 West Water Line - West Point City, Davis County, Utah

BOND

Bond Number:

Date:

Penal sum _____ \$ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

Bidder's Name and Corporate Seal (Seal) Surety's Name and Corporate Seal (Seal)

By: _____ By: _____
Signature Signature (Attach Power of Attorney)

Print Name Print Name

Title Title

Attest: _____ Attest: _____
Signature Signature

Title Title

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder any difference between the total amount of Bidder's Bid and the total amount of the Bid of the next lowest, responsible Bidder that submitted a responsive Bid as determined by Owner for the work required by the Contract Documents, provided that:

- 1.1 If there is no such next Bidder, and Owner does not abandon the Project, then Bidder and Surety shall pay to Owner the penal sum set forth on the face of this Bond, and
- 1.2 In no event shall Bidder's and Surety's obligation hereunder exceed the penal sum set forth on the face of this Bond.
- 1.3 Recovery under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.

2. Default of Bidder shall occur 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 shall 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 shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.

6. No suit or action shall 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 shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall 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 Registered or Certified Mail, return receipt requested, postage pre-paid, and shall 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 shall 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 shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

SECTION 1.6 - QUALIFICATIONS STATEMENT

THE INFORMATION SUPPLIED IN THIS DOCUMENT IS CONFIDENTIAL TO THE EXTENT
PERMITTED BY LAWS AND REGULATIONS

1. SUBMITTED BY:

Official Name of Firm:

Address:

2. SUBMITTED TO:

3. SUBMITTED FOR:

Owner:

Project Name:

TYPE OF WORK:

Hooper Water Improvement District

Project #162, 4500 West Water Line

Furnish and install approximately 1/2 mile of 12-inch DR 18 C-900 PVC
waterline located in UDOT right of way. Work includes crossing Davis County
Drainage box culvert.

4. CONTRACTOR'S CONTACT INFORMATION

Contact Person:

Title:

Phone:

Email:

5. AFFILIATED COMPANIES:

Name:

Address:

6. TYPE OF ORGANIZATION:

EJCDC® C-451, Qualifications Statement.

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and American Society of Civil Engineers. All rights reserved.

☐

SOLE PROPRIETORSHIP

Name of Owner:

Doing Business As:

Date of Organization:

☐

PARTNERSHIP

Date of Organization:

Type of Partnership:

Name of General Partner(s):

☐

CORPORATION

State of Organization:

Date of Organization:

Executive Officers:

- President:

- Vice President(s):

- Treasurer:

- Secretary:

☐

LIMITED LIABILITY COMPANY

State of Organization:

Date of Organization:

Members:

☐ JOINT VENTURE

Sate of Organization:

Date of Organization:

Form of Organization:

Joint Venture Managing Partner

- Name:

- Address:

Joint Venture Managing Partner

- Name:

- Address:

Joint Venture Managing Partner

- Name:

- Address:

7. LICENSING

Jurisdiction: _____

Type of License: _____

License Number: _____

8. CERTIFICATIONS

CERTIFIED BY:

Disadvantage Business Enterprise: _____

Minority Business Enterprise: _____

Woman Owned Enterprise: _____

Small Business Enterprise: _____

Other (_____): _____

9. CONSTRUCTION EXPERIENCE:

Current Experience:

List on **Schedule A** all uncompleted projects currently under contract (If Joint Venture list each participant's projects separately).

Previous Experience:

List on **Schedule B** all projects completed within the last 5 Years (If Joint Venture list each participant's projects separately).

Has firm listed in Section 1 ever failed to complete a construction contract awarded to it?

☐ YES ☐ NO

If YES, attach as an Attachment details including Project Owner's contact information.

Has any Corporate Officer, Partner, Joint Venture participant or Proprietor ever failed to complete a construction contract awarded to them in their name or when acting as a principal of another entity?

☐ YES ☐ NO

If YES, attach as an Attachment details including Project Owner's contact information.

Are there any judgments, claims, disputes or litigation pending or outstanding involving the firm listed in Section 1 or any of its officers (or any of its partners if a partnership or any of the individual entities if a joint venture)?

☐ YES ☐ NO

If YES, attach as an Attachment details including Project Owner's contact information.

I HEREBY CERTIFY THAT THE INFORMATION SUBMITTED HERewith, INCLUDING ANY ATTACHMENTS,
IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NAME OF ORGANIZATION: _____

BY: _____

TITLE: _____

DATED: _____

REQUIRED ATTACHMENTS

1. Schedule A (Current Experience).
2. Schedule B (Previous Experience).

SCHEDULE A

CURRENT EXPERIENCE

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

SCHEDULE B

PREVIOUS EXPERIENCE (Include at least five Projects of similar scope Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

SECTION 1.7 - LIST OF SUBCONTRACTORS

1.7 SUBCONTRACTORS: The following is a breakdown of all subcontractors anticipated to be used to complete this project and their approximate percentage of work to be performed.

<u>Subcontractor</u>	<u>Description of Work</u>	<u>% of Total Project</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Total percent of all Subcontractor's work on project: _____

Contractor: _____

By: _____

Title: _____

PART 2
SECTION 2.1 - NOTICE OF AWARD

Date of Issuance:

Owner: **Hooper Water Improvement District**

Owner's Contract No.: NA

Engineer: **Gardner Engineering**

Engineer's Project No.: **0813-2106**

Project: **Project #162, 4500 West Water Line**

Contract Name: NA

Bidder:

Bidder's Address:

TO BIDDER:

You are notified that Owner has accepted your Bid dated **October 4, 2022** for the above Contract, and that you are the Successful Bidder and are awarded a Contract for the **Hooper Water Improvement District Project #162, 4500 West Water Line**.

The Contract Price of the awarded Contract is: \$ *subject to actual quantities and unit prices bid*

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

1. Deliver to Owner two counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security [*e.g., performance and payment bonds*] and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

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

Owner: **Hooper Water Improvement District**

Authorized Signature

By: **Scott Christiansen**

Title: **Manager**

Copy: Engineer

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 One Hundred Dollars (\$100) for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A 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 Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner One Hundred Dollars (\$100) 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 Substantial Completion and final completion are not additive and will not be imposed concurrently.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

- A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

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

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 26th day of each month 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. Ninety-five percent of Work completed (with the balance being retainage); and

- b. Ninety-five percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- 2. All amounts thus retained shall be placed in a separate interest-bearing account by the Owner and paid to the Contractor upon final completion, as required by Utah Code 13-8-5.
 - A. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to One-Hundred percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less Two-Hundred 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.

1.02 *Final Payment*

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

ARTICLE 7 – INTEREST

- 1.01 All amounts not paid when due shall bear interest thereafter at the rate of eight percent (8%) per annum until paid.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 1.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 - A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
 - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
 - E. 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 Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the

Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

- F. 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.
- G. 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.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. 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.

ARTICLE 9 – CONTRACT DOCUMENTS

1.01 *Contents and priority*

- A. The Contract Documents consist of the following documents related to the Project #162, 4500 West Water Line Project (which may or may not be attached but are incorporated by reference):
 - 1. This Agreement.
 - 2. Appendices to the Contract Documents:
 - a. None.
 - 3. 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.
 - 4. Addenda (numbers to , inclusive).
 - 5. Instructions to Bidders.
 - 6. Measurement and Payment Summary.
 - 7. Bid Form (pages 1-11 to 1-17, inclusive; also attachments as enumerated in Article 7 thereof).
 - 8. Supplementary Conditions.

9. General Conditions.
 10. Site Work Requirements.
 11. Drawings consisting of 14 sheets with each sheet bearing the following general title:
Hooper Water Improvement District Project #162, 4500 West Water Line.
- B. There are no Contract Documents other than those listed above in this Article 9.
- C. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

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

10.02 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto 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 Documents.

10.03 *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.

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall 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.

10.05 *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 10.05:
1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing 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 _____ (which is the Effective Date of the Contract).

OWNER:

Hooper Water Improvement District

By: _____

Title: Manager

Attest: _____

Title: Office Manager

Address for giving notices:

PO Box 217

Hooper, UT 84315

CONTRACTOR:

By: _____

Title: _____

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

Attest: _____

Title: _____

Address for giving notices:

License No.: _____

Section 2.3 - NOTICE TO PROCEED

Owner:	Hooper Water Improvement District	Owner's Contract No.:	NA
Contractor:		Contractor's Project No.:	
Engineer:	Gardner Engineering	Engineer's Project No.:	0813-2106
Project:	Project #162, 4500 West Water Line	Contract Name:	
		Effective Date of Contract:	

TO CONTRACTOR:

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

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, the date of Substantial Completion is June 30, 2023, and the date of Final Completion and readiness for final payment is July 11, 2023.

Owner: Hooper Water Improvement District

By: _____
Authorized Signature – Scott Christiansen

Title: Manager

Date Issued:

Copy: Engineer

SECTION 2.4 - PERFORMANCE BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):*

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

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 shall 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 shall 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 shall 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 shall 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 shall 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 shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall 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 shall not be reduced or set off on account of any such unrelated obligations. No right of action shall 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 may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall 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 shall be applicable.
12. Notice to the Surety, the Owner, or the Contractor shall 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 shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall 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 shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.
16. Modifications to this Bond are as follows:

SECTION 2.5 - PAYMENT BOND

CONTRACTOR (*name and address*):

SURETY (*name and address of principal place of business*):

OWNER (*name and address*):

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description (*name and location*):

BOND

Bond Number:

Date (*not earlier than the Effective Date of the Agreement of the Construction Contract*):

Amount:

Modifications to this Bond Form: ☐ None ☐ Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

(seal)

Contractor's Name and Corporate Seal

By: _____

Signature

Print Name

Title

Attest: _____

Signature

Title

(seal)

Surety's Name and Corporate Seal

By: _____

Signature (*attach power of attorney*)

Print Name

Title

Attest: _____

Signature

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

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 shall 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 shall 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 shall 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 shall 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 shall 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 shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall 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 shall not be reduced or set off on account of any such unrelated obligations. No right of action shall 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 may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall 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 shall be applicable.
12. Notice to the Surety, the Owner, or the Contractor shall 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 shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall 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 shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.
16. Modifications to this Bond are as follows:

SECTION 2.6 - APPLICATION FOR PAYMENT

Note: Each spreadsheet in this Section 2.6 can be provided to the Contractor in native Excel format upon request to the

 ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE		Contractor's Application for Payment No.			
Application Period:		Application Date:			
To (Owner):		From (Contractor):		Via (Engineer):	
Project:		Contract:			
Owner's Contract No.:		Contractor's Project No.:		Engineer's Project No.:	

Application For Payment					
Change Order Summary					
Approved Change Orders					
Number	Additions	Deductions			
TOTALS	\$0.00	\$0.00			
NET CHANGE BY CHANGE ORDERS	\$0.00				

Contractor's Certification							
The undersigned Contractor certifies the following: (1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment; (2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such Liens, security interest, or encumbrances); and (3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.				Payment of: \$			
				(Line 8 or other - attach explanation of the other amount)			
				is recommended by:			
				(Engineer)		(Date)	
				Payment of: \$			
				(Line 8 or other - attach explanation of the other amount)			
				is approved by:			
				(Owner)		(Date)	
Contractor Signature By: _____ Date: _____				Approved by:			
				Funding or Financing Entity (if applicable)		(Date)	

Engineer.

[illegible]

[illegible]

SECTION 2.7 - CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	Hooper Water Improvement District	Owner's Contract No.:	NA
Contractor:		Contractor's Project No.:	
Engineer:	Gardner Engineering	Engineer's Project No.:	0813-2106
Project:	Project #162, 4500 West Water Line	Contract Name:	NA

This Certificate of Substantial Completion applies to:

- ☐ All Work ☐ The following specified portions of the Work:

Date of Substantial Completion

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.

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 shall be as provided in the Contract, except as amended as follows: *[Note: 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.]*

Amendments to Owner's
responsibilities:

- ☐ None
☐ As follows

Amendments to Contractor's
responsibilities:

- ☐ None
☐ As follows:

The following documents are attached to and made a part of this Certificate: *[punch list; others]*

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.

EXECUTED BY ENGINEER:		RECEIVED:		RECEIVED:	
By:	_____	By:	_____	By:	_____
	(Authorized signature)		Owner (Authorized Signature)		Contractor (Authorized Signature)
Title:	_____	Title:	_____	Title:	_____
Date:	_____	Date:	_____	Date:	_____
	_____		_____		_____

SECTION 2.8 - Work Change Directive

Work Change Directive No. 1

Date of Issuance: _____ Effective Date: _____

Owner: Hooper Water Improvement District Owner's Contract No.: NA

Contractor: _____ Contractor's Project No.: _____

Engineer: Gardner Engineering Engineer's Project No.: 0813-2106

Project: Project #162, 4500 West Water Line Contract Name: Project #162, 4500 West Water Line

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

Description: Install a sufficient length of casing under the Hooper Irrigation Company Canal to extend 10' beyond the outside edge of the existing 48" concrete pipe. The bid plans indicated a minimum 18' length, so no restrained gaskets were required. There now needs to be a 30' length installed, which will require the use of one restrained gasket in the cased length of pipe. Thus, **the contract price change provided below should be for an additional 12' of casing and one restrained gasket.**

Attachments: *[List documents supporting change]* See Attached WO143 C1- P&P1_Rev1

Purpose for Work Change Directive:

Directive to proceed promptly with the Work described herein, prior to agreeing to changes on Contract Price and Contract Time, is issued due to: *[check one or both of the following]*

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

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

Contract Price \$ _____ [increase] ~~[decrease]~~

Contract Time 0 days _____ ~~[increase]~~ ~~[decrease]~~

Basis of estimated change in Contract Price:

- ☐ Lump Sum ☐ Unit Price
- ☐ Cost of the Work ☐ Other

RECOMMENDED:

AUTHORIZED BY:

RECEIVED:

By: _____	By: _____	By: _____
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: Project Engineer	Title: Manager	Title: _____
Date: _____	Date: _____	Date: _____

Approved by Funding Agency (if applicable)

By: N/A Date: _____

Title: N/A

SECTION 2.9 - Change Order

Change Order No. _____

Date of Issuance:
Owner: Hooper Water Improvement District
Contractor:
Engineer: Gardner Engineering
Project: Project #162, 4500 West Water Line

Effective Date:
Owner's Contract No.: NA
Contractor's Project No.:
Engineer's Project No.: 0813-2106
Contract Name:

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

Flowable Fill abandoned pipe along 4000 S (SR37) as Required by UDOT Encroachment Permit Office.
Approximately 500' of 6" pipe.

Attachments: See Attached WO143 C9- Plan UDOT_Rev1 stamped "UDOT Approved"

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES <i>[note changes in Milestones if applicable]</i>
Original Contract Price: \$_____	Original Contract Times: Substantial Completion: <u>June 30, 2023</u> Ready for Final Payment: <u>July 11, 2023</u> days or dates
[Increase] [Decrease] from previously approved Change Orders No. __ to No. __: \$_____	[Increase] [Decrease] from previously approved Change Orders No. __ to No. __: Substantial Completion: _____ Ready for Final Payment: _____ days
Contract Price prior to this Change Order: \$\$-_____	Contract Times prior to this Change Order: Substantial Completion: = _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] of this Change Order: \$_____	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price incorporating this Change Order: \$\$-_____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for Final Payment: _____ days or dates

RECOMMENDED:

ACCEPTED:

ACCEPTED:

By: Dan White
Engineer (if required)
Title: Project Engineer
Date: _____

By: _____
Owner (Authorized
Signature)
Title: Manager
Date: _____

By: _____
Contractor (Authorized
Signature)
Title: Contractor
Date: _____

SECTION 2.10 - Field Order

Copy to: Owner

Field Order No. _____

Date of Issuance:	Effective Date:
Owner: Hooper Water Improvement District	Owner's Contract No.: NA
Contractor:	Contractor's Project No.:
Engineer: Gardner Engineering	Engineer's Project No.: 0813-2106
Project: Project #162, 4500 West Water Line	Contract Name:

Contractor is hereby directed to promptly execute this Field Order, issued in accordance with General Conditions Paragraph 11.01, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference: _____
Specification(s) Drawing(s) / Detail(s)

Description: _____

Attachments:

ISSUED:	RECEIVED:
By: _____ Engineer (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: Project Manager	Title: _____
Date: _____	Date: _____

PART 3
SECTION 3.1
STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT

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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 form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting 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, or both; 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, or both; 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; or (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. 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), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree 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 the 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. *Engineer*—The individual or entity named as such in the Agreement.
21. *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.
22. *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. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *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.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
27. *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.
28. *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.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
30. *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.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.
33. *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.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.
35. *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.
36. *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.

37. *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 furnished by Owner which are designated for the use of Contractor.
38. *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.
39. *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.
40. *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 thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, 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.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *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.

48. *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 the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
1. 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:*
1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. 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 15.04).
- E. *Furnish, Install, Perform, Provide:*
1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean 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, shall mean 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, shall mean 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. 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 Bonds and Evidence of Insurance*

- A. *Bonds:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance:* After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), 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 one copy of the fully executed Contract in electronic portable document format (PDF). 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 specifically 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 *Initial 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 for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall 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.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.

- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items 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 items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 Intent

- A. The Contract Documents are complementary; what is required by one 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 or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall 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.

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, shall mean 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, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, 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, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, 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 Documents 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 Documents 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 shall 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 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 thereunder.
- 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 give written notice to Owner and Contractor 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 editions, 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 shall preclude 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 thirtieth 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 sixtieth day after the day of Bid opening or the thirtieth 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 shall 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 shall 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 shall 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 the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the 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. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall 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 utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 - 4. acts of war or terrorism.
- D. 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.

- E. Paragraph 8.03 governs 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.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times 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.
- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor 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; 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 7.12, 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 at law; 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 shall 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 known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); 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 upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. 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; or
 - 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.

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 either:
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; or
 2. is of such a nature as to require a change in the Drawings or Specifications; or
 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 the necessity of Owner's obtaining 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 above; 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. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, 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 conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
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; or
 - 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 as 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, or both, then any such adjustment shall 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, or both, 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.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. 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 in the Contract Documents, or was not

shown or indicated 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), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; 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 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. *Possible Price and Times Adjustments:*
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, 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. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - 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;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. 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, or both, then any such adjustment shall 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, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. 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 Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. 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; or
 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, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, 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.
- 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 or 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.H shall obligate 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 shall obligate 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 all of Contractor's obligations under the Contract. These bonds shall 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 Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, 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 shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. 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.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

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. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract),

certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements 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 and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements 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 and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. 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, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of 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.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect 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 shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).

3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
 4. Foreign voluntary worker compensation (if applicable).
- B. *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:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall 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, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. 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); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. 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.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims 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 shall be written on an occurrence basis.
- E. *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. Subject to

industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.

- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.
- G. *Additional insureds:* The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *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 shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions:* The policies of insurance required by this Paragraph 6.03 shall:
 - 1. include at least the specific coverages provided in this Article.
 - 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 - 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 - 4. remain in effect at least until final payment (and longer if expressly required in this Article) 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 Documents.
 - 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed 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.

- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. 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.

6.05 *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 full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 - 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 - 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
 - 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for

the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.

4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
 5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed 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.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- 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 notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* 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 6.05, it may do so at Contractor's expense.

- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers 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. 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 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 Subcontractors, all individuals or entities identified in the Supplementary Conditions as 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. None of the above waivers shall extend 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. 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:
1. loss 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 perils whether or not insured by Owner; and
 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner 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.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work 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 any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 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 6.05 shall 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, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *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. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *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 at all times maintain good discipline and order at the Site.
- B. 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 shall 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.

7.03 *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 shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall 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 shall 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.

7.04 *"Or Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, 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 material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it 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) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it 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 shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 Substitutes

- A. Unless the specification or description of an item of material or equipment 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 material or equipment under the circumstances described below. To the extent possible such requests shall 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 material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.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 material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall 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 that specified, and
 - 3) be suited to the same use as that 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 that specified, and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
- d. shall 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 shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 Concerning Subcontractors, Suppliers, and Others

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.

- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities 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, Supplier, or other individual or entity 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 five days.
- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. 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, Suppliers, or other individuals or entities 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, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, 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, Supplier, or other individual or entity, whether initially or as a replacement, shall 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 fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.

- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.
- O. Nothing in the Contract Documents:
 - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
 - 2. shall create 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.

7.07 *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 a particular 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 shall be disclosed by Owner 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.

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. 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

7.09 *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.

7.10 *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. Except where otherwise expressly required by applicable Laws and Regulations, 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 shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give 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 notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *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.

7.12 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. 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.
- B. 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. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when 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.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. 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.
- E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.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).
- F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

- G. Contractor's duties and responsibilities for safety and protection shall 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.

7.13 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of 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 threatened 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 thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. Shop Drawing and Sample Submittal Requirements:

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified 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
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall 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 submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.
1. *Shop Drawings:*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings will 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.D.
 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.D.
 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. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. 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, conform to the information given in 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 shall 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.

5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 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, shall 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, Sample, or other submittal shall 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.D.4.

E. Resubmittal Procedures:

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 submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

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 and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper 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.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 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. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.
- D. 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 shall 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 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 performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury 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 shall 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.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

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 utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. 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.

- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, 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.

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 at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner 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, or both. 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 shall 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. When applicable, any such equitable adjustment in Contract Price shall 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 is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- 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. 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 to 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.

- C. 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 to Contractor.
- D. 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 shall 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 Documents (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 10.08. 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 *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 Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *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.

10.07 *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.

10.08 *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, shall 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 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 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *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 (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish

amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.

- b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not 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, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
2. *Work Change Directives:* 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 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.
3. *Field Orders:* 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. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *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. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes 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 shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate 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.

11.03 *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.

11.04 *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 shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall 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); or
 - 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 11.04.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 11.04.C).
- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall 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 shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five 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 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.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 five 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 shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall 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 will be the amount of the actual net decrease in

cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *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 shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.
 - 1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. 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. The supporting data shall 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. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 - 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall 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.
 - 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *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 that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change

Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. changes in the 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 11.02, (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 in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 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 shall be submitted 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; and
 - 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.
- 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 shall rest with the party making

the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, 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 shall 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 shall 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 shall 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 shall 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 shall 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 shall 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 shall be incorporated in a Change Order 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. 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 shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall 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. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, 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, shall 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 shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall 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, who 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 shall 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 for services specifically related to the Work.
 5. Supplemental costs including 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, and hand tools not owned by the workers, 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.
- c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the 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 property insurance established in accordance with Paragraph 6.05), 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 shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall 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 shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety 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. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 4. 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.
 5. 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:* When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.
- E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

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 on account of any of the foregoing will be valid.
- C. *Contingency Allowance:* Contractor agrees that a 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 on account of Work covered by allowances, and the Contract Price shall 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, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

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 will 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 therewith 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 shall 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 shall 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 shall 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 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 shall 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 special 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, or both, 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 shall 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 rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven 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 on account of 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. 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 shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all

Liens, and 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.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. 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, or

- b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, 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 on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of 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 that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated 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;
 - l. there are other items entitling 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 shall 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 shall be treated as an amount due as determined by Paragraph 15.01.C.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 seven 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 shall 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 seven 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 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 6.05 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 7.11), and other documents, Contractor may make application for final payment.
2. The final Application for Payment shall 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 disputes that Contractor believes are unsettled; 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 Application and Acceptance:*

1. 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 ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall 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. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. 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. *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.
- D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- 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 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 terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to

be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then 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 other adjacent areas;
 2. correct such defective Work;
 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, 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 therefrom.
- B. If 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 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 correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. 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.
- D. 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.
- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not 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, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall 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) ten 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) 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 seven 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 shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

- A. Upon seven 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 on account of loss of anticipated overhead, profits, or revenue, 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 seven 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, seven 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; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising 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; or
 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 Documents requires the giving of written notice, it will be deemed to have been validly given if:
1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

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 shall not constitute a waiver of that provision, nor shall 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 or completion of the Contract or termination 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 *Headings*

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

SECTION 3.2 - SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

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 thereto.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

- SC-1.01. Add to the list of definitions in Paragraph 1.01.A by inserting the following as numbered items in their proper alphabetical positions:

Contingency Amount - moneys allocated by Owner but not payable to Contractor, for the Work described in the Contract Documents.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

- SC-3.01. Add the following new paragraphs immediately after Paragraph 3.01.E:

- F. Neither the Contractor nor the Owner shall sublet, sell, transfer, assign or otherwise dispose of the Contract or any portion thereof, or of his right, title or interest therein, or his obligations thereunder, without written consent of the other party.
- G. No oral order, objection, claim or notice by any party to the others shall affect or modify any of the terms or obligations contained in any of the Contract Documents, and none of the provisions of the Contract Documents shall be held to be waived or modified by reason of any act whatsoever, other than by a definitely agreed waiver or modification thereof in writing, and no evidence shall be introduced in any proceeding of any other waiver or modification.

- SC-3.03. Add the following new paragraphs immediately after Paragraph 3.03.B.1.b:

- c. In the event of an inconsistency between provisions in any of the Contract Documents, the order of precedence shall be as follows:
 - (a) Agreement, (b) Addenda, (c) Bid Form, (d) Measurement and Payment Summary, (e) Invitation to Bid, (f) Instructions to Bidders, (g) Supplementary Conditions, (h) General Conditions, (i) Site Work Requirements, (j) Drawings.

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:

Each person	\$ <u>1,000,000</u>
Each accident	\$ <u>1,000,000</u>

Property Damage:

Each accident	\$ <u>1,000,000</u>
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4. Excess or Umbrella Liability:

Per Occurrence	\$ <u>2,000,000</u>
General Aggregate	\$ <u>2,000,000</u>

5. Contractor's Pollution Liability:

Each Occurrence	\$ <u>N.A.</u>
General Aggregate	\$ <u>N.A.</u>



If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract

6. Additional Insureds: In addition to Owner and Engineer, include as additional insureds the following: N.A.

7. Contractor's Professional Liability:

Each Claim	\$ <u>2,000,000</u>
Annual Aggregate	\$ <u>2,000,000</u>

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

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

- B. On this Project, by agreement with the Owner, Engineer will not furnish a Resident Project Representative to represent Engineer at the Site or assist Engineer in observing the progress and quality of the Work.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

SC 11.06 Amend the first sentence of Paragraph 11.06.A.1 to read as follows:

Procedures: Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 7 days) after the start of the event giving rise thereto, or after such initial decision.

ARTICLE 18 – MISCELLANEOUS

SC-18.09 Add Paragraph 18.09 to read as follows:

Work Eligibility Status of Employees. CONTRACTOR represents and warrants to OWNER that CONTRACTOR and any and all contractors and subcontractors who work under CONTRACTOR in performing the Project are, and at all times during the performance of work on the Project will be, in full compliance with the requirements of Utah Code Ann. Section 63G-12-302(3) (including amendments and substitutions to the law), and of any other applicable law, relative to the verification of the work eligibility status of employees, and in particular, that CONTRACTOR is registered with and participates in a Status Verification System (as defined in Utah Code Ann. Section 63G-12-102(21)) as required by law and will require all contractors and subcontractors working on the Project to certify to CONTRACTOR by affidavit that the contractor or subcontractor has verified through a Status Verification System the employment status of each new employee of the said contractor or subcontractor.

PART 4
GENERAL TECHNICAL REQUIREMENTS

SECTION 4.1
SUMMARY OF AND APPROACH TO WORK

4.1.1 GENERAL: The work to be performed under this project shall consist of furnishing all labor, materials, and equipment necessary or required to complete the work in all respects as shown on the plans and as herein specified. All work, materials, and services not expressly shown or called for in the Contract Documents which may be necessary to complete the construction of the work in good faith shall be performed, furnished, and installed by the CONTRACTOR as though originally so specified or shown, at no increase in cost to the OWNER.

4.1.2 WORK COVERED BY CONTRACT DOCUMENTS: The project includes work to be completed as follows:

Furnish and install approximately 1/2 mile of 12-inch DR 18 C-900 PVC waterline located in UDOT right of way. Work includes crossing Davis County Drainage box culvert.

4.1.3 CONTRACT METHOD: The work hereunder will be constructed under both a unit-price and lump sum contract. The CONTRACTOR shall include the General Conditions and Supplementary Conditions as a part of all of its subcontract agreements.

4.1.4 WORK SEQUENCE: Work should proceed in a sequence and manner to minimize down-time (of services, Owner's personnel, Contractor's and Sub-contractor's personnel, etc) and disruption.

4.1.5 APPROACH TO WORK: The work on this project must proceed in a systematic way with a minimum of inconvenience to the public. The CONTRACTOR will confine his operations to as small a portion of work per crew as feasible. The following requirements will be strictly enforced:

4.1.5.1 GRAVEL SURFACE PLACEMENT: The maximum distance behind the gravel surface placement shall be 1,000 feet.

4.1.5.2 CONCURRENT CLEAN-UP: Final clean-up, removal of equipment, barricades and similar items, and restoration of all surfaces to the final condition will have been completed concurrent with the completion of the trench surface restoration.

4.1.5.3 INCLEMENT WEATHER CLEAN-UP: Should construction be halted because of inclement weather conditions, the CONTRACTOR will completely clean up all areas and maintain all streets in good condition during the shut-down period. No excavation in paved streets will be allowed if weather conditions do not permit re-paving of the pipeline trench.

4.1.6 CONTRACTOR USE OF PROJECT SITE: The CONTRACTOR's use of the project site shall be limited to its construction operations, including on-site storage of materials, on-site fabrication facilities, and field offices.

4.1.7 PERMITS AND EASEMENTS: Refer to General Conditions. The OWNER will furnish the required permits and construction easements to the extent shown on the drawings. Additional easements or permits required by the CONTRACTOR shall be obtained by CONTRACTOR at no additional expense to the OWNER.

4.1.8 PROJECT SECURITY: The CONTRACTOR shall make adequate provisions, subject to the approval of the ENGINEER, to protect the project and CONTRACTOR's facilities from fire, theft, and vandalism, and the public from unnecessary exposure to injury.

4.1.9 NO SUNDAY WORK: Except under conditions covered in the General Conditions, no work will be permitted on the Project on Sundays.

SECTION 4.2

PROJECT COORDINATION

4.2.1 SINGLE CONTRACT RESPONSIBILITY: The work included in these Contract Documents shall be performed under the responsibility of a single prime contract. The CONTRACTOR is responsible for the coordination of all the work, whether performed by his own personnel or his subcontractors, and shall keep his workmen and suppliers informed of project progress to avoid delay in completion of the work.

4.2.2 COORDINATION OF PROJECT ELEMENTS: Coordinate work of the various Sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provision for accommodation of items to be installed later.

4.2.3 CONCURRENT CONSTRUCTION: The OWNER and/or utility owners may be working within the project area while this contract is in progress. If so, the CONTRACTOR shall schedule his work in conjunction with these other organizations to minimize mutual interference.

4.2.4 TESTING COORDINATION: All testing requirements specified shall be coordinated by the Contractor and paid for by the OWNER. Payment will be in the form of reimbursement at the invoiced cost of the testing facility. Completion of testing as required in these specifications, the entity having jurisdiction or the Owner shall be the responsibility of the Contractor.

SECTION 4.3
CONSTRUCTION SURVEYING

4.3.1 CONSTRUCTION SURVEYING: The Contractor shall be responsible for any and all of its surveying needs. The Engineer shall lend limited assistance to the Contractor's surveyor to help establish horizontal and vertical control, at no cost to the Contractor.

SECTION 4.4

ABBREVIATIONS

4.4.1 GENERAL: Wherever in the Contract Documents references are made to the standards, specifications, or other published data of the various national, regional, or local organizations, such organizations may be referred to by their acronym or abbreviation only. As a guide to the user of these specifications, the following acronyms or abbreviations which may appear in the Contract Documents shall have the meanings indicated herein.

4.4.2 ABBREVIATIONS AND ACRONYMS:

AAR	Association of American Railroads
AASHTO	American Association of the State Highway and Transportation Officials
ACI	American Concrete Institute
AGA	American Gas Association
AGC	Associated General Contractors
AI	The Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute, Inc.
APWA	American Public Works Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASOC	American Society of Quality Control
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
BBC	Basic Building Code, Building Officials and Code Administrators International
CEMA	Conveyors Equipment Manufacturer's Association
CGA	Compressed GAS Association
CLFMI	Chain Link Fence Manufacturer's Institute
CMA	Concrete Masonry Association
CRSI	Concrete Reinforcing Steel Institute
EIA	Electronic Industries Association
ETL	Electrical Test Laboratories
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IME	Institute of Makers of Explosives
ISA	Instrument Society of America
ISO	International Organization for Standardization
ITE	Institute of Traffic Engineers
MBMA	Metal Building Manufacturer's Association
NACE	National Association of Corrosion Engineers

SECTION 4.5

REFERENCE STANDARDS

4.5.1 TITLES OF SECTIONS AND SUB-SECTIONS: Captions accompanying specifications sections and sub-sections are for convenience of reference only, and do not form a part of the Specification.

4.5.2 APPLICABLE PUBLICATIONS: Whenever in the Contract Documents references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards or requirements of the respective issuing agencies which have been published as of the date that the work is advertised for bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the drawings shall be waived because of any provision of, or omission from, said standards or requirements.

4.5.3 SPECIALISTS, ASSIGNMENTS: In certain instances, specification text requires (or implies) that specific work is to be assigned to specialists or expert entities, who must be engaged for the performance of that work. Such assignments shall be recognized as special requirements and shall not be interpreted so as to conflict with the enforcement or building codes and similar regulations governing the work; also they are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of work is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of contract requirements remains with the CONTRACTOR.

4.5.4 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS:

4.5.4.1 CONFORM TO OR EXCEED REQUIREMENTS: Without limiting the generality of other requirements of the specifications, all work specified herein shall conform to or exceed the requirements of all applicable codes and the applicable requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of the Contract Documents nor the applicable codes.

4.5.4.2 UNIFORM BUILDING CODES: Reference herein to "Building Code" or UBC shall mean that Uniform Building Code of the International Conference of Building Officials (ICBO). The latest edition of the code as approved and used by the local agency as of the date of award, as adopted by the agency having jurisdiction, shall apply to the work herein, including all addenda, modifications, amendments, or other lawful changes thereto.

4.5.4.3 MOST STRINGENT REQUIREMENTS: In case of conflict between codes, reference standards, drawings and the other Contract Document, the most stringent requirements shall govern. All conflicts shall be brought to the attention of the ENGINEER for clarification and directions prior to ordering or providing any materials or labor. The CONTRACTOR shall bid the most stringent requirements.

4.5.4.4 APPLICABLE STANDARD SPECIFICATIONS: The CONTRACTOR shall construct the work specified herein in accordance with the requirements of the Contract Documents and the following referenced codes, standards, and specifications listed herein:

References in the Contract Documents to "Standard Specifications" shall mean the Contract Documents including all current supplements, addenda, and revisions thereof.

References herein to "OSHA Regulations for Construction" shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

References herein to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

UTAH DEPARTMENT OF TRANSPORTATION (UDOT) REQUIREMENTS. The CONTRACTOR's work shall conform to UDOT specifications for excavation on State highways.

IBC	<u>International Building Code</u> , Latest Edition
IMC	<u>International Mechanical Code</u> , Latest Edition
IPC	<u>International Plumbing Code</u> , Latest Edition
	<u>Life Safety Code (NFPA 101)</u> , Latest Edition
	<u>National Electric Code (NEC-NFPA 70)</u> , Latest Edition
	<u>State of Utah Public Drinking Water Regulations</u>
	<u>Rules and Regulations Governing Excavation Work</u>
UOSHA	Utah Occupational Safety and Health Administration
AASHTO	American Association of State Highway
ACI	American Concrete Institute
AGC	Associated General Contractors of America
AI	Asphalt Institute
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
EJCDC	Engineers' Joint Contract Documents Committee
UL	Underwriter's Laboratories, Inc.

Protection of life, health, and public welfare as it relates to execution of the construction contract is the responsibility of the CONTRACTOR. Neither the OWNER nor the ENGINEER will provide observation, inspection, supervision, or any comment on plans, procedures, or actions employed at the project as they relate to safety of life, health, or public welfare. If conditions are imposed by the ENGINEER or OWNER which interfere with, or imply actions detrimental to safety, written notice shall be issued by the CONTRACTOR and a decision shall be returned to the CONTRACTOR for action prior to effecting any unsafe procedure or condition.

SECTION 4.6 PROJECT MEETINGS

4.6.1 PRE-CONSTRUCTION CONFERENCE: Prior to the commencement of work at the site, a pre-construction conference will be held at a mutually agreed time and place which shall be attended by the CONTRACTOR, its superintendent, and its subcontractors as appropriate. Other attendees will be:

- Engineer and the Resident Project Representative
- Representatives of OWNER; Governmental representatives as appropriate
- Utility company representatives
- Others as requested by CONTRACTOR, OWNER, or ENGINEER

4.6.1.1 PRE-CONSTRUCTION SUBMITTALS: Unless previously submitted to the ENGINEER, the CONTRACTOR shall bring to the conference one copy each of the following:

- Progress schedule
- Procurement schedule of major equipment and materials and items requiring long lead time
- Shop drawing/sample/substitute or "Or Equal" submittal schedule

4.6.1.2 PRE-CONSTRUCTION CONFERENCE PURPOSE: The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The complete agenda will be furnished to the CONTRACTOR prior to the meeting date, which may include the following:

- CONTRACTOR'S tentative schedules
- Transmittal, review, and distribution of CONTRACTOR'S submittals
- Processing applications for payment
- Maintaining record documents
- Critical work sequencing
- Field decisions and Change Orders
- Use of project site, office and storage areas, security, housekeeping, and OWNER's needs
- Major equipment deliveries and priorities
- CONTRACTOR'S assignments for safety and first aid

4.6.1.3 PRE-CONSTRUCTION VIDEO RECORDS: The ENGINEER will produce a pre-construction video record of areas where work is to be performed. The video record shall be of professional quality and the coverage shall be such, as to allow accurate determination of location, size and condition, etc. of existing features and improvements within the rights-of-way. The ENGINEER shall provide the OWNER with a copy of the video in an acceptable format, before construction begins.

4.6.1.4 PRE-CONSTRUCTION CONFERENCE MINUTES: The ENGINEER will preside at the pre-construction conference and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.

4.6.2 PROGRESS MEETINGS: The ENGINEER shall schedule and hold regular on-site progress meetings at least weekly and at other times as required by progress of the work. The CONTRACTOR, ENGINEER, and all subcontractors active on the site shall be represented at each meeting. The CONTRACTOR may at its discretion request attendance by representatives of its suppliers, manufacturer's, and other subcontractors.

4.6.2.1 PROGRESS MEETING MINUTES: The ENGINEER shall preside at the meetings and provide for keeping and distribution of the minutes. The purpose of the meetings will be to review the progress of the work, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop.

SECTION 4.7

CONTRACTOR SUBMITTALS

4.7.1 SHOP DRAWING SUBMITTAL:

4.7.1.1 SUBMITTAL COPIES: The CONTRACTOR shall furnish to the ENGINEER for review three (3) copies of each shop drawing submittal. The term "Shop Drawings" as used herein shall be understood to include detail design calculations, shop drawings, fabrication and installation drawings, erection drawings, lists, graphs, operating instructions, catalog sheets, data sheets, and similar items. Shop drawings and submittal requirements shall include interpretations of proposed or required configurations not shown on the drawings, so a document record of such can be approved.

4.7.1.2 SUBMITTAL TIME TABLE: Drawings shall be submitted sufficiently in advance to allow the ENGINEER not less than ten regular working days for examining the drawings. These drawings shall be accurate, distinct, and complete and shall contain all required information, including satisfactory identification of items and unit assemblies in relation to the contract drawings and/or specifications.

4.7.1.3 SUBMITTAL APPROVAL: When the shop drawings are approved by the ENGINEER, two sets of prints will be returned to the CONTRACTOR marked "Approved", "Approved, Except as Noted", or similar notation; if changes or corrections are necessary, one set will be returned to the CONTRACTOR with such changes or corrections, indicated by a brief statement, and the CONTRACTOR shall correct and resubmit the drawings, in triplicate, when requested by the ENGINEER.

4.7.1.4 REBAR SUBMITTALS: Approval of shop drawings will not be required of reinforcing steel that is detailed by the CONTRACTOR in accordance with the plans and specifications. Any change from the plans and specifications that is made by the CONTRACTOR in reinforcing steel as well as any other change shall be approved by the ENGINEER in a written change order prior to any work being altered from that already approved for construction.

4.7.1.5 FABRICATION SCHEDULE: Fabrication of an item may be commenced only after the ENGINEER has reviewed the pertinent submittals and returned copies to the CONTRACTOR marked either "Approved" or "Approved - Except as Noted". Corrections indicated on submittals shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis of claims for extra work.

4.7.1.6 PRE-SUBMITTAL REVIEW: All CONTRACTOR shop drawing submittals shall be carefully reviewed by an authorized representative of the CONTRACTOR, prior to submission to the ENGINEER.

4.7.1.7 RESPONSIBILITY AND RISK: The ENGINEER's review of CONTRACTOR shop drawing submittals shall not relieve the CONTRACTOR of the entire responsibility for the corrections of details and dimensions. The CONTRACTOR shall assume all responsibility and risk for any misfits due to any errors in CONTRACTOR submittals. The CONTRACTOR shall be responsible for dimensions and the design of adequate connections and details.

4.7.2 SAMPLES SUBMITTAL:

4.7.2.1 ITEM SAMPLE: Whenever requested of the ENGINEER, the CONTRACTOR shall submit at least one sample of each item or material to the ENGINEER for acceptance at no additional cost to the OWNER.

4.7.2.2 PRE-ORDERING SAMPLES: Samples, as required herein, shall be submitted for acceptance prior to ordering such material for delivery to the job site, and shall be submitted in an orderly sequence so that dependent materials or equipment can be assembled and reviewed without causing delays in the Work.

4.7.2.3 COLORS AND TEXTURES: Unless otherwise specified, all colors and textures of specified items will be selected by the ENGINEER from the manufacturer's standard colors and standard materials, products, or equipment lines.

