

**LOWER LOGAN RIVER
TRAPPER PARK CANAL
ENCLOSURE PROJECT**

CACHE COUNTY, UTAH

CACHE WATER DISTRICT

Volume 1 of 2

**CONTRACT DOCUMENTS
&
TECHNICAL SPECIFICATIONS**

August 2024

**ISSUED FOR
BIDDING**



FRANSON
CIVIL ENGINEERS

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DOCUMENT 00 01 10

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END OF DOCUMENT

DOCUMENT 00 11 16

INVITATION TO BID

Date: August 21, 2024

Owner: Cache Water District
ATTN: Nathan Daug
199 North Main Street
Logan, UT 84321

Phone: 435-999-0051
Email: ndaugs@cachewaterdistrict.com

Engineer: Franson Civil Engineers
ATTN: Eric Franson
1276 South 820 East, Suite 100
American Fork, Utah 84003

Phone: 801-756-0309
Email: efranson@fransoncivil.com

General Notice

Cache Water District (Owner) is requesting Bids for the construction of the following Project:

Lower Logan River - Trapper Park Canal Enclosure Project

Bids for the construction of the Project must be submitted before 5:00 pm MDT on Tuesday, September 10, 2024 to Franson Civil Engineers via email at mneilsen@fransoncivil.com or delivered physically to the Franson Civil Engineering Office at 459 S Main, Suite 200, Logan, UT 84321. After which time, the Bids will be privately opened and tabulated. Bids not received by the indicated time will not be opened.

The Project includes the following Work:

Installing approximately 6,000 feet of pipe, ranging in diameter from 48 to 15 inches, to replace about 1.1 miles of the existing open canal. The project includes replacing the existing diversion structure at the Lower Logan River and installing concrete diversion boxes with gates at lateral and turnout locations for water management. The new diversion structure will feature an electric traveling screen and gate. As part of the project, power will be supplied to the diversion structure area. Work includes, but is not limited to, installing fittings and appurtenances, excavation and backfill, erosion and sediment control, and related activities.

Owner requires the Project to be substantially completed by April 1, 2025.

Obtaining the Bidding Documents

Bidding Documents will be available on Wednesday, August 21, 2024. The Issuing Office for the Bidding Documents is the office of the Engineer. Prospective Bidders shall receive the Bidding Documents electronically from the Issuing Office.

Hard copies of the Bidding Documents shall be made available for a non-refundable purchase price of \$50.00 per copy, payable to Franson Civil Engineers. However, all bids shall be submitted electronically.

Prospective Bidders are urged to register with the designated website as a plan holder, even if Bidding Documents are obtained from a plan room or source other than the designated website in either electronic or paper format. The designated website will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only through the designated website.

Neither Owner nor Engineer will be responsible for Bidding Documents, including addenda, if any, obtained from sources other than the designated website or Issuing Office.

Pre-bid Conference

A mandatory pre-bid conference for the Project will be held on August 29, 2024, at 1:00 pm MDT on-site at 1497 S 1600 W in Logan, UT, 84321. Bids will not be accepted from Bidders that do not attend the mandatory pre-bid conference.

Instructions to Bidders.

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

END OF DOCUMENT

DOCUMENT 00 21 13

INSTRUCTIONS TO BIDDERS

SUMMARY

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

ARTICLE 1—DEFINED TERMS

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

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Owner has established a Bidding Documents Website as indicated in the Advertisement or Invitation to Bid. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or Invitation to Bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.05 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may make Bidding Documents available for examination. Those prospective bidders that view a copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Bidding Documents Website or Issuing Office. Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda. To submit a Bid, Bidders must be registered as a plan holder on the Bidding Documents Website or through the Issuing Office.
- 2.06 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.
- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and

reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 Bidder is to submit the following information with its Bid to demonstrate Bidder's qualifications to perform the Work:
- A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
 - B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
 - C. Bidder's state or other contractor license number, if applicable.
 - D. Subcontractor and Supplier qualification information.
 - E. Other required information regarding qualifications.
- 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.

ARTICLE 4—PRE-BID CONFERENCE

- 4.01 A mandatory pre-bid conference will be held at the time and location indicated in the Advertisement or Invitation to Bid. Representatives of Owner and Engineer will be present to discuss the Project. Proposals will not be accepted from Bidders who do not attend the conference. It is each Bidder's responsibility to sign in at the pre-bid conference to verify its participation. Bidders must sign in using the name of the organization that will be submitting a Bid. A list of qualified Bidders that attended the pre-bid conference and are eligible to submit a Bid for this Project will be posted on the Bidding Documents Website.
- 4.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-Bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

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

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

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

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

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

5.03 *Other Site-related Documents*

A. Cache County Conditional Use Permit

5.04 *Site Visit and Testing by Bidders*

- A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
- B. A Site visit is scheduled in conjunction with the pre-bid conference. Maps to the Site will be available upon request.
- C. Bidders visiting the Site are required to arrange their own transportation to the Site.
- D. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the Owner or Engineer for visiting the Site. Bidder must conduct the Site visit during normal working hours.
- E. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- F. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing

so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.