4.7.3 OPERATIONS AND MAINTENANCE MANUAL SUBMITTAL:

4.7.3.1 MANUAL ORGANIZATION: The CONTRACTOR shall furnish to the ENGINEER three (3) identical sets of Operation and Maintenance manuals. Each set shall consist of one or more volumes, each of which shall be bound in a standard size, 3-ring, loose-leaf, vinyl plastic hard cover binder suitable for bookshelf storage. Binder ring size shall not exceed 2.5 inches. A table of contents shall be provided which indicates all equipment in the Operation and Maintenance manuals

4.7.3.2 MANUAL CONTENTS: The CONTRACTOR shall include in the Operation and Maintenance manuals full details for care and maintenance for all visible surfaces as well as the following for each item of mechanical, electrical, and instrumentation equipment:

Complete operating instructions, including location of controls, special tools or other equipment required, related instrumentation, and other equipment needed for preventive maintenance procedures and schedules.

- Preventive maintenance procedures and schedules.
- Complete parts lists, by generic title, identification number, and catalog number, complete with exploded views of each assembly.
- Disassembly and re-assembly instructions.
- Name and location of nearest supplier and spare parts warehouse.
- Name and location of manufacturer.
- Recommended troubleshooting and start-up procedures.
- Prints of the record drawings, including diagrams and schematics, as required under the electrical and instrumentation portions of these specifications.

4.7.3.3 SUBMITTAL TIME: All Operation and Maintenance manuals shall be submitted in final form to the ENGINEER not later than the 75 percent of construction completion date. All discrepancies found by the ENGINEER in the Operation and Maintenance manuals shall be corrected by the CONTRACTOR prior to final acceptance of the project at no additional cost to the OWNER.

SECTION 4.8 QUALITY CONTROL

4.8.1 INSPECTION OF MATERIALS: At the option of the ENGINEER, materials to be supplied under this contract will be tested and/or inspected either at their place of origin or at the site of the work. The CONTRACTOR shall give the ENGINEER written notification well in advance of actual readiness of materials to be tested and/or inspected at point of origin. Satisfactory tests and inspections at the point of origin shall not be construed as a final acceptance of the material nor shall it preclude re-testing or re-inspection at the site of the work.

The CONTRACTOR shall furnish such samples of materials as are requested by the ENGINEER, without charge. No material shall be used until it has been approved by the ENGINEER. See Section 4.7, Contractors Submittals.

4.8.2 AUTHORITY AND DUTIES OF INSPECTOR:

4.8.2.1 SCOPE OF INSPECTION: Inspectors employed by the OWNER shall be authorized to inspect all work done and materials furnished. Such inspection may extend to all or any part of the work, and to the preparation, fabrication, or manufacture of the materials to be used. The inspector is not authorized to alter or waive the provisions of these specifications.

4.8.2.2 INSPECTOR ROLE: An inspector is placed on the work to keep the ENGINEER informed of the progress of the work and the manner in which it is being done; also to call the CONTRACTOR's attention to any non-conformance with the plans and specifications, not to act as foreman for the CONTRACTOR. The inspector shall have authority to reject defective material and to reject any work that is being improperly performed, subject to the final decision of the ENGINEER. The inspector will exercise such additional authority only as may from time to time be delegated to him from the ENGINEER.

4.8.2.3 CONTRACTOR OBLIGATION: The inspection of the work shall not relieve the CONTRACTOR of any of his obligations to fulfill his contract as herein provided, and unsuitable materials may be rejected notwithstanding that such work and materials may have been overlooked and accepted or estimated for payment.

4.8.3 TESTS AND INSPECTIONS: Refer to General Conditions for responsibilities.

The OWNER shall employ and pay for the services of a qualified independent testing consultant, approved by the ENGINEER to perform specified services for the testing of:

- Soils Compaction Control
- Paving and Surfacing Replacement
- Materials Testing (Concrete, grout, Surface Finishes, etc.)

The Contractor shall arrange for the performance of all other tests and inspections required by the Contract Documents.

4.8.4 REQUIREMENTS FOR INDEPENDENT TESTING CONSULTANTS:

4.8.4.1 QUALIFICATIONS: Comply with basic requirements of ASTM E329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction", latest edition.

4.8.4.2 TEST REPORTS: Testing agency shall be instructed to submit directly to ENGINEER, all reports of tests or inspections made, showing compliance, irregularities or deficiencies, identifying project, date of test, location in project, applicable specification section, applicable standard(s) for compliance, observations relating to compliance, name and signature of inspector.

4.8.5 CONTRACTOR RESPONSIBILITIES: Furnish above qualification data and expedite submittals if and when testing consultant is employed by CONTRACTOR. Provide access to the work and furnish casual labor and facilities to accommodate inspections and tests. When tests fail to meet specified requirements, CONTRACTOR shall arrange for re-testing after conditions have been corrected. Conduct such re-testing at no additional expense to the OWNER.

SECTION 4.9

PROTECTION OF EXISTING FACILITIES

4.9.1 GENERAL: Any existing facilities disturbed which are located in the line of work such as curbs, gutters, sidewalks, driveways, fences, underground pipes, conduits, or utilities, shall be cleaned up and restored in kind by the CONTRACTOR and in accordance with the specifications contained herein governing the various types of services involved.

4.9.2 RESTORATION OF FENCES: Where it is necessary to remove any fence to facilitate the CONTRACTOR's operation, the CONTRACTOR shall obtain prior agreement with the OWNER for removal of the fence, and shall be responsible for any damage due to negligence of the CONTRACTOR. As soon as practical, the fence shall be restored substantially to the same or improved condition as it was in, prior to the commencement of the work.

4.9.3 INTERFERING STRUCTURES AND UTILITIES: The CONTRACTOR shall exercise all possible caution to prevent damage to existing structures and utilities, whether above ground or underground. It shall be the responsibility of the CONTRACTOR to locate and expose all existing underground and overhead structures and utilities in such a manner as to prevent damage to same. The CONTRACTOR shall notify all utility offices concerned at least 48 hours in advance of construction operations in which a utility agency's facilities may be involved. This shall include, but not be limited to, irrigation water, culinary water, telephone, cable television, gas, sewer, and power. The CONTRACTOR shall be responsible for any and all changes to, reconnections to public utility facilities encountered or interrupted during prosecution of the work (refer to General Conditions). The CONTRACTOR shall contract with and pay Public Utility Agencies for work required in connection with all utility interferences and handle all necessary notifications, scheduling, coordination, and details. The cost of public utility interferences shall be included in the CONTRACTOR's lump sum or unit price bid covering the major contract facility to which interference or changes are attributable.

4.9.3.1 PRIVATE PROPERTY: Any damages to private property, either inside or outside the limits of the easements provided by the OWNER, shall be the responsibility of the CONTRACTOR. Any roads, structures, or utilities damaged by the work shall be repaired or replaced in a condition equal to or better than the condition prior to the damage. Such repair or replacement shall be accomplished at the CONTRACTOR's expense without additional compensation from the OWNER, unless otherwise specified.

4.9.3.2 RESPONSIBILITIES: The CONTRACTOR shall remove and replace small miscellaneous structures such as fences and culverts which are damaged by the construction activity at his own expense without additional compensation from the OWNER. The CONTRACTOR shall replace these structures in a condition as good as or better than their original condition, unless otherwise specified.

4.9.3.3 SPECIFIED PROTECTION: At points where the CONTRACTOR's operations are adjacent to or across properties of railway, telegraph, telephone, irrigation canal, power, cable television, gas, water, or adjacent to other property (damage to which might result in considerable expense, loss, and inconvenience), no work shall be started until all arrangements necessary for the protection thereof have been made.

4.9.3.4 UTILITY LOCATIONS: The locations of the major existing culinary water lines, gas pipes, sewer lines, underground power, cable television, and telephone lines that are shown on the plans, were taken from city maps, and maps supplied by the utility owner. Preliminary investigations have indicated they are generally reliable. However, it should be expected that some location discrepancies will occur.

4.9.3.5 UTILITY INTERRUPTIONS: In the event of interruption to culinary water, or to other utility services as a result of accidental breakage of located utilities, or as a result of being exposed or unsupported, the CONTRACTOR shall promptly notify the proper authority. The CONTRACTOR shall cooperate with the authority in restoration of service as soon as possible, and shall bear all cost of repair. In no case shall interruption of any water or utility service be allowed outside working hours unless prior approval is received.

4.9.4 RIGHTS-OF-WAY:

4.9.4.1 CONFINE CONSTRUCTION: The CONTRACTOR shall be required to confine construction operations within the dedicated rights-of-way for public through fares, or within areas for which construction easements have been obtained, unless they have made special arrangements with the affected property owners in advance. The CONTRACTOR shall be required to protect stored materials, cultivated trees and crops, and other items located adjacent to the proposed construction site.

4.9.4.2 ENGINEER'S DIRECTION: The ENGINEER may direct the type and size of equipment used, and the methods, for work performed on the rights-of-way across private properties, to avoid or minimize injury to trees, shrubs, gardens, lawns, fences, driveways, retaining walls, or other improvements within the rights-of-way.

4.9.4.3 PROPERTY OWNER ACCESS: Property owners affected by the construction shall be notified by the CONTRACTOR at least 48 hours in advance of the time the construction begins. During all construction operations, the CONTRACTOR shall construct and maintain such facilities as may be required to provide access by all property owners to their property. No person shall be cut off from access to his property for a period exceeding 8 hours unless the CONTRACTOR has made special arrangements with the affected person. The CONTRACTOR shall, daily or more frequently if necessary, grade all disturbed areas to be smooth for motor vehicle traffic.

SECTION 4.10

TEMPORARY FACILITIES AND CONTROLS

4.10.1 GENERAL: CONTRACTOR shall be responsible for providing or arranging with subcontractors for all temporary utilities, facilities and controls during the construction period.

4.10.2 TEMPORARY UTILITIES:

4.10.2.1 WATER: The CONTRACTOR shall be responsible for locating a source of water supply, adequate for use for construction, drinking, sanitation, and fire protection purposes, and for all connections, distribution facilities, and costs associated therewith.

4.10.2.2 ELECTRIC POWER AND LIGHTING: The CONTRACTOR shall be responsible for locating a temporary source of electrical energy for use during the construction period, and for providing needed power to the site. Temporary electrical work shall meet the requirements of the National Electrical Code (NFPA 70), latest edition. Disconnect and remove all temporary equipment and materials upon completion of construction, and repair all damage caused by temporary installations.

4.10.2.3 FIELD OFFICES AND STORAGE FACILITIES: Provide and maintain storage sheds, trailers or other facilities as necessary to store and protect materials, tools and equipment.

4.10.2.4 SANITARY FACILITIES: Fixed or portable chemical toilets shall be provided wherever needed for the use of employees. Toilets at construction job sites shall conform to the requirements of Part 1926 of the OSHA Standards for Construction. The CONTRACTOR shall establish a regular daily collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the CONTRACTOR or organic material wastes from any other source related to the CONTRACTOR's operations shall be disposed of away from the site in a manner satisfactory to the ENGINEER and in accordance with all laws and regulations pertaining thereto.

4.10.2.5 FENCES AND BARRICADES: Refer to General Conditions and Section 4.9 for responsibilities with respect to protection of persons and property.

Provide and maintain temporary fences, barriers, lights, guardrails and barricades as indicated in the Contract Documents, or as necessary to regulate vehicular and pedestrian traffic, to secure the work and adjacent property, and to protect persons and property. Obtain necessary approvals and permits and provide temporary expedients as necessary to accommodate controls.

SECTION 4.11

MATERIAL AND EQUIPMENT

4.11.1 REQUIRED MATERIALS: All materials incorporated in the project shall be new and shall fully comply with the specifications. Unless otherwise clearly provided in the specifications, all workmanship, equipment, materials, and articles incorporated in the work covered by the contract are to be of the best available grade of their respective kinds. Whenever, in the specifications, any material, article, device product, fixture, form, type of construction, or process is indicated or specified by patent or proprietary name, by name of manufacturer, or by catalog number, such specifications shall be deemed to be used for the purpose of establishing a standard of quality and facilitating the description of the material or process desired and shall be deemed to be followed by the words "or approved equal" and the CONTRACTOR may in such case, upon receiving the ENGINEER's approval, purchase and use any item, type, or process which shall be substantially equal in every respect to that indicated or specified.

4.11.2 PRODUCTS LIST: Within ten (10) days after date of the Contract, submit to ENGINEER two (2) copies of complete list of all products which are proposed for installation. Tabulate list by, and be complete for, each specifications section. Include with listing of each product the name and address of manufacturer, trade name, model or catalog designation, reference standard, manufacturer's performance and test data, and subcontractor, as applicable.

4.11.3 REFERENCE STANDARDS: Reference in the specifications to standard specifications or publications or technical societies or governmental agencies, such as ASTM, ANSI, AISC, ACI, ASW, AWWA, Federal Specifications, or Commercial Standards shall refer to latest edition adopted and published 30 days prior to receiving bids, unless specifically noted otherwise in the Contract Documents. It shall be understood that all manufacturers, producers and their agents of materials required shall have such reference standards available for reference and be fully familiar with their requirements as pertains to their product, material or equipment.

In case of conflict between reference standards and project specifications, project specifications shall govern. In case of conflict between reference standards and codes, the one having the more stringent requirements shall govern.

4.11.4 MANUFACTURER'S INSTRUCTIONS: Refer to General Conditions. CONTRACTOR shall obtain and distribute necessary copies of manufacturer's instructions, including two copies to the ENGINEER. If a conflict exists between the manufacturer's instructions and the Contract Documents, notify the ENGINEER in writing and obtain his instruction prior to proceeding.

4.11.5 PRODUCT DELIVERY, STORAGE AND HANDLING: Deliver materials, products and equipment to the project site in undamaged condition in manufacturer's original, unopened containers or packaging with identifying labels intact and legible. Arrange deliveries in accordance with the Construction Schedule and in ample time to facilitate inspection prior to installation to avoid unnecessary delays in the construction process.

Store and handle products as prescribed by manufacturer or as specified in the Contract Documents in a manner to protect from damage by moisture, weather, abuse or construction operations.

4.11.6 EQUIPMENT: All equipment which is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory

quality of work. Equipment used on any portion of the project shall be such that no injury to the roadway, adjacent property or other highways will result from its use. When the methods and equipment to be used by the CONTRACTOR in accomplishing the construction are not prescribed in the contract, the CONTRACTOR is free to use any methods or equipment that he demonstrates to the satisfaction of the ENGINEER will accomplish the contract work in conformity with the requirements of the contract.

SECTION 4.12

SITE ACCESS AND STORAGE

4.12.1 HIGHWAY LIMITATIONS: The CONTRACTOR shall make its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the site of the work. It shall be the CONTRACTOR's responsibility to construct and maintain any haul roads required for its construction operations.

4.12.2 STREET USE: Nothing shall be construed to entitle the CONTRACTOR to the exclusive use of any public street, alleyway, or parking area during the performance of the work hereunder, and the CONTRACTOR shall so conduct operations as not to interfere unnecessarily with the authorized work of utility companies or other agencies in such streets, alleys, ways, or parking areas. No street shall be closed to the public without first obtaining permission of the ENGINEER and proper governmental authority. Where excavation is being performed in primary streets or highways, one lane in each direction shall be kept open to traffic at all times unless otherwise provided or shown. Toe boards shall be provided to retain excavated material if required by the ENGINEER or the agency having jurisdiction over the street or highway. Fire hydrants on or adjacent to the work shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the CONTRACTOR to assure the use of sidewalks and the proper functioning of all gutters, sewer inlets, and other drainage facilities.

4.12.3 CONTRACTOR'S WORK AND STORAGE AREA: The CONTRACTOR shall make arrangements for any necessary off-site storage or shop areas necessary for the proper execution of the work. The Contractor is free to utilize available space at the Owner's facilities, with the understanding that the Contractor will be entirely responsible for any shipping or transportation costs, and any negative impacts to facilities or traffic control as a result of using said facilities.

SECTION 4.13

ENVIRONMENTAL CONTROLS

4.13.1 EXPLOSIVES AND BLASTING: The use of explosives on the work will not be permitted unless permission is granted by the ENGINEER on a case by case basis. In the event blasting becomes necessary, a blasting plan shall be submitted for prior approval by the ENGINEER. Costs for blasting will be determined by an approved change order.

4.13.2 DUST ABATEMENT: The CONTRACTOR shall furnish all labor, equipment, and means required and shall carry out effective measures at his own expense wherever and as often as necessary to prevent its operation from producing dust in amounts damaging to property, cultivated vegetation, or domestic animals, or causing a nuisance to persons living in or occupying buildings in the vicinity. The CONTRACTOR shall be responsible for any damage resulting from any dust originating from operations. The dust abatement measures shall be continued until the CONTRACTOR is relieved of further responsibility by the ENGINEER.

4.13.3 STORM AND GROUND WATER: The CONTRACTOR shall provide and maintain at all times during construction, ample means and devices with which to promptly remove and properly dispose of all water entering the excavation or other parts of the work, whether the water be surface or underground water.

4.13.3.1 PROTECT EXISTING DRAINAGE: In excavation, fill, and grading operations, care shall be taken to disturb the preexisting drainage pattern as little as possible. Particular care shall be taken not to direct drainage water onto private property or into streets or drainage ways inadequate for the increased flow. The ENGINEER will not approve the filling of ditches, washes, drainage-ways, wet-lands, etc., which may in his opinion create water control problems.

4.13.3.2 SEDIMENT CONTROL: The CONTRACTOR shall maintain effective means to minimize the quantity of sediments leaving the work area either by storm water or the CONTRACTORS own dewatering operations.

4.13.4 NOISE ABATEMENT: In inhabited areas, particularly residential, operations shall be performed in a manner to minimize unnecessary noise generation. In residential areas, particular consideration shall be given to noise generated by repair and service activities during the night hours.

4.13.5 WASTE DISPOSAL: The CONTRACTOR shall provide for the disposal of all surplus materials, waste products, debris, etc., and shall make necessary arrangements for such disposal. The CONTRACTOR shall obtain written permission from property owner(s) prior to disposing of any surplus materials, waste products, debris, etc., on private property, and shall also obtain the approval of the ENGINEER prior to such disposal.

4.13.5.1 NUISANCES: The ENGINEER will not approve disposal operations which will, in his opinion, create unsightly and/or unsanitary nuisances.

4.13.5.2 DISPOSAL SITE: The CONTRACTOR shall maintain the disposal site(s) in a reasonable condition of appearance and safety during the construction period as required by the ENGINEER.

4.13.5.3 FINAL ACCEPTANCE: Prior to final acceptance of the project the CONTRACTOR shall have completed the leveling and cleanup of the disposal site(s) to the satisfaction of the ENGINEER.

4.13.6 RESTORATION OF CONSTRUCTION SITE: Clean-up of all construction debris, excess excavation, excess material, and complete restoration of all fences, irrigation structures, ditches, culverts, and similar items shall be completed immediately following final backfill. The CONTRACTOR shall stockpile the excavated trench material so as to do the least damage to adjacent areas, or fences, regardless of whether these are on private property or public rights-of-way. All excavated areas and areas where excavated material has been stockpiled on grassed or planted land shall be left in a condition equivalent to their original surface and free from all rocks, gravel, boulders, or other foreign materials.

4.13.7 RUBBISH CONTROL: During the progress of the work, the CONTRACTOR shall keep the site of the work and other areas used by it in a neat and clean condition, and free from any accumulation of rubbish. The CONTRACTOR shall dispose of all rubbish and waste materials of any nature occurring at the work site, and shall establish regular intervals of collection and disposal of such materials and waste. The CONTRACTOR shall also keep its haul roads free from dirt, rubbish, and unnecessary obstructions resulting from its operations. Disposal of all rubbish and surplus materials shall be off the site of construction in accordance with local codes and ordinances with all applicable safety laws, and the particular requirements of Part 1926 of the OSHA Safety and Health Standards for Construction.

4.13.8 CHEMICALS: All chemicals used during project construction or furnished for project operation, whether defoliant, soil sterilant, herbicide, pesticide, disinfectant, polymer, rasctant or of other classification, shall show approval of the U.S. Department of Agriculture. Use of all such chemicals and disposal of residues shall be in strict accordance with the printed instruction of the manufacturer.

4.13.9 CULTURAL RESOURCES: The CONTRACTOR's attention is directed to the National Historic Prevention Act of 1976 (16 U.S.C. 470) and 36 CFR 800 which provides for the preservation of potential historical architectural, archeological, or cultural resources (hereinafter called "cultural resources"). The CONTRACTOR shall conform to the applicable requirements of the National Historic Preservation Act of 1976 as it relates to the preservation of cultural resources. In the event potential cultural resources are discovered during subsurface excavations at the site of construction, the following procedures shall be instituted:

4.13.9.1 CEASE CONSTRUCTION OPERATIONS: The ENGINEER will issue a Field Order directing the CONTRACTOR to cease all construction operations at the location of such potential cultural resources find.

4.13.9.2 ARCHEOLOGICAL REVIEW: Such Field Order shall be effective until such time as a qualified archeologist can be called to assess the value of these potential cultural resources and make recommendations to the OWNER and ENGINEER.

4.13.9.3 WORK SUSPENSION: If the archeologist determines that the potential find is a bona fide cultural resource, at the direction of the ENGINEER, the CONTRACTOR shall suspend work at the location of the find under the provisions for changes contained in Article 16 of the General Conditions.

SECTION 4.14
PROJECT CLOSEOUT

4.14.1 FINAL CLEANUP: The CONTRACTOR shall promptly remove from the vicinity of the completed work, all rubbish, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction. Final acceptance of the work by the OWNER will be withheld until the CONTRACTOR has satisfactorily complied with the foregoing requirements for final cleanup of the project site.

4.14.2 TOUCH-UP AND REPAIR: The CONTRACTOR shall touch up or repair all finished surfaces on structures, equipment, fixtures, or whatever, that have been damaged prior to final acceptance. Surface on which such touch-up or repair cannot be successfully accomplished shall be completely refinished or in the case of hardware and similar small items, the item shall be replaced.

4.14.3 CLOSEOUT TIMETABLE: The CONTRACTOR shall establish dates for equipment testing, acceptance periods, and on-site instruction periods (as required under the Contract). Such dates shall be established not less than one week prior to beginning any of the foregoing items, to allow the OWNER, the ENGINEER, and their authorized representatives sufficient time to schedule attendance at such activities.

4.14.4 SUBMITTALS: Submit with or prior to Application for Final Payment, Consent or Surety to Final Payment and remaining releases, waivers, guarantees and all project data required by the Contract Documents.

4.14.4.1 PROJECT RECORD DOCUMENTS: CONTRACTOR shall notify ENGINEER in writing that certified copies of results for all earth compaction tests conducted have been submitted. Letter shall include a summary list of all tests conducted showing date and location.

4.14.4.2 TRENCH SETTLEMENT: Replacement of earth fill or backfill, where it has settled below the required finish elevations, shall be considered as part of such required repair work, and any repair or resurfacing which becomes necessary by reason of such required repair work shall be completed by the CONTRACTOR at no cost to the OWNER.

Hooper Water Improvement District

Construction Specifications

SECTION 5. SITE WORK REQUIREMENTS

Revision summary

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District Manager

Date

Prepared By



Hooper Water Improvement District Construction Specifications
Revision Summary

<u>Date</u>	<u>Spec. No.</u>	<u>Description</u>
2018/10/24		Standard Details DDW approval
2019/02/13	5.3.2.5	Add valve type by size standard
2019/02/13	5.3.2.17	Modify connection hardware spec. to address more than buried case
2019/02/13	5.3.3.8	Add valve location standard at tees, crosses, easements
2019/06/18	5.3.3.12	Add concrete collar on meter boxes in traffic areas
2020/03/17	5.3.2.8	Add requirement that all service lateral couplings be approved, brass
2020/03/17	5.3.2.11	Change to SDR 9 service lateral
2020/03/17	5.3.2.12	Add non-typical meter requirements: District approval, equal to typical
2020/03/18	5.3.2.13	Concrete meter box/flat lids required in traffic areas
2020/03/18	5.3.3.12	Add requirement for compacted roadbase under concrete collar
2021/09/27	5.3.3.3	All District lines outside of public R.O.W. shall be HDPE
2021/09/27	5.3.3.17	Install concrete splash pad at sampling stations
2021/12/07	5.3.3.6	Non-ROW, perpetual transmission waterlines shall be HDPE.
2021/12/07	5.3.3.13	Meter Tag
2022/03/07	5.3.2.9	Service Saddle , add SaddleCorp 3450AS PowerJoint

SECTION 5 – SITE WORK REQUIREMENTS
SECTION 5.1
PIPELINE TRENCH EXCAVATION AND BACKFILL

5.1.1 DESCRIPTION: The CONTRACTOR shall furnish all labor, materials, tools and equipment, and perform all work necessary to complete required excavations and backfills. Work shall also include required grading for completion of water lines and associated appurtenances all in accordance with the plans and these specifications.

The work shall include: clearing the site; loosening, loading, removing, transporting and disposing of materials, wet and dry, necessary for construction; sheeting and bracing; draining and dewatering; backfill of trenches, excavations, and pits; compaction, compaction testing, leveling, signing, detours, mobilization, and clean up.

5.1.2 MATERIALS:

5.1.2.1 PIPE FOUNDATION MATERIAL: Wherever the subgrade material does not afford a sufficiently solid foundation to support the pipe and superimposed load, where water must be drained to maintain a dry bottom for pipe installation, or where solid rock intrudes into the bottom of the trench, the subgrade shall be excavated to a minimum depth of 6 inches below pipe bedding and replaced with crushed rock or pit run gravel.

Gravel for pipe stabilization material shall be clean crushed rock or pit run gravel conforming to the following gradation:

<u>Screen</u>	<u>Percent Passing</u>
3"	100
3/4"	5

The gravel material shall be deposited over the entire trench width and compacted by tamping, rolling, or other suitable methods. In addition, the material shall be graded to produce a uniform and continuous support for pipe bedding material or installed pipe as specified.

5.1.2.1 PIPE BEDDING MATERIAL: Pipe bedding is fill material in the pipe zone. The pipe zone is defined as the envelope area 6 inches below the bottom of the pipe to 12 inches above the top of the pipe, and any lateral area within 9 inches of any pipe, pipeline structure or appurtenance.

Pipe bedding material may be excavated or imported material consisting of loose earth and sand or gravel conforming to the following gradation specifications:

• **PIPE BEDDING MATERIAL**

	<u>Screen</u>	<u>Percent Passing</u>
(If Ductile Iron or Concrete Pipe)	1"	100
(If PVC or HDPE Pipe)	¾"	100
	No. 4	85-95
	No. 30	20-30
	No. 200	5-15

5.1.2.3 SELECT BACKFILL MATERIAL: Select backfill material shall be granular, readily compactable and shall be free from alkali, salt, and petroleum products, roots, sod, limbs, and other vegetative matter, slag, cinders, ashes and rubbish, or other material that in the opinion of the ENGINEER may be objectionable.

Conforming to the following gradation specifications:

<u>Screen</u>	<u>Percent Passing</u>
6 inch	100
No. 10	50 max.
No. 40	30 max.
No. 200	15 max.

Material from excavation may be used if it will meet all requirements of select backfill, including compaction requirements as specified for type of surface improvement above trench.

5.1.3 CONSTRUCTION:

5.1.3.1 TRENCH EXCAVATION: Trench excavation shall be described as the excavation of quicksand, sand, crushed slag, clay, loam, earth, hardpan, boulder-clay, boulders, bituminous or gravel roadway surface, together with removal of old timber, railroad ties, stone-filled or stone abutments and piers, boundaries, concrete and stone masonry, and every other class of material.

5.1.3.2 SOLID ROCK EXCAVATION AND BLASTING: Blasting will not be permitted, except by written permission from the ENGINEER on a case by case basis. If the CONTRACTOR seeks blasting permission, and is granted that permission by the ENGINEER, he must exercise great care and will be held responsible for and will assume all liability connected with the blasting and use of explosives. He will be liable for all damage to work on adjacent property, all injuries, lawsuits, complaints, and any other actual or alleged damages.

- **BLASTING EXPERTS:** Blasting shall be done only by experienced, qualified blasters. Blasting shall be done in accordance with the recommendations for best practice in Section 9 of AGC Manual of Accident Prevention in Construction and in accordance with the recommendations for best practice of the Institute of Makers of Explosives. Blasting shall comply with State and OSHA requirements.
- **COVERED BLASTING:** All blasting near dwellings must be covered with heavy mats to prevent flying rock fragments. No blasting shall be done within 15 feet of completed work.
- **SAFETY RULES:** The CONTRACTOR shall observe all safety rules for the handling of explosives, and in no case shall blasting caps be stored near the explosives. No blasting shall be done outside the regular working hours except with special approval.
- **BLASTING NOT BID ITEM:** Solid rock excavation is not a bid item. Should the CONTRACTOR choose to blast, the cost will be negotiated through a work directive and change order.

5.1.3.4 TRENCH WIDTH: The trench shall be excavated such that the new pipe is always centered in the trench. The clear trench width at the horizontal diameter of the pipe must not be less than the outside diameter of the pipe plus 18 inches. The maximum clear width of trench at the top of the pipe must not be more than the outside diameter of the pipe plus 24 inches.

Backfill with earth under structures or valves will not be permitted. Any unauthorized excess excavation below the elevation indicated for foundation of any structures shall be backfilled in accordance with these specifications for "Select Backfill Material" and "Pipe Foundation Material", as appropriate, at the CONTRACTOR's expense.

5.1.3.5 SHEETING, BRACING AND SHORING OF EXCAVATIONS: Excavations shall be sheeted, braced, and shored as required to support the walls of the excavations, to eliminate sliding and settling and as may be required to protect the workmen, the work in progress, and existing utilities, structures and improvements. All such sheeting, bracing, and shoring shall comply with the requirements of the Utah State Industrial Commission, Occupational Safety and Health Act (OSHA), and accident prevention and safety provisions of the contract.

The CONTRACTOR shall be fully responsible for the adequacy of methods and materials used in trench sheeting, bracing, shoring, and/or other systems provided to protect workmen. Injury to or death of workmen resulting from inadequate trench safety measures shall be the full and complete responsibility of the CONTRACTOR.

All damages resulting from lack of adequate sheeting, bracing and shoring shall be the responsibility of the CONTRACTOR, and the CONTRACTOR shall complete all necessary repairs or reconstruction at his own expense resulting from such damage.

Sheeting or shoring that does not extend below the centerline of the pipe may be removed at the discretion and responsibility of the CONTRACTOR after the trench backfill has been placed and compacted to a level 12 inches above the top of the pipe. Following removal of the sheeting or bracing, the trench shall be immediately backfilled and compacted.

5.1.3.6 PIPE FOUNDATION AND BEDDING MATERIAL INSTALLATION: Pipe foundation and bedding material installation consists of preparing an acceptable pipe foundation, excavating the pipe groove in the prepared foundation and backfilling from the foundation to 12 inches above the top of the pipe. All piping shall be protected from lateral displacement and possible damage resulting from impact or unbalanced loading during backfilling operations by being adequately bedded.

- **PIPE FOUNDATION:** Shall consist of undisturbed natural soil in the bottom of the trench, or a built-up foundation of bedding material if conditions and these specifications so warrant. Wherever the trench subgrade material does not afford a sufficiently solid foundation to support the pipe and superimposed load, and/or where groundwater must be drained, or where solid rock intrudes into the trench bottom the trench shall be excavated below the bottom of the pipe bedding approximately 6 inches, and filled with clean, compacted pipe foundation material.

- **PIPE BEDDING FROM PIPE FOUNDATION TO 12 INCHES ABOVE TOP OF PIPE:** Bedding material shall be deposited and compacted in layers not to exceed 8 inches in uncompacted depth. Deposition and compaction of bedding materials shall be done simultaneously and uniformly on both sides of the pipe. All bedding materials shall be placed in the trench with hand tools or other approved method in such a manner that they will be scattered alongside the pipe and not dropped into the trench in compact masses.
- **PIPE GROOVE:** A pipe groove shall be excavated in the pipe bedding material to receive the bottom quadrant of the pipe so that the installed pipe will be true to line and grade. Bell holes shall be dug after the trench bottom has been graded. Bell holes shall be excavated so that only the barrel of the pipe bears on the pipe foundation.

5.1.3.7 TRENCH BACKFILL: The trench shall be backfilled from 12 inches above the top of the pipe to the bottom of the required surface improvement section indicated on the Drawings, with select backfill material. No bituminous pavement, concrete, rock, or other lumpy material may be used in the backfill unless these materials are scattered and do not exceed 6 inches in any dimension. Decomposable or vegetative material shall not be used in backfilling.

5.1.3.8 EXCAVATED WASTE MATERIAL: All excess material shall be hauled away from the construction site and legally disposed of in an area obtained by the CONTRACTOR. The CONTRACTOR shall be responsible for all rights-of-way, easements, and access associated with the disposal of excess excavated material. The CONTRACTOR shall further be responsible to obtain permission from the property owner or person(s) controlling the property where the CONTRACTOR plans to dispose of excavated material. No separate compensation will be made to the CONTRACTOR for disposal of excess excavated material.

Excavated material shall be piled in a manner that will not endanger the work and will avoid obstructing sidewalks and driveways. Gutters and irrigation ditches shall be kept clear or other satisfactory provisions made for street drainage.

Grading of the area surrounding the trenches, including excavated materials, shall be performed as necessary to prevent surface water from flowing into trenches, or other excavations.

5.1.3.9 COMPACTION: Compaction shall be the responsibility of the CONTRACTOR. He shall select the methods to be used and carefully perform the work of backfilling and compaction so as to prevent damage to new or existing piping. Any new or existing piping damaged during the CONTRACTOR's work shall be replaced as directed by the ENGINEER with new piping.

5.1.3.10 COMPACTION TESTING: Compaction testing requirements called for herein are only minimum and are required for the purpose of indicating, during construction, the quality of materials and compaction. Dips or uneven surface caused by post settlement of any trenches, excavation, fill, or embankment that show up within the 1 year warranty period shall be repaired by the CONTRACTOR at no additional cost to the OWNER.

- **MAXIMUM DENSITY:** Maximum density as used in these specifications shall be defined as the maximum density obtained in the laboratory by an AASHTO T-180 test. In place density of compacted backfill will be determined by use of nuclear density determining equipment.

- **COMPACTION PERCENTAGE:** Unless otherwise specified, fills shall be compacted as indicated in the following tabulation:

<u>Location</u>	<u>Percent of Maximum Density</u>
Backfill adjacent to structure	90
Fill under structure	95
Fill areas for pipeline construction	95
Pipe bedding	90
Trench backfill (Outside roadway right-of-way)	90
Trench backfill (Inside roadway right-of-way)	97

- **COMPACTION CONFIRMATION:** It shall be the responsibility of the CONTRACTOR to accomplish the specified compaction for backfill, fill, etc., and to control all earthwork operations by tests or other means approved by the ENGINEER to verify and confirm that the CONTRACTOR is complying at all times with the requirements of the specifications.
- **INDEPENDENT TESTING:** Material tests are required and shall be made by an independent testing laboratory hired and paid for by the entity commissioning the waterline installation, with primary responsibility for coordinating said testing being borne by the CONTRACTOR (e.g., if the District retains a contractor to install a waterline, the District will retain and pay for testing services; if a developer commissions the installation of a waterline, it will retain and pay for testing services; in either case, the contractor would be responsible for coordination with the testing service so that work may proceed at the contractor's coordination). In areas where compacted backfill material is specified for pipeline trenches or around structures, the following amounts of satisfactory field density tests are required:
 - Street crossings, every 50 feet of crossing length, or portion thereof:
 - 2 Tests per 50-foot segment (18" above top of pipe and top of subbase).
 - Trenches running parallel to the roadway:
 - 2 Tests per 500 feet (18" above top of pipe and top of subbase).
- **PROCTOR TESTS:** Earth material specified in this section having specific gradation requirements shall have a soil gradation and proctor analysis performed to verify compliance and used as a basis for compaction tests. The number of times each type of material shall be tested is as follows:
 - When material is being imported:
 - 1 Test per borrow site.
 - 1 Additional test per material change.
 - When native material is approved:
 - 1 Test per geographical area where the composition and material gradation visually remains unchanged.

The term "test" shall mean a single test with acceptable results, i.e., equal to or greater than the specified minimums. In the event compaction tests results fall below the required minimum, the CONTRACTOR shall recompact and test the material until a test with acceptable results is obtained.

- **TEST RESULTS:** Copies of test results prepared by the independent testing laboratory will be transmitted to the CONTRACTOR at the same time they are transmitted to the ENGINEER.

Successful performance of field density tests by the independent testing laboratory at any given location shall not relieve the CONTRACTOR of his responsibility to meet the specified density and warranty requirements for the complete project.

Additional tests directed by the ENGINEER shall be made at locations selected by the ENGINEER.

5.1.3.11 RESTORATION OF CONSTRUCTION SITE: During the progress of the Work, the CONTRACTOR shall clean up all construction debris, excess excavation, and excess materials, and shall restore all fences, irrigation structures, ditches, culverts, and similar items. The CONTRACTOR shall stockpile the excavated trench material so as to do the least damage to adjacent grassed areas, or fences, regardless of whether these are on private property or public rights-of-way. All excavated materials shall be removed from grassed and planted areas and these surfaces shall be left in conditions equivalent to their original surface and free from all rocks, gravel, boulders, or other foreign materials.

The roadway including shoulders, slopes, ditches, and borrow pits shall be smoothly trimmed, and shaped by machinery, or other satisfactory methods, to the lines, grades and cross-sections, as established, or to equal or better condition than that which existed before construction efforts started, and shall be so maintained until accepted. Any surplus material not suitable for spreading along the road to widen the existing shoulder or raise the grade shall be hauled away or disposed of.

5.1.3.12 CONTRACTOR'S RESPONSIBILITY: The CONTRACTOR will be responsible to see that the backfilling, consolidation and compaction are properly and adequately done. Settlement of trenches within a period of one year after final acceptance of the project, or longer period, if so required by the entity from whom excavation/cut permits were obtained for completion of the Work, shall be considered incontrovertible evidence of inadequate compaction, and the CONTRACTOR shall be responsible for correcting the condition in accordance with the provisions of these Specifications, including the replacement of the surface materials.

5.1.4 MEASUREMENT AND PAYMENT: As specified in Section 1.4 of the Contract Documents.

End of Section

SECTION 5.2
PLACEMENT, REMOVAL AND RESTORATION OF SURFACE IMPROVEMENTS

5.2.1 DESCRIPTION: The CONTRACTOR shall be responsible for the protection and the restoration or replacement of any improvements existing on public or private property at the start of work or placed during the progress of the work. Surfacing material removed will be loaded, hauled and disposed of by the CONTRACTOR in approved disposal areas at no additional expense to the OWNER. Existing improvements shall include but not be limited to permanent surfacing, curbs, gutters, sidewalks, planted areas, ditches, driveways, culverts, fences, signing, and walls. All improvements shall be reconstructed to equal or better, in all respects than the existing improvements removed. Provide all signing, barricades, flagman or signals as necessary to provide safe travel to the public.

Procedures may vary from those given herein, if so directed in writing by the owner of the subject improvements, and not contradictory to the Owner's interests. An example is the UDOT Excavation Handbook 2012. Efforts have been made to incorporate the requirements of said Handbook into these Contract Documents, nevertheless, the requirements of the Handbook shall be adhered to and shall supersede the above-the-pipe-zone restoration requirements stated in the Contract Documents.

5.2.1.1 FIELD VERIFICATION OF IMPROVEMENTS: In submitting a bid, the CONTRACTOR will be deemed to have carefully examined the site of the work and to have acquainted himself with all conditions relating to the protection and restoration of existing improvements. The ENGINEER does not guarantee that all improvements are shown on the Drawings, and it shall be the CONTRACTOR's responsibility to provide in his bid for the protection and restoration of all existing improvements whether or not each is provided for specifically on the Drawings and/or Bid Form.

5.2.2 MATERIALS:

5.2.2.1 GRAVEL SURFACE: Material for use on gravel surfaces shall be obtained from sound, tough, durable gravel or rock meeting the following requirements for grading:

<u>Sieve Size</u>	<u>Percent Passing</u>
1-inch sieve	100
1/2-inch sieve	79 - 91
No. 4 sieve	49 - 61
No. 16 sieve	27 - 35
No. 200 sieve	7 - 11

5.2.2.2 UNTREATED BASE COURSE: Untreated base course shall be in accordance with Utah Department of Transportation Standard Specifications, 2012, Section 02721, Table 2:

Table 2

Gradation Limits		
Sieve Size	Job Mix Gradation Target Band	Job Mix Gradation Tolerance
1½ inch	100	
1 inch	90 - 100	±9.0
¾ inch	70 - 85	±9.0
½ inch	65 - 80	±9.0
⅜ inch	55 - 75	±9.0
No. 4	40 - 65	±7.0
No. 16	25 - 40	±5.0
No. 200	7 - 11	±3.0

5.2.2.3 SUBBASE MATERIAL: Subbase material gradation shall be in accordance with Utah Department of Transportation Standard Specifications, 2012, Section 02741, GRANULAR BORROW

- A. Classification A-1-a. Refer to AASHTO M 145.
- B. Non-plastic, well-graded, 3 inch maximum.

5.2.2.4 BITUMINOUS SURFACE COURSE: Bituminous surface course gradation shall be in accordance with Utah Department of Transportation Standard Specifications, 2012, Section 02056, Table 6:. Actual gradation to be used shall be approved by the ENGINEER.

Table 6

Aggregate Gradations (Percent Passing by Dry Weight of Aggregate)					
Sieve Size		1 inch	¾ inch	½ inch	⅜ inch
Control Sieves	1½ inch	100.0			
	1 inch	90.0 - 100.0	100.0		
	¾ inch	<90	90.0 - 100.0	100.0	
	½ inch		<90	90.0 - 100.0	100.0
	⅜ inch			<90	90.0 - 100.0
	No. 4				< 90
	No. 8	19.0 - 45.0	23.0 - 49.0	28.0 - 58.0	32.0 - 67.0
	No. 200	1.0 - 7.0	2.0 - 8.0	2.0 - 10.0	2.0 - 10.0

5.2.2.5 TACK COAT: Tack coat shall be SS-1 Diluted with an equal amount of water.

5.2.2.6 CONCRETE: See Section 5.8 of these specifications.

5.2.2.7 SOD AND VEGETATION: All materials shall be from sources approved by the ENGINEER; however, such approval does not relieve the CONTRACTOR from responsibilities for growth, maintenance and replacement as specified herein.