- G. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- H. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.05 *Owner's Safety Program*

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

5.06 *Other Work at the Site*

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

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

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

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing via the Bidding Documents Website specified in the Invitation to Bid.
- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of five percent (5%) of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the Contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

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

ARTICLE 10—SUBSTITUTE AND “OR EQUAL” ITEMS

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or “or-equal” items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or “or-equal” item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.
- 10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder's sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

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

ARTICLE 12—PREPARATION OF BID

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

- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

13.01 *Unit Price*

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

ARTICLE 14—SUBMITTAL OF BID

- 14.01 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or Invitation to Bid, and must be accompanied by the Bid security and other required documents.
- 14.02 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

- 15.01 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.

- 15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 16—OPENING OF BIDS

- 16.01 Bids will be opened as indicated in the Advertisement or Invitation to Bid. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.
- 18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.
- 18.05 *Evaluation of Bids*
- A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- 18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS AND INSURANCE

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

ARTICLE 20—SIGNING OF AGREEMENT

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

ARTICLE 21—SALES AND USE TAXES

- 21.01 Owner is exempt from Utah state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes must not be included in the Bid. Refer to Paragraph SC-7.10 of the Supplementary Conditions for additional information.

ARTICLE 22—CONTRACTS TO BE ASSIGNED

- 22.01 There are no contracts to be assigned.

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END OF DOCUMENT

DOCUMENT 00 41 13

BID FORM

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

ARTICLE 1—OWNER AND BIDDER

1.01 This Bid is submitted to:

Cache Water District
c/o Franson Civil Engineers at
mneilsen@fransonicivil.com

OR delivered physically to the Franson Civil Engineering Office at 459 S Main, Suite 200,
Logan, UT 84321.

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

2.01 The following documents are submitted with and made a condition of this Bid:

- A. Required Bid security;
- B. List of Proposed Subcontractors;
- C. List of Proposed Suppliers;
- D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids; and
- E. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids.

ARTICLE 3—BASIS OF BID

3.01 *Lump Sum and Unit Price Bids*

- A. Bidder will complete the Work in accordance with the Contract Documents for the prices listed on the bid schedule in Attachment 1.
- B. Bidder acknowledges that:
 1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
 2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—TIME OF COMPLETION

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

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

5.01 *Bid Acceptance Period*

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

5.02 *Instructions to Bidders*

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

5.03 *Receipt of Addenda*

- A. Bidder hereby acknowledges receipt of Addenda in Attachment 1.

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder’s Representations*

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

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

6.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 6.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

EJCDC® C 410, Bid Form for Construction Contract.
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BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

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

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

Address for giving notices:

Bidder's Contact:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Phone: _____

Email: _____

Address: _____

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

ATTACHMENT 1

ACKNOWLEDGEMENT OF ADDENDA

Addendum Number	Addendum Date

UNIT PRICE BID SCHEDULE

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1	Mobilization	LS	1		
2	Construction Surveying and Staking	LS	1		
3	Site Demolition and Preparation	LS	1		
4	Dewatering/Water Management	LS	1		
5	Furnish and Place Hot Mix Asphalt at Road Crossings	SY	690		
6	Site Restoration and Seeding	LS	1		
7	Traffic Control, Dust Control, and Maintaining Temporary Roadway	LS	1		
8	Furnish and Install Cast-in-Place Concrete Diversion Structure with One (1) 6' x 3' Gate Opening and One (1) 48" Diameter Pipe Opening	CY	75		
9	Furnish and Install 10' x 10' x 6" Cast-in-Place Concrete Pad at Diversion Structure for Screen Debris	CY	2		
10	Furnish and Install Grating on Diversion Structure	LS	1		
11	Furnish and Install One (1) 6' x 3' Waterman SS-250 Stainless Steel Slide Gate for Diversion Structure	EA	1		
12	Furnish and Install One (1) 48" Waterman C-10 Gate for Diversion Structure	EA	1		
13	Furnish and Install Debris Deflection on Diversion Structure	EA	1		
14	Furnish and Install Traveling Screen on Diversion Structure with Debris Trough	EA	1		