5.2.2.8 TOPSOIL: Topsoil shall be fertile, friable, natural loam, surface soil, reasonably free of clay lumps, brush, weeds, and other litter, and free of rocks, stumps, stones larger than 2 inches in any dimension, and other extraneous or toxic matter harmful to plant growth. Obtain topsoil only from naturally well-drained sites where topsoil occurs in a depth of not less than 4 inches. Do not obtain from bogs or marshes.

5.2.2.9 OTHERS: Other materials may be required by the authorities having jurisdiction such as Local, State or Federal entities (e.g., irrigation company canals, city, county or state roads, Bureau of Reclamation canals). It is the Contractor's responsibility to ensure that the improvement owner's requirements are met.

5.2.3 CONSTRUCTION:

5.2.3.1 REMOVAL OF CONCRETE OR ASPHALT SURFACES: CONTRACTOR shall consult with the roadway owner before removing asphalt to ensure the requirements of the roadway owner will be met. Unless otherwise directed by the roadway owner, the following specification shall be adhered to. The pavement, sidewalk, curb and gutter, driveway, etc. shall be cut vertically along the lines forming the trench, or nearest full joint, in such a manner as to not cause damage to adjoining pavement, sidewalk, curb and gutter, driveway, etc. An undercut level at the rate of 1 inch per foot of thickness or an underlap joint shall be provided at the proposed junction between old and new surfaces. The portion to be removed shall be broken up in a manner that will not cause damage to the pavement or concrete outside the limits of the trench; however, any pavement damaged by operations outside the limits of the trench shall be replaced. Broken paving materials shall be removed immediately from the site of the work. The ENGINEER shall approve all saw cut locations.

5.2.3.2 GRAVEL SURFACE: Where trenches are excavated through gravel surfaced areas such as roads and shoulders, parking areas, unpaved driveways, etc., the gravel surface shall be restored to a minimum depth of 4 inches. The gravel shall be placed in the trench at the time it is backfilled. The surface shall be maintained by blading, sprinkling, rolling, adding gravel, etc., to maintain a safe, uniform surface satisfactory to the ENGINEER. Excess material shall be removed.

5.2.3.3 SUBBASE:

- A. Finish granular borrow surface within ± 0.1 ft of line and grade.
- B. Compact borrow and backfill material in 6 inch layers to the specified density, 97% AASHTO T-180 unless noted otherwise on the Drawings.

5.2.3.4 BASE COURSE AND TEMPORARY GRADED SURFACE: On paved areas, base course shall be placed in the top of the trench to a depth such that the final compacted thickness of the base course below the bottom of the pavement shall be equal to the existing base course but not less than 10 inches. This base course layer shall be brought flush with the paved surface and maintained in a smooth, rut free condition until time for the pavement to be placed.

5.2.3.4 TACK COAT: Tack coat shall be applied at the rate of 0.05 to 0.15 gal/SY. A hand sprayer or brush shall be used to apply tack coat to vertical faces of previously constructed bituminous pavement (over 1/2 hour hence) prior to placing an adjacent or parallel pass, curbs, gutters, slab edges, and all structures to be in actual contact with the bituminous pavement. Tack coat shall also be applied uniformly at the same rate to the horizontal top surface of each lift of bituminous pavement prior to placing the next lift of bituminous pavement to promote a bond between the two courses of pavement. None of the material shall penetrate into the pavement and for this reason the application should be limited.

Prior to applying the material, the surface to be treated shall be swept or flushed free of dust or other foreign material. Protect all surfaces not required to receive tack coat from any inadvertent application.

The temperature range of the tack coat at the time of application shall be such that the viscosity will be between 50 and 100 centistokes as determined in accordance with ASTM Designation D-2710.

Under no circumstances shall traffic be permitted to travel over the tacked surface. If detours cannot be provided, restrict operation to a width that will permit at least one-way traffic over the remaining portion of the roadbed. If one-way traffic is provided, the traffic shall be controlled in accordance with governing authority.

After application of tack coat, sufficient time shall be given to allow for complete separation of asphalt and water before paving operations begin. The tack coat shall be applied on only as many surfaces as will be paved against in the same day.

5.2.3.5 BITUMINOUS SURFACE: Trenches to be resurfaced shall be graded and rolled to provide a subgrade consisting of granular backfill and base course which is firm and unyielding. Density of the subgrade materials shall be 97 percent of AASHTO T-180. Mud or other soft or spongy material shall be removed and the void filled with base course and rolled and tamped thoroughly in layers not exceeding 12 inches in thickness. The edges of trenches which are broken during subgrade preparation shall be removed and trimmed neatly before resurfacing.

Mixing, placing, spreading and compaction of a minimum 3-inch bituminous surface course (greater depths may be required as shown on the Drawings) shall conform to applicable parts of Utah Department of Transportation Standard Specifications, 2012, excluding pay factor allowances.

5.2.3.5.1 UDOT ROADWAY: When trenching occurs within a UDOT roadway, a 2" deep mill and fill is required: 20' on each side of the trench when crossing the traveled way, and from lane stripe to lane stripe on any lane, or portion of lane with trench construction within it. Pavement markings must be restored with new material similar to that which was removed.

5.2.3.6 CONCRETE CURBS, GUTTER, SIDEWALKS AND DRIVEWAYS: Existing improvements shall be removed and replaced to the next joint or scoring line beyond the actually damaged or broken sections; or in the event that joints or scoring lines do not exist or are three or more feet from the removed or damaged section, the damaged portions shall be removed by saw cutting full-depth.

All new concrete shall match, as nearly as possible, the appearance of adjacent concrete improvements. Where necessary, lampblack or other pigments shall be added to the new concrete to obtain the desired results.

Concrete forms shall be true to line and of sufficient strength to ensure against bulging or displacement.

Contraction and expansion joints shall match original construction in placement and size, unless otherwise required by local jurisdiction having authority.

Reinforcement shall be replaced as in original construction, and dowelled into edges of existing concrete, unless otherwise required by local jurisdiction having authority, and shall be installed in accordance with applicable CRSI and ACI Standards.

Finishing and curing shall be in accordance with local jurisdiction having authority.

5.2.3.7 PLANTED AREAS: Prior to placing topsoil and/or sod, examine and repair the subgrade as necessary to assure a smooth and even surface which will match grade and contours of surrounding undisturbed ground. Finish grade construction areas to match grade prior to construction activities. Assure that a positive slope away from all building walls is maintained for at least 10 feet to prevent runoff from approaching walls.

5.2.3.8 SPRINKLING SYSTEMS: Restore all sprinkling systems disturbed, removed, or damaged by construction operations in a condition at least equal to that prior to construction.

5.2.3.9 MISCELLANEOUS IMPROVEMENTS: All other improvements interrupted or removed to permit the construction specified herein shall be restored. Miscellaneous improvements to be restored shall include, but shall not be limited to, the following:

- Traffic Signs
- Mail Boxes
- Drainage and Irrigation Ditches
- Culverts
- Canals and Canal Structures
- Bridges and Bridge Abutments
- Fences

5.2.3.10 PROTECTION: Protect all restored improvements from damage in accordance with these specifications, unless otherwise required by local jurisdiction having authority.

End of Section

SECTION 5.3

CULINARY WATERLINE AND APPURTENANCES

5.3.1 DESCRIPTION: The CONTRACTOR shall install all pipe, furnish and install: Valves, valve boxes, fire hydrants, service connects, meter boxes, check valves, air release valves, pipe bedding material; furnish and install all couplings, fittings, bolts, nuts, gaskets, jointing materials, and appurtenances as shown and specified, and as required for a complete and workable piping system.

All products incorporated into the project shall be new. All materials and products in contact with culinary water shall be certified compliant with NSF standard 60 or 61, as applicable.

5.3.2 MATERIALS:

5.3.2.1 PVC C-900 PIPE: (Refer to Sec. 5.5, "PVC AWWA C-900 Water Pipe").

5.3.2.2 DUCTILE IRON PIPE: (Refer to Sec. 5.6, "Ductile Iron Pipe ").

5.3.2.3 HDPE PIPE: (Refer to Sec. 5.7, "AWWA C-906 Fused HDPE Piping for Potable Water").

5.3.2.4 FIRE HYDRANTS: Fire hydrants shall be of a "traffic model" type design conforming to AWWA C-502 Specifications. Hydrants shall be supplied with two 2-1/2-inch and one 4-1/2-inch nozzles. All nozzles shall have national standard threading. A one cubic yard gravel sump shall be provided at each hydrant for drainage. Fire hydrants shall be Mueller Super Centurion or District-approved equal.

5.3.2.5 ISOLATION VALVES: All main line isolation valves shall conform to Standard AWWA C509 for Resilient-Seated Gate Valves in line sizes up through 10" or C504 for Rubber-Seated Butterfly Valves in line sizes 12" or larger, unless noted otherwise. All valves shall be designed for 150 psi working pressure or above. The valves shall be mechanical joint unless otherwise indicated on the plans.

5.3.2.6 VALVE BOX AND COVER: All buried valves shall be installed complete with two-piece, cast iron, screw slip, 5-1/4-inch shaft valve box with adjustable height to bring the top of the valve box flush with the ground surface. The valve box and top section shall be from the same manufacturer, intended for use together and within the published dimension tolerances. The valve box shall not be less than 5 inches in diameter and shall have a minimum thickness of 3/16 inch. Valve boxes shall be "Tyler" or equal.

All valve boxes shall be provided with suitable base cover. The word "WATER" shall be cast on the cover. An extra deep cover shall have a minimum shaft length of 4", total minimum depth of 6" and a total minimum weight of 24 lbs. The extra deep valve box cover shall be P/N 06800045 by EJ, model M-8045 by D&L Foundry or similar approved equal.

5.3.2.7 FITTINGS: Fittings shall be ductile iron of the short body design and shall conform to AWWA Standards C-110 or C-153. Fittings inside structures or where otherwise noted on the drawings shall be ANSI Class 125 flanged design with full face rubber gaskets. All exterior surfaces of pipe and fittings shall be coated with a petroleum asphaltic coating.

5.3.2.8 COUPLINGS: Pipe couplings shall be equal to the product of Romac, JCM, Smith-Blair, or Dresser with cast iron couplings being used on all ductile iron pipe. Couplings shall be of the straight, transition, or reducing style as required by the specific installation. All steel fittings shall be coated with a non-oxide coating and bolts shall be coated with a fluoropolymer in accordance with these specifications.

Service lateral couplings, only when lateral couplings are specifically allowed by the District, shall be all brass, with compression x compression end connections.

5.3.2.9 SERVICE SADDLES: Stainless steel, dual strap, nylon-coated with IPS threads, Romac 202NS, SaddleCorp 3450AS PowerJoint or approved equal.

5.3.2.10 CORPORATION STOPS: Connections to main lines shall be made through all-metallic ground key corporation stops with MNPT inlet by CTS compression end connections.

5.3.2.11 PIPE FOR SERVICE CONNECTIONS: Pipe for water services shall be minimum 1" diameter DR 9 CTS poly pipe for potable water service.

5.3.2.12 METER SETTER ASSEMBLY: A typical meter assembly (for a single family dwelling) shall consist of a copper setter, FORD VHC 72-18W-44-44QNL, 18-inch riser with angle ball valve on the inlet side and Utah State approved dual check valve on the outlet side, or equivalent from Mueller or A.Y. McDonald. Connection to service lines at the base of the setter shall be made with compression connections. The water meter shall be supplied and installed by the District.

Non-typical meter assemblies shall be of like construction with equal components and shall be approved by the District inspector.

5.3.2.13 METER BOXES AND LIDS: Meter boxes for residential services in non-traffic locations may be round, 18 inch inside diameter by 36" tall plastic with smooth white interior, manufactured and marketed as a meter box or a concrete meter box of the same dimensions. Mueller Thermal Shell catalog number SV1836, Hancor meter pit product code MP NL1 18 0003, or approved equal.

Lids for meter boxes shall come with a with a recess for a Neptune-system antenna and a 2" hole to accommodate meter reading ("universal" lids are not acceptable and will be rejected) and shall be cast iron with a lifter worm lock, operated by a large pentagon head bolt. Meter box lids in a non-traffic area shall be D&L L-2240-15 or approved equal.

Meter boxes for residential services in areas susceptible to vehicular traffic (roads, driveways, gravel or asphalt parking areas or others as determined by the District Inspector in his or her sole discretion) shall be round, 18-inch inside diameter by 36" tall concrete.

Meter box lids in areas susceptible to vehicular traffic shall be flat, D&L B-5018-15 or approved equal.

All meter boxes shall be installed and inspected in accordance with the approved drawings.

5.3.2.14 THRUST RESTRAINT: The material for thrust blocks shall be concrete which shall have a compressive strength of no less than 2,000 psi in 7 days. Rebar for valve and vertical elbow tie-downs shall be 60-ksi steel. Mechanical joint restraints shall be compatible with the pipe

material on which they will be installed, and of standard manufacture by EBAA Iron, ROMAC or approved equal. Fluoropolymer-coated hardware.

5.3.2.15 UNDERGROUND WARNING TAPE AND LOCATION WIRE: The tape shall be a 2-inch metallic core with a polyethylene cover, blue in color, and have the words "Caution Water Line Buried Below" imprinted on it. The tape shall be Style No. 2WAT as manufactured by Seton Name Plate Company of New Haven, Connecticut, or approved equal. Copper location wire shall be at least #14 plastic coated solid wire.

5.3.2.16 CHECK VALVES: Check valves shall prevent reverse flow in the pipelines. The check valves shall have steel or ductile iron body with bronze trim, stainless steel spring, and resilient seat. The valves shall be Class 125 or better. The check valve shall be manufactured by Val-Matic or approved equal.

5.3.2.17 CONNECTION HARDWARE: Except where otherwise shown or specified, acceptable bolts and nuts are:

- 1) Below grade or subject to high humidity or non-potable submergence: Carbon steel:
 - a) Conforming to the requirements of ASTM A307 Grade A or higher yield and tensile strengths. The corresponding nuts shall conform to ASTM A563 Grade A or higher yield and tensile strengths.
 - b) All bolts and nuts shall be coated with fluoropolymer, TRIPAC 2000 coating system, or approved equal. Anti-seize compound shall not be utilized with the blue nuts.
- 2) Submerged service, potable: Stainless steel:
 - a) Conforming to the requirements of ASTM F593. The corresponding nuts shall conform to ASTM F594.
 - b) Nuts shall be finished with fluoropolymer, TRIPAC 2000 coating system, or approved equal. Anti-seize compound shall not be utilized with the blue nuts.
- 3) Above-grade, non-humid, non-submerged: Carbon steel:
 - a) Conforming to the requirements of ASTM A307 Grade A or higher yield and tensile strengths. The corresponding nuts shall conform to ASTM A563 Grade A or higher yield and tensile strengths.
 - b) All bolts and nuts shall be zinc plated in accordance with ASTM F1941 (Fe/Zn 5A).
 - c) Coatings shall not be applied to nuts or bolts except with the District's written approval.
- 4) Above-grade, weather-exposed, non-submerged: Carbon steel:
 - a) Conforming to the requirements of ASTM A307 Grade A or higher yield and tensile strengths. The corresponding nuts shall conform to ASTM A563 Grade A or higher yield and tensile strengths.
 - b) All bolts and nuts shall be hot-dip galvanized in accordance with ASTM A153.
 - c) Coatings shall not be applied to nuts or bolts except with the District's written approval.

5.3.2.18 SAMPLING STATION: Sampling Stations shall be 42" bury, with a ¾" FIP inlet and a ¾" unthreaded sampling tap. All stations shall be enclosed in a lockable, non-removable aluminum-cast housing. When opened, the station shall require no key for operation, and the water will flow in an all brass waterway. All working parts will also be of brass and be removable from above ground with no digging. Exterior piping shall be brass. A copper vent tube will enable

each station to be pumped free of standing water to prevent freezing and to minimize bacteria growth. Sampling Station shall be Eclipse No. 88 by Kupferle Foundry, St. Louis, MO 63102.

5.3.2.19 BLOW OFF: Permanent (intended for use after construction and commissioning of the water line) blow off valves shall be premanufactured, below-grade, self-draining and non-freezing in a concrete pipe section with ring and cover labeled "WATER". Blowoffs to flush a 10" or smaller-diameter mainline shall be Model #78 (2") and for flushing a 12" to 16" mainline shall be a Model #7600 (4") by Kupferle Foundry. Temporary (limited to the duration of construction, after which they will necessarily be removed to connect another length of pipe) blowoffs may be of the contractor's manufacture and of the size needed to produce a flow of 3.0 FPS through the mainline it is intended to flush.

5.3.2.20 OTHERS: Other materials as specified on the drawings.

5.3.3 CONSTRUCTION:

5.3.3.1 PVC C-900 PIPE: (Refer to Sec. 5.5, "PVC AWWA C-900 Water Pipe").

5.3.3.2 DUCTILE IRON PIPE: (Refer to Sec. 5.6, "Ductile Iron Pipe ").

5.3.3.3 HDPE PIPE: (Refer to Sec. 5.7, "AWWA C-906 Fused HDPE Piping for Potable Water").

5.3.3.4 DELIVERY, STORAGE AND HANDLING: Load and unload pipe, fittings, specials, valves, and accessories by lifting with hoists or skidding so as to avoid shock or damage. Do not skid or roll pipe on skidways against pipe already on the ground. Lifting of pipe during unloading and placing into the trench shall be done using two nylon slings placed at the quarter points of the pipe sections. The slings shall bear uniformly against the pipe. Under no circumstances shall the pipe or accessories be dropped into the trench. When not being handled, the pipe shall be supported on timber cradles or on properly prepared ground, graded to eliminate all rock being transported, the pipe shall be supported at all times in a manner which will not permit distortion or damage to the lining or coating. Any unit of pipe that, in the opinion of the ENGINEER, is damaged beyond repair by the CONTRACTOR shall be removed from the site of the work and replaced with another unit. No payment will be made for damaged pipe or for repairs to such damaged pipe. The use of chains or cables for handling the pipe is not permitted.

Each length of pipe shall be unloaded opposite or near the place where it is to be laid in the trench.

5.3.3.5 CONNECTIONS TO EXISTING MAINS: Connections to existing mains shall be made where indicated on the plans. The CONTRACTOR shall determine the exact pipe size and material and provide applicable valves, fittings, and couplings to make a smooth and straight transition into the existing pipe line(s). All connections shall be made and visually inspected by the District for leakage with the line under pressure prior to backfilling. Connections will normally be made with a tee, cross, or other similar type connector.

The CONTRACTOR must uncover the connection area and determine the needs for the connection prior to turning off the water. The water may be turned off Monday through Friday between the hours of 9:00 am and 4:00 pm only, with planned shutdowns starting only on Monday through Thursday. The OWNER must be given 24 hours notice prior to turning off the

water to any portion of the system. The CONTRACTOR must make reasonable efforts to avoid disruption of water service.

5.3.3.6 WATER MAINS: Water mains shall be installed in accordance with the AWWA standard for the type of pipe and as may be further referenced in Section 5.3.2. The open ends of all pipelines under construction shall be covered and effectively sealed at the end of the day's work. All mainlines shall terminate with either a fire hydrant or appropriately sized permanent blowoff.

All water mains installed in non-public rights-of-way (e.g., in easements on private property) and intended for a perpetual transmission line with out service lateral connections shall be HDPE as specified in these specifications. District shall be consulted to verify material type and waterline intent prior to installation.

5.3.3.7 FIRE HYDRANTS: All fire hydrants shall be installed with a 1 cubic yard gravel sump and concrete thrust block. See Construction Drawings for thrust blocking. Concrete shall not be placed around joints, bolts, or drain holes. Ensure that drain holes are free to drain to sump. Cover all metal contact areas with a poly wrap material prior to concrete placement. All hydrants shall be installed with the upper safety flange at least 2-1/2 inches and not more than 6 inches above ground level. All hydrants shall be installed with the steamer nozzle facing the street unless otherwise approved by the OWNER.

The location of fire hydrants shall be consistent with the requirements of the State-adopted fire code and as determined by the local fire code official.

Hydrant drains shall not be connected to, or located within, 10 feet of sanitary sewers. Where possible, hydrant drains shall not be located within 10 feet of storm drains.

5.3.3.8 ISOLATION VALVES: The CONTRACTOR shall furnish and install isolation valves at the locations shown on the drawings. The valves shall include either valve and valve box with lid, or valve with hand wheel as indicated on the drawings. The valves shall have flanged or mechanical joint ends, non-rising stem, O-ring, seals, operating nut and extension as required, or hand wheel, and iron body-bronze resilient seat. The valves shall meet or exceed AWWA Standard C-504 or C-509.

Valves will be inspected, cleaned, set in line, and jointed to pipe with mechanical or flanged joints as indicated on the plans. All mainline valves shall have a concrete base poured in place onto which the valve is anchored against movement by straps on both sides of the valve housing. Steel anchor rods shall be rust-proofed or painted.

Valves shall be located at not more than 500-foot intervals in commercial districts and at not more than one block or 800-foot intervals in other districts. Where customers are widely scattered and where future development is not expected, the valve spacing shall not exceed one mile.

At tees and crosses, a valve shall be installed in each main line, out of the intersection, at the extension of property lines.

An exception to the number of valves may be made by the District when following the standard will put main line valves within 250' of each other.

An isolation valve shall be installed in main lines on each end of an easement through private property.

5.3.3.9 VALVE BOX AND COVER: All buried valves shall be installed complete with two-piece, cast iron, 5-1/4-inch shaft valve box with locking lid. The lid shall have the work "WATER" cast in the metal.

Valves and valve boxes shall be installed where shown on the drawings. Valves and valve boxes shall be set plumb. Valve boxes shall be centered directly over the valve. Valves shall be aligned with property lines where possible. Earth fill shall be carefully tamped around the 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. Valve boxes shall have the interiors cleaned of all foreign matter before installation.

All valve boxes located in streets shall be installed as nearly to grade as possible. After the pavement is in place, the valve boxes shall be raised to grade, the surrounding asphalt shall be neatly cut to form a circular opening 2 feet and 6 inches in diameter with the valve box centered, and a concrete collar shall be cast around the box. Valve boxes and collars in off-road areas shall extend 2 inches above grade.

When the valve box is in a roadway with posted speeds over 40 MPH, an extra deep valve box cover shall be installed.

5.3.3.10 FITTINGS: Bends, tees, reducers, flange adapters, and adaptor couplings shall be inspected, cleaned, and jointed to pipe as specified by the manufacturer. Reaction or thrust blocking shall be applied at bends of 11-1/4 degrees and more, at plugs, caps, and at tees.

5.3.3.11 COUPLINGS: Couplings shall be installed where connecting two segments of pipe of the same nominal diameter in the same alignment, when repairing or making final connections. Mechanical restraint shall be provided at the coupling if the two pipes are different nominal diameters.

5.3.3.12 WATER SERVICE CONNECTIONS: Make service connections through a service saddle and install service lines as shown on the Construction Drawings, or as directed by the OWNER's representative. Use teflon tape on all taps. Locate service taps in the upper quadrant of the main line, approximately 45 degrees. The minimum distance between taps is 24 inches, with a 5 degree stagger. Do not make service taps within 24 inches of the end of the main line.

Excavate and backfill in accordance with Section 5.1, "Pipeline Trench Excavation and Backfill". All work must be inspected by the District prior to backfilling. Pressure test all services before backfilling. Make no service connections until main line is fully accepted by the OWNER. Extend service line to meter and 5 feet beyond meter and plug as indicated on the contract drawings.

Install a tracer wire with all service laterals. Ensure physical and electrical connectivity with the wire at the mainline. The wire shall be terminated with a neatly wound coil at least 4 feet long in the meter box, with the end secured between the meter box and ring. All meter setter

assemblies shall be no more than 20 inches and not less than 18 inches from finish ground level. The water meter shall be supplied and installed by the District.

Each meter box within 20' of another meter box, identify unit being served:

Furnish and install a 304 or 316 stainless steel tag stamped with Lot #<###>

House #: <House # portion of street address> Text shall be no less than 1/4" tall on a tag no less than 2" x 2", no less than 0.040" thick. Secure with SS tie to meter setter.

Record station of service connection to main line and record location and depth of end of service line, tying distances to at least two surface landmarks. Sketch information on an 8-1/2 x 11 inch form and record any particular problems and submit to District Inspector before demobilizing from site.

All meter boxes located in a traveled way (gravel- asphalt- or concrete-driveways, or roadways) shall be collared with a 4'x4'x 4" or thicker, as may be required by the authority having jurisdiction, 3,500 PSI concrete panel on 6" thick layer of roadbase compacted to 95% maximum dry density per ASTM D-1537.

5.3.3.13 THRUST RESTRAINT: Thrust blocks shall be provided at reducers and valves where shown on the drawings, at all tees, plugs, and caps, and at bends deflecting 11-1/4 degrees or more. Reinforcement bar shall be pre-bent before placement around valve or elbow, then temporarily spread apart for installation. Form hooks in both ends of rebar to extend completely under the valve or fitting.

Thrust blocks shall be placed between solid ground and the fitting to be anchored; the area of bearing on the pipe and on the ground in each instance shall be that shown on the drawings. The block shall, unless otherwise shown or directed, be so located as to contain the resultant thrust force and so that the pipe and fitting joints will be accessible for repair.

Mechanical thrust restraints shall also be used at all locations where thrust blocks are called for.

Mechanical thrust restraints, fittings and connection hardware shall be securely wrapped with 8 mil or greater polywrap and taped to prevent contact with concrete.

5.3.3.14 UNDERGROUND WARNING TAPE AND LOCATION WIRE: The CONTRACTOR shall furnish and install an underground warning tape as the trench is backfilled. The tape shall be placed directly over the waterline and to a depth of 24 inches below the finished ground surface.

A copper trace wire shall be in the bottom of the main line or service lateral pipe trench (when a new service lateral is pulled through an existing lateral, a tracer wire shall also be pulled with the new lateral) and accessible from the surface at each valve box (bring the wire up the outside of the bottom of each box and bring it inside the top section) and adjacent to each fire hydrant and blowoff. At fire hydrants and blowoffs, a "Snake Pit" LD14BTP by Copperhead Industries, LLC, or approved equal (model CD14BTP if the "Snake Pit" must be installed in a vehicular traffic area) shall be the method of termination.

All mainline trace wires must be interconnected in intersections, at mainline tees and mainline crosses. At tees, the three wires shall be joined using a single 3-way lockable connector. At

crosses, the four wires shall be joined using a 4-way connector. Use of two 3-way connectors with a short jumper wire between them is an acceptable alternative. Direct bury wire connectors – shall include 2- and 3-way lockable connectors and mainline to lateral lug connectors specifically manufactured for use in underground trace wire installation. Connectors shall be dielectric silicon filled to seal out moisture and corrosion and shall be installed in a manner to prevent any uninsulated wire exposure. Non- locking friction fit, twist on or taped connectors are prohibited.

5.3.3.15 SEPARATION OF WATER MAINS FROM SANITARY SEWER: The horizontal distance between pressure water mains and sanitary sewer lines shall be at least ten feet. Where a water main and a sewer line must cross, the water main shall be at least 18 inches above the sewer line. Separation distances shall be measured edge-to-edge (i.e. from the nearest edges of the facilities). Water mains and sewer lines shall not be installed in the same trench. Where local conditions make it impossible to install water or sewer lines at the separation distances required above, an exception to the standard may be possible. The entity seeking the exception shall initiate and pursue a request for a separation exception with the State Division of Drinking Water, in accordance with R309-550-7 of the State of Utah Administrative Rules.

5.3.3.16 BLOW OFF: A permanent blow off meeting District standards shall be installed at all dead-end main lines that otherwise do not terminate at a fire hydrant.

5.3.3.17 SAMPLING STATION: One Sampling Station shall be installed in the mow strip or other designated location within each development, as designated by the District inspector. An 18" x 18" x 3" concrete splash pad shall be placed adjacent to the sampling station, located to dissipate energy from any water discharged during flushing and sampling.

5.3.4 MEASUREMENT AND PAYMENT: As specified in Section 1.4 of the Contract Documents.

End of Section

SECTION 5.4

DISINFECTION AND TESTING OF WATER LINES

5.4.1 DESCRIPTION: Except as otherwise provided herein, the CONTRACTOR shall furnish all equipment, labor, and materials required for testing and disinfecting hydraulic structures and pipelines as specified. Water for testing and disinfecting will be furnished by the OWNER; however, the CONTRACTOR shall be responsible for coordinating with the OWNER the acquisition and use of the water for testing and disinfection procedures.

Disinfection shall be accomplished by chlorination in accordance with AWWA standard C-651. Each completed section shall be disinfected and tested prior to introduction into the drinking water system. Release of water from structures and pipelines, after completion of testing and disinfection, shall be in conformance with AWWA standard C-651.

5.4.2 PROCEDURES:

5.4.2.1 PRELIMINARY CLEANING AND FLUSHING: Prior to both testing and disinfecting, all pipelines shall be thoroughly washed, flushed or blown out, under the direction of the OWNER. Flushing shall be accomplished through hydrants, valves, blow-offs, or other means provided by the CONTRACTOR and approved by the OWNER sufficient to provide for a 3.0 foot per second (FPS) flushing velocity in the pipeline. Where the OWNER determines that a 3.0 FPS flushing velocity is not practical, the greatest feasible flow for 2-3 volumes shall be achieved.

5.4.2.2 HYDROSTATIC TESTS: Prior to testing, all piping shall be flushed or blown out as appropriate. The CONTRACTOR shall test all piping either in sections or as a unit. Mortar-lined piping shall not be tested before the mortar lining has attained an age of 14 days. The test shall be made by placing temporary bulkheads in the pipe and filling the line slowly with water. Care shall be taken to see that air vents are installed at appropriate locations to evacuate air, and that all air vents are open during filling. After the piping or section thereof has been filled, it shall be allowed to stand under a slight pressure for a sufficient length of time to allow the mortar lining to absorb what water it will and to allow the escape of air from any air pockets. During this period, bulkheads, valves, and connections shall be examined for leaks. If any are found, corrective measures satisfactory to the OWNER shall be taken. The test shall consist of holding a minimum pressure of 150 psi on the section being tested for a minimum period of 2 hours. The test pressure shall be maintained within 5 PSI without the addition of makeup water for the duration of the test.

In the case of pipelines that fail to pass the prescribed leakage test, the CONTRACTOR shall determine the cause of the excessive leakage, shall take corrective measures necessary to repair the leaks, and shall again test the pipelines, all at no additional cost to the OWNER.

5.4.2.3 DISINFECTING PIPELINES:

- **CHLORINATION:** A chlorine-water mixture shall be applied by means of a solution-feed chlorinating device. The chlorine solution shall be applied at one end of the piping or pipeline through a tap in such manner that as the pipeline is filled with water, the dosage applied to the water entering the pipe shall be approximately 50 ppm. Care shall be taken to prevent the strong chlorine solution in the line being treated from flowing back into the line supplying the water. Chlorine concentration shall be tested and verified by the OWNER.

- **RETENTION PERIOD:** Chlorinated water shall be retained in the pipeline long enough to destroy all non-spore-forming bacteria. This period shall be at least 24 hours. After the chlorine-treated water has been retained for the required time, the chlorine residual at the pipe extremities and at other representative points shall be at least 25 ppm.
- **CHLORINATING VALVES:** During the process of chlorinating the piping and pipelines, all valves and other appurtenances where possible shall be operated while the pipeline is filled with the heavily-chlorinated water.

5.4.2.4 FLUSHING: After both pressure testing and chlorination, all pipelines shall be flushed. Flushing shall be accomplished through fire hydrants, end of line blow offs with a minimum of 2-inch diameter or, the CONTRACTOR shall install a tap sufficient in size to provide for a 3-foot per second flushing velocity in the pipeline. Refer to the reproduction of Table 3 of AWWA Standard C651-14, below.

Table 3 Required flow and openings (either taps or hydrants) to flush pipelines at 3.0 ft/sec (0.91 m/sec) (40 psi [276 kPa] residual pressure in water main)*

Pipe Diameter		Flow Required to Produce 3.0 ft/sec (approx.) Velocity in Main		Size of Tap Used, in. (mm)			Number of Hydrant Outlets	
				1 (25)	1½ (38)	2 (51)		
<i>in.</i>	<i>(mm)</i>	<i>gpm</i>	<i>(L/sec)</i>	Number of Taps Required on Pipe†			2½-in. (64-mm)	4½-in. (114 mm)
4	(100)	120	(7.4)	1	—	—	1	1
6	(150)	260	(16.7)	—	1	—	1	1
8	(200)	470	(29.7)	—	2	—	1	1
10	(250)	730	(46.3)	—	3	2	1	1
12	(300)	1,060	(66.7)	—	—	3	2	1
16	(400)	1,880	(118.6)	—	—	5	2	1

*With a 40-psi (276-kPa) pressure in the main with the hydrant flowing to atmosphere, a 2½-in. (64-mm) hydrant outlet will discharge approximately 1,000 gpm (63.1 L/sec); and a 4½-in. (114-mm) hydrant outlet will discharge approximately 2,500 gpm (160 L/sec).

†Number of taps on pipe based on 3.0-ft/sec discharge through 5 ft (1.5 m) of galvanized iron (GI) pipe with one 90° elbow.

5.4.2.5 BACTERIOLOGICAL TESTING: The OWNER shall obtain three samples of water from the main line after final flushing, the failure of any one such test will result in starting the flushing and test sequence over again: 1) The first sample will be pulled and tested immediately after final flushing; 2) The second sample will be pulled and tested no less than 24 hours after the first sample is pulled from the same section of pipe; 3) If both of those tests come back negative, the tie-to-existing may take place, and a third and final sample pulled and tested; if the third sample returns a negative result, the section of pipeline will be accepted (this does not pertain to any surface improvements that may be needed).

5.4.3 MEASUREMENT AND PAYMENT: Payment for cleaning, pre-flushing, hydrostatic testing, disinfecting, and final flushing shall be included in the lineal foot price of installed pipe.

End of Section

SECTION 5.5

PVC AWWA C-900 WATER PIPE

5.5.1 DESCRIPTION: The work includes providing and installing PVC AWWA C-900 water pipe with integral bell and spigot joints.

5.5.2 MATERIALS:

5.5.2.1 PIPE: Pipe shall comply with the latest version of AWWA Standard C-900, with material compound being 12454A, per ASTM D1784. Pipe shall be DR18 unless shown otherwise on the plans.

5.5.2.2 JOINTS: The Elastomeric Seal (gasket) shall conform to ASTM F477. The gasketed joint assembly shall conform to ASTM D3139, and the installation of the C900 pipe shall conform to Uni-Bell-3, AWWA M23 installation guide.

5.5.2.3 FITTINGS: Fittings shall be cast iron or ductile iron, iron pipe size for PVC application, and in accordance with AWWA C-110 (flanged fittings) or AWWA C-153 (MJ fittings). They shall be capable of withstanding, without bursting, hydrostatic tests of three times the rated water working pressure. The fittings shall be furnished with mechanical- or flange-joint gaskets conforming to AWWA C-111.

5.5.2.4 SERVICE CONNECTIONS: Service connections to PVC plastic pressure pipe shall be by nylon coated, ductile iron, double stainless-steel strap service saddles, Romac 202NS, or approved equal specifically designed for type of mainline pipe.

5.5.2.5 QUALITY ASSURANCE: Each standard and random length of pipe is to be tested to three times the class pressure of the pipe for a minimum of 5 seconds. The integral bell is to be tested with the pipe. Randomly selected samples shall be tested in accordance with ASTM D1599 to withstand, without failure, pressures listed below when applied in 60 to 70 seconds: DR-18, a minimum burst pressure of 775 PSI; DR-14, a minimum burst pressure of 985 psi.

5.5.3 CONSTRUCTION:

5.5.3.1 INSTALLATION: The trench bottom shall be stable, smooth and free of frozen material, clodded dirt, and stones over 3/4 inch in diameter. Bell holes should be provided at each joint for easier assembly and uniform support. Large rocks must be removed to provide 6 inches clearance in all directions from pipe and accessories. The pipe shall be installed with proper bedding providing uniform support under the pipe. Backfill materials shall be worked under the pipe to provide adequate haunching. Initial backfill material should be placed to a minimum of 12 inches over the pipe. All pipe embedment material shall be selected and placed carefully, avoiding stones over 3/4-inch, frozen lumps, and debris.

5.5.3.2 UNDERGROUND WARNING TAPE AND LOCATION WIRE: See 5.3.3.11.

5.5.3.3 GRAVEL FOUNDATION FOR PIPE: See also 5.1.3.6. Wherever the subgrade material does not afford a sufficiently solid foundation to support the pipe and superimposed load, and where

groundwater must be drained, the subgrade shall be excavated to such depth as may be necessary and replaced with crushed rock or gravel compacted into place.

5.5.4 MEASUREMENT AND PAYMENT Section 1.4.9 takes precedence over the following if there is a discrepancy between the two sections.

PVC AWWA C-900 WATER PIPE: PVC pipe measurement shall be per lineal foot installed piping of the type, size and class shown on the drawings and in the bidding schedule (payment shall be made as part of another Bid Item if PVC pipe is not specifically included as a bid item). Measurement shall be along the centerline of the pipe as measured in the field following construction. No deduct in length for payment will be made for valve & fittings.

Payment will be made per Bid Item only after the surface restoration, including, but not limited to, gravel and asphalt restoration, has been completed and accepted.

Payment to install pipelines shall be at the unit price in the Bid Schedule. Payment shall be full compensation for mobilization, cutting asphalt pavement; unclassified excavation; imported material for pipe bedding; trench backfill, location tape; tracer wire, storing and installing the pipe, fittings, elbows and couplings not specifically identified as a separate bid item; removal and disposal of excess or rejected excavated materials; compaction; thrust blocks; pressure testing; disinfecting, dechlorination, flushing and other materials, equipment and labor related to placing the line into service. Payment shall also include compensation for restoration of miscellaneous improvements damaged during construction.

End of Section

SECTION 5.6 - DUCTILE IRON PIPE

5.6.1 DESCRIPTION: This section covers the requirements for ductile iron pressure pipe materials, installation and inspection.

5.6.2 MATERIALS:

5.6.2.1 DUCTILE IRON PIPE: Ductile iron pipe shall conform to all requirements of AWWA C-151 and ANSI A-21.51 "Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand Lined Molds, For Water or Other Liquids." Minimum pressure class shall be 250 PSI.

5.6.2.2 JOINTS:

- **MECHANICAL JOINTS:** All mechanical joints shall meet requirements of ANSI A-21.6 and ANSI 21.11. All gaskets surfaces shall be smooth and free from imperfections. All mechanical joint gaskets shall be less than one year old. Bolts shall meet all requirements of the above specifications, honoring all characteristics, tolerances, and tests. All bolts shall be of the proper size and length to match the size of pipe fitting as per drawings.
- **PUSH-ON JOINTS:** Push-on joints shall be used for main line ductile iron pipe for this project. All push-on joints shall meet the requirements of ANSI 21.11. Gaskets shall be free from defects and not over one year old. Lubricants shall be non-toxic and have no deteriorating effects on gasket materials. It shall not impart taste, odor or flavor to water in a pipe.
- **FLANGED JOINTS:** Flanged joints shall be bolted firmly with machine, stud or cap bolts of proper size. Flanges may be cast integrally with the pipe or may be screwed or threaded pipe. Flanges shall be faced and drilled and of proper dimensions and class, for size and pressure required. All flanges shall meet requirements of ANSI A 21.10, "American National Standard for Ductile Iron and Gray Iron Fittings."

Bolts and nuts, unless otherwise specified, shall be meet the requirements of 5.3.2.16. Bolts will be provided with standard hexagonal nuts and standard hexagonal heads. Bolts shall be of the diameter required for each flange and, when installed, shall be of length so that no more than 3/8 inch or less than 1/8 inch extends past face of nut. Gaskets shall be 1/16 inch thick, made of best quality sheet gasket material or equal and be certified to meet the requirements of NSF Standard 61. A gasket for each flange joint of proper size, ring type or full face shall be installed.

- **COMPRESSION JOINTS:** Compression joints shall be mechanical joint cast iron sleeve with armor guard gaskets, Rockwell 441 or Flange adaptor Rockwell Type 900 or approved equal, as specified on approved drawings.

5.6.2.3 FITTINGS:

- **MECHANICAL JOINT FITTINGS:** Mechanical Joint Fittings shall conform to ANSI A 21.10, "American National Standard for Ductile Iron and Gray Iron Fittings."

- **PUSH-ON FITTINGS:** Push-on fittings shall conform to ANSI A 21.10 with bells, sockets, and plain ends per ANSI A 21.11.
- **FLANGED FITTINGS:** Flanged fittings shall conform to ANSI 21.10.

All flanges shall be faced and drilled. Where cap screws or stud bolts are needed, flanges shall be tapped to support cap screws or stud bolts as per approved drawings.

5.6.2.4 CEMENT MORTAR LINING: Ductile iron pipe and fittings shall be lined with cement mortar in accordance with the requirements of the "American National Standard for Cement Mortar Lining for Cast Iron and Ductile Iron Pipe and Fittings for Water" (ANSI A21.4 AWWA C104).

5.6.2.5 ASPHALTIC COATING: Ductile iron pipe shall be supplied with an exterior asphaltic coating approximately 1 mil thick per applicable AWWA standards for ductile iron pipe and fittings, EXCEPT THAT all pipe and fittings installed above grade or in pipe galleries shall be supplied without an asphaltic coating or otherwise prepared for a primer and 2 coats of durable epoxy coating.

5.6.2.6 INTERIOR PIPING COATING: All interior piping shall be prepared for and coated with a suitable primer and at least 2 coats of liquid epoxy to a DFT of at least 10 mil. TNEMEC N140 or equal. Color as determined by Owner.

5.6.2.7 COATING OF PIPES INSIDE STORAGE TANKS: Pipe inside storage tanks shall NOT have a coal tar coating on the exterior, but shall be externally coated with a two-part epoxy at least 12 mil DFT, meeting the requirements of NSF Standard 61. TNEMEC N140 or equal. Interior lining shall be the same as specified in 5.6.2.4 above.

5.6.3 CONSTRUCTION:

5.6.3.1 INSTALLATION: Ductile iron pipe shall be installed in accordance with the "Installation of Ductile Iron Mains and Their Appurtenances" (ANSI/AWWA C600).

Tees, elbows, crosses, and reducers shall be used for changes in direction and outlets, unless otherwise specified on the drawings.

Anchors, thrust bolts, thrust blocks and mechanical joint restraints shall be placed at valves, elbows, tees, etc., as shown on the approved drawings or as directed by the ENGINEER.

All ductile iron pipe installation shall proceed on a stable foundation, with joints closely and accurately fitted. Joints shall be clean and dry, and a non-toxic joint lubricant, as recommended by the pipe supplier, shall be applied uniformly to the mating joint and gasket surfaces to facilitate easy, positive joint closure.

All pipe shall be installed with uniform bearing under the full length of the barrel, with suitable excavations being made to receive pipe bells and fittings.

Bedding material shall be compacted around the pipe to firmly bed the pipe in position. If adjustment of position of a pipe length is required after being laid, it shall be removed and rejoined as for new pipe installation. In addition to the above requirements, all pipe installation shall comply with the specific requirements of the pipe manufacturer.

Each pipe shall be laid true to line and grade and in such a manner as to form a close concentric joint with adjoining pipe and to prevent sudden offsets to the flow line. All joint offsets shall be made as specified in AWWA Standard for "Installation of Water Mains", C600. As work progresses, the interior of the pipe shall be cleared of dirt and superfluous materials. Where cleaning after laying is difficult because of small pipe size, a suitable swab or drag shall be kept in the pipe and pulled forward past each joint immediately after jointing as set, and pipe shall not be laid when conditions of the trench or weather is unsuitable for such work. At all times when work is in progress, all open ends of the pipe and fittings shall be securely closed to the satisfaction of the ENGINEER, so that no water, earth, or other substance will enter the pipe or fittings.

5.6.3.2 UNDERGROUND WARNING TAPE AND LOCATION WIRE: See 5.3.3.11.

5.6.3.3 PIPE FOUNDATION AND BEDDING MATERIAL INSTALLATION: See 5.1.3.6.

5.6.3.4 CLEANING AND FLUSHING: Refer to Section 5.4, "Disinfection and Testing of Water lines".

5.6.4 MEASUREMENT AND PAYMENT: Section 1.4.9 takes precedence over the following if there is a discrepancy between the two sections.

Ductile iron pipe measurement shall be per lineal foot installed piping of the type, size and class shown on the drawings and in the bidding schedule. Measurement shall be along the centerline of the pipe as measured in the field following construction. No deduct in length for payment will be made for valve fittings, manholes or structures.

Payment will be made per Bid Item only after the surface restoration, including gravel and asphalt restoration, has been completed and accepted.

Payment to install pipelines shall be at the unit price in the Bid Schedule. Payment shall be full compensation for mobilization, traffic control signs, devices and flag persons; cutting asphalt pavement; unclassified excavation; imported material for pipe bedding; trench backfill; location tape; storing and installing the pipe, fittings, elbows and couplings; removal and disposal of excess or rejected excavated materials; compaction; thrust blocks; pressure testing; and disinfecting, flushing and placing the line into service. Payment shall also include compensation for restoration of miscellaneous improvements damaged during construction.

No classification of excavated materials shall be made other than solid rock requiring blasting (refer to Section 5.2, "Pipeline Trench Excavation and Backfill"). Excavation shall include the removal and subsequent handling of all water, earth, shale, loose or cemented gravel, loose rock, and other materials of whatsoever nature excavated or otherwise removed in the performance of contract work.

End of Section

SECTION 5.7

AWWA C-906 FUSED HDPE PIPING FOR POTABLE WATER

5.7.1 General Terms and Conditions

- 5.7.1.1 Scope.** This specification covers requirements for PE 4710 high-density polyethylene piping for potable water distribution and transmission mains. All work shall be performed in accordance with these specifications.
- 5.7.1.2 Engineered and Approved Plans.** Potable water distribution and transmission main construction shall be performed in accordance with engineered construction plans for the work prepared under the direction of a Professional Engineer.
- 5.7.1.3 Referenced Standards.** Where all or part of a Federal, ASTM, ANSI, AWWA, etc., standard specification is incorporated by reference in these Specifications, the reference standard shall be the latest edition and revision.
- 5.7.1.4 Licenses and Permits.** A licensed and bonded Contractor shall perform all potable water distribution and transmission main construction work. The Contractor shall secure all necessary permits before commencing construction.
- 5.7.1.5 Inspections.** All work shall be inspected by an Authorized Representative of the Owner who shall have the authority to halt construction if, in his opinion, these specifications or standard construction practices are not being followed. Whenever any portion of these specifications is violated, the Project Engineer or his Authorized Representative, shall, by written notice, order further construction to cease until all deficiencies are corrected. A copy of the order shall be filed with the Contractor's license application for future review. If the deficiencies are not corrected, performance shall be required of the Contractor's surety.
- 5.7.1.6 Submittals.** Pipe specifications, stamping description, manufacturer's recommended joining procedures and certification of fusing technicians by pipe manufacturer as having fused, or been trained to fuse, pipe of the size specified within the 6 months preceeding the commencement of work under this contract.

5.7.2 Polyethylene Pipe and Fittings

- 5.7.2.1 Qualification of Manufacturers.** The Manufacturer shall have manufacturing and quality assurance facilities capable of producing and assuring the quality of the pipe and fittings required by these Specifications. The Manufacturer's production facilities shall be open for inspection by the Owner or his Authorized Representative. The ENGINEER shall approve qualified Manufacturers.
- 5.7.2.2 Materials.** Black PE materials used for the manufacture of polyethylene pipe and fittings shall be PE 3408 or 4710 high density polyethylene meeting ASTM D 3350 cell classification 345464C or 445574C, respectively, and shall be listed in the name of the pipe and fitting Manufacturer in PPI (Plastics Pipe Institute) TR-4 with a standard grade HDB rating of 1600 psi at 73°F. Color material, when used, shall be the same except for meeting ASTM D 3350 cell classification 345464E. The material shall be listed and

approved for potable water in accordance with NSF Standard 61. When requested on the order, the Manufacturer shall certify that the materials used to manufacture pipe and fittings meet these requirements.

5.7.2.3 Interchangeability of Pipe and Fittings. The same Qualified and Approved Manufacturer shall produce polyethylene pipe and fittings. Products such as fittings or flange adapters made by sub-contractors or distributors are prohibited.

5.7.2.4 Polyethylene Pipe. Polyethylene pipe shall be manufactured in accordance with AWWA C901-96 for sizes 1-1/4" thru 3" IPS diameters and to the requirements of ASTM D3035. Pipe 4" IPS and DIPS sizes 4" and above shall be manufactured to the requirements of ASTM F714 and AWWA C906-99.

5.7.2.5 Optional Service Identification Stripes for IPS Sized Pipe. IPS pipes shall be black. When requested as an option, IPS pipes shall have four, equally spaced, blue color stripes co-extruded into the pipe outside surface. Stripes printed on the pipe outside surface shall not be acceptable.

5.7.2.6 Service Identification Stripes for DIPS Sized Pipe. DIPS sized pipes shall have three equally spaced pairs of longitudinal blue color stripes co-extruded into the pipe outside surface. Stripes printed on the outside surface shall not be acceptable.

5.7.2.7 Optional Color Shell. When requested as an option, a blue color shell co-extruded into the pipe outer surface shall permanently identify IPS or DIPS pipes.

5.7.2.8 Polyethylene Fittings & Custom Fabrications. Polyethylene fittings and custom fabrications shall be molded or fabricated by the Approved Pipe Manufacturer. All fittings and custom fabrications shall be pressure rated for the same internal pressure rating as the mating pipe.

5.7.2.9 Molded Fittings. Molded fittings shall be manufactured and tested in accordance with ASTM D 3261 and shall be so marked. Molded fittings shall be tested in accordance with AWWA C906.

5.7.2.9.1 X-Ray Inspection. The Manufacturer shall submit samples from each molded fittings production lot to x-ray inspection.

5.7.2.10 Fabricated Fittings. Fabricated fittings shall be made by heat fusion joining specially machined shapes cut from pipe, polyethylene sheet stock or molded fittings. Fabricated fittings shall be rated for internal pressure service at least equal to the full service pressure rating of the mating pipe. Fabricated fittings shall be tested in accordance with AWWA C906.

5.7.2.11 Polyethylene Flange Adapters. Flange adapters shall be made with sufficient throughbore length to be clamped in a butt fusion-joining machine without the use of a stub-end holder. The sealing surface of the flange adapter shall be machined with a series of small v-shaped grooves (serrations) to promote gasketless sealing, or restrain the gasket against blowout.

5.7.2.12 Back-up Rings & Flange Bolts. Flange adapters shall be fitted with back-up rings that are pressure rated equal to or greater than the mating pipe. The back-up ring bore shall be chamfered or radiused to provide clearance to the flange adapter radius. Flange bolts and nuts shall be Grade 3 or higher.

5.7.2.13 MJ Adapters. MJ Adapters 4" thru 16" may be provided with optional Stainless Steel Stiffener upon request. MJ Adapters 14" and above shall be provided with Heavy Duty Back-up Ring Kits. All MJ adapters 18" and above must be provided with Stainless Steel stiffeners.

5.7.2.14 Compliance Tests. Manufacturer's inspection and testing of the materials. In case of conflict with Manufacturer's certifications, the Contractor, Project Engineer, or Owner may request retesting by the Manufacturer or have retests performed by an outside testing service. All retesting shall be at the requestor's expense, and shall be performed in accordance with these Specifications.

5.7.3 Joining

5.7.3.1 Heat Fusion Joining. Joints between plain end pipes and fittings shall be made by butt fusion. Joints between the main and saddle branch fittings shall be made using saddle fusion. The butt fusion and saddle fusion procedures used shall be procedures that are recommended by the pipe and fitting Manufacturer. The Contractor shall ensure that persons making heat fusion joints have received training in the Manufacturer's recommended procedure. The Contractor shall maintain records of trained personnel, and shall certify that training was received not more than 6 months before commencing construction. External and internal beads shall not be removed.

5.7.3.1.1 Butt Fusion of Unlike Wall Thickness. Butt fusion shall be performed between pipe ends, or pipe ends and fitting outlets that have the same outside diameter and are not different in wall thickness by more than one Standard DR, for example, SDR 13.5 to SDR 17, or SDR 11 to SDR 13.5. Transitions between unlike wall thickness greater than one SDR shall be made with a transition nipple (a short length of the heavier wall pipe with one end machined to the lighter wall) or by mechanical means or electrofusion. SDR's for polyethylene pipe are 7.3, 9, 11, 13.5, 17, 21, 26, 32.5 and 41.

5.7.3.1.2 Heat Fusion Training Assistance. Upon request and at the requestor's expense, training personnel from the Manufacturer or his Representative shall be made available.

5.7.3.2 Joining by Other Means. Polyethylene pipe and fittings may be joined together or to other materials by means of (a) flanged connections (flange adapters and back-up rings), (b) mechanical couplings designed for joining polyethylene pipe or for joining polyethylene pipe to another material, (c) MJ Adapters or (d) electrofusion. When joining by other means, the installation instructions of the joining device manufacturer shall be observed.

5.7.3.2.1 ID Stiffener and Restraint. A stiffener shall be installed in the bore of the polyethylene pipe when an OD compression mechanical coupling is used and when connecting plain end PE pipe to a mechanical joint pipe, fitting or appurtenance. External clamp and tie rod restraint shall be installed where PE pipe is connected to the

socket of a mechanical joint pipe, fitting or appurtenance except where an MJ Adapter is used.

5.7.3.3 Branch Connections. Branch connections to the main shall be made with saddle fittings or tees. Polyethylene saddle fittings shall be saddle fused to the main pipe per 3.1.

5.7.4 Installation

5.7.4.1 General. When delivered, a receiving inspection shall be performed and any shipping damage shall be reported to the manufacturer within 7 days. Installation shall be in accordance with ASTM D 2774, Manufacturer's recommendations and this specification. All necessary precautions shall be taken to ensure a safe working environment in accordance with all applicable safety codes and standards.

5.7.4.2 Excavation. Trench excavations shall conform to the plans and drawings, as authorized in writing by the Project Engineer or his Approved Representative and in accordance with all applicable codes. The Contractor shall remove excess groundwater. Where necessary, trench walls shall be shored or reinforced, and all necessary precautions shall be taken to ensure a safe working environment.

5.7.4.3 Large Diameter Fabricated Fittings. Not more than one plain-end connection of 16" IPS and larger fabricated directional fittings (elbows, tees, etc.) shall be butt fused to the end of a pipe length before placing the assembly into the trench. The remaining fitting connections shall be made in the trench using butt fusion, flange or other connection means in accordance with 3.2. Flange and other mechanical connections shall be assembled, and tightened in accordance with the connection manufacturer's instructions and 4.4. Handling, lifting, moving or lowering a 16" IPS or larger fabricated fitting that is connected to more than one pipe length is prohibited. The installing contractor at his expense shall correct fitting damage caused by such improper handling.

5.7.4.4 Mechanical Joint & Flange Installation. Mechanical joint and flange connections shall be installed in accordance with the Manufacturer's recommended procedure. Primed ductile iron backup rings shall be furnished and installed at all connections permitting such. MJ Adapters and flanges shall be centered and aligned to the mating component before assembling and tightening bolts. In no case shall MJ gland or flange bolts be used to draw the connection into alignment. Bolt threads shall be lubricated, and flat washers should be used under the nuts. Bolts shall be evenly tightened according to the tightening pattern and torque step recommendations of the Manufacturer. At least 1 hour after initial assembly, flange connections shall be re-tightened following the tightening pattern and torque step recommendations of the Manufacturer. The final tightening torque shall be as recommended by the Manufacturer. Bolts, nuts and washers shall be stainless steel and shall be liberally coated with a rubberized undercoating prior to placing backfill.

5.7.4.5 Foundation & Bedding. See Section 5.1, PIPELINE TRENCH EXCAVATION AND BACKFILL.

5.7.4.6 Pipe Handling. When lifting with slings, only wide fabric choker slings capable of safely carrying the load shall be used to lift, move, or lower pipe and fittings. Wire rope and

chain are prohibited. Slings shall be of sufficient capacity for the load, and shall be inspected before use. Worn or damaged equipment shall not be used.

5.7.4.7 Backfilling. See Section 5.1, PIPELINE TRENCH EXCAVATION AND BACKFILL. During embedment placement and compaction, care shall be taken to ensure that the haunch areas below the pipe springline are completely filled and free of voids.

5.7.4.8 Protection against shear and bending loads. In accordance with ASTM D 2774, connections shall be protected where an underground polyethylene branch or service pipe is joined to a branch fitting such as a service saddle, branch saddle or tapping tee on a main pipe, and where pipes enter or exit casings or walls. The area surrounding the connection shall be embedded in properly placed, compacted backfill, preferably in combination with a protective sleeve or other mechanical structural support to protect the polyethylene pipe against shear and bending loads.

5.7.4.9 Final Backfilling. See Section 5.1, PIPELINE TRENCH EXCAVATION AND BACKFILL.

5.7.5 Testing.

5.7.5.1 Fusion Quality. The Contractor shall ensure the field set-up and operation of the fusion equipment, and the fusion procedure used by the Contractor's fusion operator while on site. Upon request by the Owner, the Contractor shall verify field fusion quality by making and testing a trial fusion. The trial fusion shall be allowed to cool completely; then test straps shall be cut out and bent strap tested in accordance with ASTM D 2657. If the bent strap test of the trial fusion fails at the joint, the field fusions represented by the trial fusion shall be rejected. The Contractor at his expense shall make all necessary corrections to equipment, set-up, operation and fusion procedure, and shall re-make the rejected fusions.

5.7.5.2 Hydrostatic Leak Testing. This hydrostatic leak test procedure consists of filling, an initial expansion phase, a test phase, and depressurizing. There are two alternatives for the test phase. Leak testing shall be observed by the OWNER or ENGINEER.

5.7.5.2.1 Filling. Fill the restrained test section completely with water.

WARNING – Ensure that there is no air trapped in the test section. Failure with entrapped air can result in explosive release and result in death or serious bodily injury. Use equipment vents at high points to remove air.

5.7.5.2.2 Initial Expansion Phase. Gradually pressurize the test section to test pressure, and maintain test pressure for three (3) hours. During the initial expansion phase, polyethylene pipe will expand slightly. Additional test liquid will be required to maintain pressure. It is not necessary to monitor the amount of water added during the initial expansion phase.

5.7.5.2.3 Test Phase – Alternate 1. Immediately following the initial expansion phase, reduce test pressure by 10 psi, and stop adding test liquid. If test pressure remains steady (within 5% of the target value) for one (1) hour, no leakage is indicated.

- 5.7.5.2.4 Test Phase – Alternate 2. This alternative is applicable when the test pressure is 150% of the system design pressure.

Immediately following the initial expansion phase, monitor the amount of make-up water required to maintain test pressure for one (1), or two (2), or three (3) hours. If the amount of make-up water needed to maintain test pressure does not exceed the amount given below, no leakage is indicated.

<i>Nominal Pipe size (in.)</i>	<i>Make-Up Water Allowance for Test Phase – Alternate 2, (U.S. Gal/100 ft of pipe)</i>		
	<i>1-Hour Test</i>	<i>2-Hour Test</i>	<i>3-Hour Test</i>
8	0.50	1.00	1.50
10	0.75	1.30	2.10
12	1.10	2.30	3.40
14	1.40	2.80	4.20
16	1.70	3.30	5.00
18	2.20	4.30	6.50
20	2.80	5.50	8.00

End of Section

SECTION 5.8

PORTLAND CEMENT CONCRETE

5.8.1 DESCRIPTION: This section of the specifications defines materials to be used in all portland cement concrete work and requirements for mixing, placing, finishing, and curing.

5.8.2 MATERIALS: Materials used in portland cement concrete and reinforcing of portland cement concrete shall meet the following requirements:

5.8.2.1 CEMENT: Portland cement shall be Type II or as approved by the Engineer and shall comply with the Standard Specification for Portland Cement, ASTM C-150. POZZOLANS, FLY ASH AND/OR SILICA FUME SHALL NOT BE USED.

5.8.2.2 AGGREGATES: Concrete aggregates shall conform to Tentative Specifications for Concrete Aggregates, ASTM C-33.

5.8.2.3 WATER: Water used in mixing concrete shall be clean and free from oil, acid, salt, injurious amounts of alkali, organic matter or other deleterious substances.

5.8.2.4 ENTRAINING AGENT: An air-entraining agent shall be used in all concrete exposed to the weather. The agent shall conform to ASTM Designation C-175 and C-260.

5.8.2.5 ADMIXTURES: No admixtures unless approved by the Engineer. Calcium chloride shall not be used in reinforced concrete.

5.8.2.6 FLY ASH: No fly ash shall be added without mix design approved by the Engineer.

5.8.2.7 REINFORCED STEEL: All bar material used for reinforcement of concrete shall be intermediate grade steel free of rust conforming to the requirements of ASTM Designation A-615 GR-60 and shall be deformed in accordance with ASTM Designation A-305.

5.8.2.8 WELDED WIRE FABRIC: Welded wire fabric for concrete reinforcement shall conform to the requirements of ASTM A-185.

5.8.3 CONSTRUCTION: For the purpose of practical identification, concrete has been divided into three classes: Class A, B, and C. Basic requirements and use for each class are defined as follows:

Class	Minimum Cement Comp. (sacks/c.y.)	Minimum 28-day Strength (psi)	Primary Use
A	6	4000	Reinforced Structural Concrete
B	6	3500	Sidewalks, curbs, and gutters, cross gutters, pavements, and non- reinforced footings and foundations
C	5	2500	Thrust blocks, anchors, mass concrete

Note: Above specifications contain 94 pound sacks of Portland Cement.

All concrete shall also comply with the following requirements.

AGGREGATES: The maximum size of the aggregate shall be not larger than one-fifth of the narrowest dimension between forms within which the concrete is to be cast, nor larger than three-fourths of the minimum clear spacing between reinforcing bars or between reinforcing bars and forms. For non-reinforced concrete slabs, the maximum size of aggregates shall not be larger than one-fourth the slab thickness.

WATER: Sufficient water shall be added to the mix to produce concrete with the minimum practicable slump. The slump of mechanically vibrated concrete shall not exceed four inches. **NO** concrete shall be placed with a slump in excess of five inches. The maximum permissible water-cement ratio (including free moisture on aggregates) shall be 5 and 5-3/4 gallons per bag of cement respectively for Class A and B air entrained concrete.

AIR-ENTRAINING: Air content for air-entrained concrete shall comply with the following:

Course Aggregate Size (in.)	Air Content %
1-1/2 to 2-1/2	5 ± 1
3/4 or 1	6 ± 1
3/8 or 1/2	7 ± 1

The air-entraining agent shall be added as liquid to the mixing water by means of mechanical equipment capable of accurate measurement and control.

5.8.3.1 FORMS: Forms shall be substantially built and adequately braced so as to withstand the liquid weight of concrete. All linings, studding, walling and bracing shall be such as to prevent bulging, spreading, or loss of true alignment while pouring and displacement of concrete while setting. Metal forms shall be used for sidewalk work unless otherwise specified by the Engineer. All edge forms for sidewalk pavements, curbs, and gutters shall be of sufficient rigidity and adequately braced to accurately maintain line and grade. Prior to concrete placement, all forms shall be lightly coated with oil to prevent concrete adhesion to form materials.

Exposed vertical and horizontal edges of the concrete in structures shall be chamfered by the placing of molding in the forms or as directed by the Engineer and as indicated in the plans.

FORM STRIPPING: Forms shall remain in-place for at least the following time periods after completion of a concrete pour in a given section of forms:

Walls and columns:	24 hours
Roof deck:	10 days

5.8.3.2 JOINTS: Joints shall be provided for sidewalk and curb and gutter as follows:

SIDEWALKS: Shall have scribed joints at intervals of 4 feet which joints shall be approximately 3/16" wide and be approximately 1/4 of the total slab thickness. In addition, 1/2-inch expansion joints shall be provided at 50-foot intervals and at locations where sidewalks adjoin curbs or existing sidewalks, driveways, building walls or aprons. Expansion joints shall be provided at 4-foot intervals where manholes, valve boxes or meter boxes are located.

5.8.3.3 REINFORCEMENT AND EMBEDDED ITEMS: Reinforcing steel shall be clean and free from rust, scale, paint, grease or other foreign matter which might impair the bond. It shall be accurately bent and shall be tied to prevent displacement when concrete is poured. Reinforcing steel shall be held in place by only metal or concrete ties, braces and supports. No steel shall extend from or be visible on any finished surface and shall have a minimum of 1 1/2" concrete cover. Bars shall be grade 60.

The Contractor shall use concrete chairs for holding the steel away from the subgrade, and spreader or other type bars for securing the steel in place. The spreader bars shall be not less than 3/8-inch in diameter.

5.8.3.4 PREPARATIONS: Before batching and placing concrete, all equipment for mixing and transporting the concrete shall be cleaned, all debris and ice shall be removed from the places to be occupied by the concrete, forms shall be thoroughly wetted or oiled, and masonry filler units that will be in contact with concrete shall be well drenched and the reinforcements shall be thoroughly cleaned of ice or other coatings. Water shall be removed from spaces to receive concrete. When placing concrete on earth surfaces, the surfaces shall be free from frost, ice, mud, and water. When the subgrade surface is dry soil or pervious material, it shall be sprayed with water immediately before placing of concrete or shall be covered with waterproof sheathing paper or a plastic membrane. No concrete shall be placed until the surfaces have been inspected and approved by the Engineer or Inspector.

COMPACTION: All subgrade and backfill materials shall be compacted in accordance with Section 5.1.3.10.

5.8.3.5 CONCRETE MIXING: All concrete shall be ready-mixed and delivered in accordance with ASTM C-94. The concrete shall be mixed until there is a uniform distribution of the materials. Sufficient water shall be used in mixing concrete to produce a mixture which will flatten and quake when deposited in place, but not enough to cause it to flow. Sufficient water shall be used in concrete in which reinforcement is to be embedded, to produce a mixture which will flow sluggishly when worked and which, at the same time, can be conveyed from the mixer to the forms without segregation of aggregate. In no case shall the quantity of water used be

sufficient to cause the collection of a surplus in the forms or exceed the maximum allowable slump as specified in 5.8.3.

5.8.3.6 DEPOSITING: Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. The concrete placing shall be carried on at such a rate that the concrete is at all times plastic and flows readily into the corners of forms and reinforcing bars. No concrete that has partially hardened or been contaminated by foreign material shall be deposited in the work, nor shall retempered concrete be used. No concrete shall be dropped more than 3 feet. Concrete delivered to the job site having a temperature that exceeds 90 degrees Fahrenheit shall not be placed. Concrete cooling methods during hot weather will be approved by the Engineer.

All concrete in structures shall be vibrator compacted during the operation of placing, and shall be thoroughly worked around reinforcement and embedded fixtures and into the corners of the forms.

CONSTRUCTION JOINTS: All construction joints shall be located and prepared as shown on the drawings or otherwise approved in writing by the Engineer. Unanticipated cold joints may be cause for rejection of the entire poured section in which the cold joint is located, at the sole discretion of the Engineer, in consultation with others. Rejected sections shall be demolished and re-poured by the Contractor as specified at no additional cost to the Owner.

5.8.3.7 PLACING CONCRETE IN COLD WEATHER: No concrete shall be poured where the air temperature is lower than 40 degrees Fahrenheit, at a location where the concrete cannot be covered or protected from the surrounding air. Where concrete is poured below a temperature of 35 degrees Fahrenheit the ingredients of the concrete shall be heated so that the temperature of the mixture shall not be less than 50 degrees or more than 100 degrees Fahrenheit. Before mixing, the heated aggregates shall not exceed 125 degrees Fahrenheit and the temperature of the heated water shall not exceed 175 degrees Fahrenheit. Cement shall not be added while the temperature of the mixed aggregates and water is greater than 100 degrees Fahrenheit. When there is likelihood of freezing during the curing period, the concrete shall be protected by means of an insulating covering and/or heating the concrete for a period of not less than 7 days after placing. The temperature must be maintained at a minimum of 40 degrees Fahrenheit. Concrete shall not be placed on frozen soil. Equipment for protecting concrete from freezing shall be available at the job site prior to placing concrete. Particular care shall be exercised to protect edges and exposed corners from freezing. In the event heating is employed, care shall be taken to insure that no part of the concrete becomes dried out or is heated to temperatures above 90 degrees Fahrenheit. The housing, covering, or other protection used shall remain in place and intact at least 24 hours after the artificial heating is discontinued. Combustion heaters shall not be used during the first 24 hours unless precautions are taken to prevent exposure of the concrete to exhaust gases that contain carbon dioxide.

5.8.3.8 FINISHING:

FORMED SURFACE FINISHES - Provide the following finishes unless indicated or shown otherwise on the drawings.

ROUGH FORM FINISH - Applies to all surfaces not exposed to view such as surfaces in contact with earth backfill. Repair defects and patch tie holes. Remove fins exceeding 1/4 inch in height. Otherwise leave surfaces with the texture imparted by the forms.

SMOOTH FORM FINISH - Applies to all exposed surfaces and interior surfaces of vaults and pits. Use form facing material to produce a smooth, hard, uniform surface. Support with backing capable of preventing specified deflection. Do not use material with raised grain, torn surfaces, worn edges, patches, dents, or other defects which will impair the texture of the concrete surface. Keep the number of seams to a minimum. Repair and patch all tie holes and defects. Remove all fins.

GROUT CLEANED FINISH - Smooth rubbed finish shall be produced by “brush-off” sandblasting or grinding with a stone wheel or grinder on all exposed wall surfaces prior to filling holes to expose all holes near the surface of the concrete. The wall surface shall then be rubbed with a mortar consisting of one part portland cement and 1-1/2 parts of fine sand passing the 100 screen with enough water and an emulsified bonding agent to have the consistency of thick creme. The wall surface shall be thoroughly wetted. Apply the grout by rubbing it over the entire area with clean burlap, sponge rubber floats, or trowels. Surface shall be wiped clean and moist cured.

SLAB FINISHES - Unless specified or otherwise shown on the drawings, apply finishes to slabs as follows:

FLOATED FINISH - Use for surfaces to be trowel finished or to be broom finished. After the concrete has been placed, consolidated, struck off, and leveled, do not work further until water sheen has disappeared and the surface has been stiffened. When water sheen has disappeared and surface has stiffened, float with a hand float or with a bladed power trowel equipped with float shoes, or with a powered disc float. During or after the first floating, planeness of surface shall be checked with a 10-ft. straightedge applied at not less than two differed angles. Cut down all high spots and fill all low spots to produce a surface level tolerance of 1/4 inch in 10 feet throughout. Then refloat immediately to a uniform sandy texture.

TROWELED FINISH - Use for interior floors intended as walking surfaces. The surface shall first be float-finished as specified above. Next, power trowel followed by hand troweling. The first troweling after power floating shall produce smooth surface which is free of defects but which may still show some trowel marks. Additional trowelings shall be done by hand after the surface has hardened. Accomplish final troweling when a ringing sound is produced as the trowel is moved over the surface. Thoroughly consolidate surface by the hand troweling until the finished surface is free of trowel marks, uniform in texture and appearance and level within a tolerance of 1/4 inch in 10 feet in all directions. On surfaces intended to support floor coverings, defects which show through the floor covering shall be removed by grinding.

BROOM OR BELT FINISH - Use for exterior horizontal walks and slabs. Immediately after the concrete has received a float finish as specified above, provide a coarse transverse scored texture by drawing a broom or burlap belt across the surface.

5.8.3.9 CURING AND PROTECTION: As soon as the concrete has hardened sufficiently to prevent damage, the finished surface shall be protected for curing one of the following ways:

Application of a curing compound, conforming to "Specifications for Liquid Membrane-Forming Compounds for Curing Concrete" ASTM C-309. The compound shall be light in color and shall be applied in accordance with the manufacturers recommendations immediately after any water sheen, which may develop after finishing has disappeared from the concrete surface.

Ponding of water on the surface or continuous sprinkling. Application of light colored waterproof plastic materials, conforming to "Specifications for Waterproof Sheet Materials for Curing Concrete" ASTM C-171, placed and maintained in contact with the surface of the concrete. The freshly finished surface shall be protected from hot sun and drying winds until it can be sprinkled or covered as above specified. The concrete surface must not be damaged or pitted by rain. The contractor shall provide and use, when necessary, sufficient tarpaulins to completely cover all sections that have been placed within the preceding twelve (12) hours.

The Contractor shall erect and maintain suitable barriers to protect the finished surface. Any section damaged from traffic or other causes occurring prior to its official acceptance, shall be repaired or replaced by the Contractor at his own expense in accordance with these specifications.

Defective concrete conditions or surfaces shall be removed, replaced, or repaired, without further cost to the OWNER, in accordance with these specifications.

5.8.3.10 CONCRETE TESTING: The Engineer may order the taking of concrete test cylinders to check the required compressive strengths. If taken, samples will be made in accordance with ASTM C172 and tested as follows:

- a. Air Content: Test for air content shall be performed in accordance with ASTM C 173 or ASTM C 231. A minimum of 1 test shall be conducted each time a slump test is made.
- b. Slump: At least 1 slump test shall be made on randomly selected batches of each mixture of concrete for every 50 cubic yards of ready-mixed concrete delivered to the job site. Also note the time batched at the plant and the starting time when unloading began at the site. Tests shall be performed in accordance with ASTM C 143.
- c. Temperature: Concrete and air temperatures shall be measured and recorded with each set of cylinders and the air temperature shall also be recorded when the air temperature at the site is 40 degrees F or below and/or 90 degrees F or above.

EVALUATION AND ACCEPTANCE OF CONCRETE

- a. Frequency of Testing: Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, nor less than once for each 50 cubic yards of concrete, nor less than once for each 3000 square feet of surface area for slabs or walls. If this sampling frequency results in less than 5 strength tests for a given class of concrete, tests shall be made from at least 5 randomly selected trucks or from each truck if fewer than 5 truck loads are used. Field cured specimens for determining form removal time or when a structure may be put in service shall be made in numbers directed to check the adequacy of curing and protection of concrete in the structure. The specimens shall be removed from the molds at the age of 24 hours and shall be cured and protected, insofar as practicable, in the same manner as that given to the portion of the structure the samples represent.

- b. Testing Procedures: Cylinders for acceptance tests shall be molded and cured in accordance with ASTM C 31. Cylinders shall be tested in accordance with ASTM C 39. A strength test shall be the average of the strengths of two cylinders made from the same sample of concrete and tested at 28 days or at another specified test age.
- c. Evaluation of Results: Concrete specified on the basis of compressive strength will be considered satisfactory if the averages of all sets of three consecutive strength test results equal or exceed the specified strength and no individual strength test result falls below the required strength by more than 500 pounds per square inch.
- d. Unless noted otherwise, make a minimum of four (4) concrete cylinders each time a test is required. When concrete is being placed in suspended slabs, beams and retaining walls make two (2) extra cylinders that must be cured on site. The extra cylinders will be used to determine when to remove forms and/or when to backfill.

In-place concrete may be cored for testing. Cost of all laboratory testing shall be the responsibility of the Owner. Any retesting required because of test failures shall be the responsibility of the Contractor. All concrete delivered to the job site shall be accompanied by a ticket specifying: bag mix, air content, etc. Said ticket shall be given to the Engineer's Inspector who may field check slump and air entrainment compliance.

5.8.3.11 Miscellaneous: All other items, including, but not limited to, waterstops and joint sealant, shall be as shown on the Drawings.

End of Section

SECTION 5.9 EARTHWORK

5.9.1 DESCRIPTION: Extent of earthwork is indicated on drawings. Preparation of bedding of pipe and trenching is included in Section 5.1 "Trench Excavation and Backfill".

"Excavation" consists of removal of material encountered to subgrade elevations indicated and subsequent relocation of materials removed. Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction. "Embankment" includes compacted backfill in specified lifts and densities.

A copy of the geotechnical report prepared for this project as appended to this specification book for the information of the CONTRACTOR.

5.9.2 MATERIALS:

5.9.2.1 SATISFACTORY MATERIALS: Materials are defined as those complying with ASTM D2487 soil classification groups GW, GP, GM, SM, SW and SP.

5.9.2.2 UNSATISFACTORY SOIL MATERIALS: Unsatisfactory soil materials are defined as those complying with ASTM D2487 soil classifications groups GC, SC, ML, CL, CH, OL, OH and PT.

5.9.2.3 STRUCTURAL FILL: Structural fill for sub-grade shall be a well-graded material, either natural or crushed, free from vegetable material and lumps or balls of clay. The 3-inch minus structural fill shall consist of well-graded sandy gravels and 5% to 15% fines (materials passing a No. 200 sieve) by weight.

The plasticity index of the fines shall not exceed 15 and the liquid limit shall not exceed 35. Clean gravel ranging from pea gravel to 6 inches with less than 5% fines and sand combined may alternatively be used as structural fill. All fill soils shall be free of topsoil, highly organic material, frozen and other deleterious materials.

5.9.2.4 BACKFILL AND FILL MATERIALS: Satisfactory soil materials free of clay, rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetable and other deleterious matter.

5.9.2.5 COMPACTION TESTING: Owner may employ at Owners Expense, testing laboratory to perform soil testing and inspection service for quality control testing during earthwork operations.

5.9.2.6 SITE CONDITIONS: Data on indicated subsurface conditioned at the end of this section are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn therefrom by Contractor. Data is made available for convenience of Contractor. Contractor may make additional test borings and other exploratory operations at no cost to Owner.

5.9.3 CONSTRUCTION: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to the satisfaction of utility owner.

Do not interrupt existing utilities serving facilities occupied and used by Owner or others during occupied hours, except when permitted in writing by Engineer and then only after acceptable temporary utility services have been provided.

Provide minimum of 48-hour notice to Engineer, and receive written notice to proceed before interrupting any utility.

Demolish and completely remove from site any and all existing underground utilities identified for removal. Coordinate with utility companies for shut-off of services if lines are active.

5.9.3.1 EXPLOSIVES: The use of explosives is not permitted without written approval of ENGINEER and OWNER and any and all Authorities Having Jurisdiction over the use of explosives.

Procedures and liabilities as outlined in Section 5.1.3.3, Solid Rock Excavation And Blasting, shall be followed if the use of explosives is necessary.

5.9.3.2 PROTECTIONS OF PERSONS AND PROPERTY: Barricade open excavations occurring as part of this work. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

5.9.3.3 EXCAVATION CLASSIFICATIONS: The following classifications of excavation will be made when rock excavation is encountered in work:

Earth Excavation - Includes excavation of pavements and other obstructions visible on ground surface; underground structures, utilities and other items indicated to be demolished and removed; together with earth and other materials encountered that are not classified as rock or unauthorized excavation.

Rock Excavation in Trenches and Pits - Includes removal and disposal of materials and obstructions encountered which cannot be excavated with a 1.0 cubic yard (heaped) capacity, 42 inch wide bucket on track-mounted power excavator equivalent to Caterpillar Model 215, rated at not less than 90 HP flywheel power and 30,000 lb. drawbar pull. Trenches in excess of 10' - 0" in width and pits in excess of 30' - 0" in length or width are classified as open excavation.

Rock Excavation in Open Excavations - Includes removal and disposal of materials and obstructions encountered, which cannot be dislodged and excavated with modern track-mounted heavy-duty excavation equipment without drilling, blasting or ripping.

Typical of materials classified as rock are boulders 1/2 cu. yd. or more in volume, solid rock, rock in ledges, and rock-hard cementitious aggregate deposits.

Intermittent drilling, blasting or ripping performed to increase production and not necessary to permit excavation of material encountered will be classified as earth excavation.

Do not perform rock excavation work until material to be excavated has been cross-sectioned and classified by the Engineer. Such excavation will be paid on basis of contract conditions relative to changes in work.

Rock Payment Lines are limited to the following:

Two feet outside of concrete work for which forms are required, except footings. One foot outside perimeter of footings. In pipe trenches, 6 inches below invert elevation of pipe and 2 feet wider than inside diameter of pipe, but not less than 3 feet minimum trench width. Neat outside dimensions of concrete work where no forms are required. Under slabs on grade, 6 inches below bottom of concrete slab.

Unauthorized Excavation - Consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be at Contractor's expense.

Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Engineer.

Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Engineer.

Additional Excavation: When excavation has reached required subgrade elevations, notify Engineer who will make an inspection of conditions.

If unsuitable bearing materials are encountered at required subgrade elevation, carry excavations deeper and replace excavated material as directed by Engineer. Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.

5.9.3.4 STABILITY OF EXCAVATIONS: Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.

Maintain sides and slopes of excavations in safe condition until completion of backfilling.

5.9.3.5 SHORING AND BRACING: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition.

Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.

Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

5.9.3.6 DEWATERING: Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area.

Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

5.9.3.7 MATERIAL STORAGE Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage. Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain. Dispose of excess soil material and waste materials as herein specified.

5.9.3.8 COLD WEATHER PROTECTION: Protect excavation bottoms against freezing when atmospheric temperature is less than 35°F. (1°C).

5.9.3.9 COMPACTION: Control soil compaction during construction providing minimum percentage of density specified for each area classification indicated below.

Structural Fill and Sub-Ballast: Compact top 8 inches of subgrade and each layer of structural fill material or sub-ballast at 95% maximum modified proctor density ASTM D 1557). Maximum compacted thickness of any one lift shall not exceed 6-inches.

Sub-Grade: Compact top 6 inches of subgrade and each layer of backfill or fill material at 90% maximum modified proctor density (ASTM D 1557).

Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material. Apply water in manner to prevent free water appearing on surface during or subsequent to compaction operations.

Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by dicing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

5.9.3.10 BACKFILL AND FILL: Place acceptable soil material in layers not exceeding 8 inches (uncompacted depth) and compact each layer prior to placement of next layer to required subgrade elevations, for each area classification listed below.

Sub-ballast, use structural fill material, or satisfactory excavated or borrow material, or combination of both.

Under Ballast, use sub-ballast material.

Backfill excavations as promptly as work permits, but not until completion of the following:

Acceptances of construction below finish grade including, where applicable, damp proofing, waterproofing, and perimeter insulation.

Inspection, testing, approval, and recording locations of underground utilities.

5.9.3.11 GROUND SURFACE PREPARATION: Remove vegetation, debris, unsatisfactory materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break-up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface.

When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.

5.9.3.12 PLACEMENT AND COMPACTION: Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

Place backfill and fill materials evenly adjacent to structures, piping or conduit to required elevations. Take care to prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping or conduit to approximately same elevation in each lift.

5.9.3.13 GRADING: Uniformly grade areas within limits of grading under this section including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

Finish surfaces free from irregular surface changes, and as follows:

Ballast and Sub-Ballast: Shape surface of areas under Ballast and Sub-Ballast to line, grade and cross-section, with finish surface not more than 2 inches above or below required subgrade elevation.

Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage of maximum dry or relative density for each area classification.

5.9.3.14 MAINTENANCE:

Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

Reconditioning Compacted Areas: Where subsequent construction operations or adverse weather disturbs completed compacted areas, scarify surface, re-shape, and compact to required density prior to further construction.

Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

5.9.3.15 DISPOSAL OF EXCESS AND WASTE MATERIALS

Removal to Designated Areas on Owner's Property: Transport acceptable excess excavated material to designated soil storage areas on Owner's property. Stockpile soil or spread as directed by Engineer.

Removal from Owner's Property: Remove waste materials, including unacceptable excavated material, trash and debris, and dispose of it off Owner's property, in a legal manner.

End of Section