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
15	Electrical Work for 48" Waterman C-10 Canal Gate and Traveling Screen on Diversion Structure	LS	1		
16	Furnish and Install Temporary Riprap around Diversion Structure	CY	75		
17	Furnish and Install 48" Dual Wall Corrugated HDPE Pipe	LF	1200		
18	Furnish and Install 42" Dual Wall Corrugated HDPE Pipe	LF	2817		
19	Furnish and Install 30" Dual Wall Corrugated HDPE Pipe	LF	1664		
20	Furnish and Install 24" Dual Wall Corrugated HDPE Pipe	LF	57		
21	Furnish and Install 18" Dual Wall Corrugated HDPE Pipe	LF	77		
22	Furnish and Install 15" Dual Wall Corrugated HDPE Pipe	LF	44		
23	Furnish and Install 18" Reinforced Concrete Pipe	LF	152		
24	Furnish and Install 18" Corrugated Metal Pipe with Coupler Transition from Existing Pipe	LF	10		
25	Furnish and Install 35" x 23" Elliptical Corrugated Metal Pipe with Coupler Transition from Existing Pipe	LF	12		
26	Furnish and Install 6" EPDM Hose with Connection Fittings (2) for 6" Steel Well to EPDM Hose	LF	28		
27	Furnish and Install 4' x 4' x 6' Precast Concrete Inlet Box with 4 Openings	EA	1		
28	Furnish and Install 6' x 6' x 8' Precast Concrete Inlet Box with 3 Openings	EA	3		
29	Furnish and Install 8' x 8' x 8' Precast Concrete Inlet Box with 3 Openings	EA	1		
30	Furnish and Install 4' x 4' x 5' Precast Concrete Cleanout Box with 2 Openings	EA	1		
31	Furnish and Install 4' x 4' x 8' Precast Concrete Cleanout Box with 3 Openings	EA	1		
32	Furnish and Install 6' x 6' x 8' Precast Concrete Cleanout Box with 3 Openings	EA	2		
33	Furnish and Install 6' x 6' x 8' Precast Concrete Cleanout Box with 2 Openings	EA	1		
34	Furnish and Install 4' x 4' x 6' Precast Concrete Diversion Box with 3 Openings, One (1) 18" Waterman C-10 Gate, and One (1) 15" Waterman C-10 Gate	EA	1		
35	Furnish and Install 6' x 6' x 8' Precast Concrete Diversion Box with 3 Openings and One (1) 30" Waterman C-10 Gate	EA	2		

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
36	Furnish and Install 6' x 6' x 8' Precast Concrete Diversion Box with 4 Openings and Two (2) 18" Waterman C-10 Gates	EA	2		
37	Furnish and Install 6' x 8' x 8' Cast-in-Place Concrete Check Box with 4 Openings, One (1) 18" Waterman C-10 Gate, One (1) 24" Waterman C-10 Gate, and One (1) 4' x 5' Waterman SS-250 Stainless Steel Slide Gate	EA	1		
38	Furnish and Install 6' x 8' x 8' Cast-in-Place Concrete Check Box with 4 Openings, Two (2) 18" Waterman C-10 Gates, and One (1) 4' x 3' Waterman SS-250 Stainless Steel Slide Gate	EA	1		
39	Furnish and Install 6' x 8' x 8' Cast-in-Place Concrete Check Box with 3 Openings, One (1) 18" Waterman C-10 Gate, and One (1) 4' x 5' Waterman SS-250 Stainless Steel Slide Gate	EA	1		
40	Furnish and Install 8' x 9' x 9' Cast-in-Place Concrete Overflow Box with 3 Openings, One (1) Weir Wall, and One (1) 30" Waterman C-10 Gate	EA	1		
41	Furnish and Install 4' Diameter x 6' Concrete Manhole with 2 Openings	EA	4		
42	Furnish and Install 4' Diameter x 6' Concrete Manhole with 1 Opening	EA	1		
43	Furnish and Install 4' Diameter x 8' Concrete Manhole with 1 Opening	EA	1		
44	Furnish and Install 6' Diameter x 8' Concrete Manhole with 2 Openings	EA	1		
45	Furnish and Install 7' Diameter x 8' Concrete Manhole with 3 Openings	EA	1		
46	Furnish and Install 42" Concrete Flared End Outlet	EA	1		
47	Furnish and Install 30" Concrete Flared End Outlet	EA	3		
48	Furnish and Install 18" Concrete Flared End Outlet	EA	1		
49	Furnish and Install 18" Concrete Flared End Inlet with Trash Rack	EA	3		
					\$

MEASUREMENT AND PAYMENT

1.1 Mobilization – Bid Item 1

- A. Measurement shall be made on a LUMP SUM BASIS as follows:

<u>Percent of Original Contract Bid Amount Earned</u>	<u>Percent of Bid Amount for Mobilization to be Paid</u>
At Start of Construction	30
20	35
50	25
75	10

- B. Payment shall cover the cost of mobilization and demobilization, installation of temporary facilities and utilities, and bringing all necessary construction equipment to the Site. Payment shall also cover temporary construction accesses at the Site.
- C. Payment includes the cost of scheduling processes, and all contract management, submittal processes, and coordination per project Specifications.
- D. Payment includes expenses related to Blue Staking and locating all utilities as required in the bid documents, plans, specifications, and Utah State Law.
- E. Payment will include full compensation for all subcontractors, labor, materials, and equipment necessary to verify and ensure the quality (testing) of the installed Project and Project materials, including but not limited to, Proctors and gradations of materials, compaction of backfill materials, concrete testing, asphalt testing, asphalt temperature testing, asphalt density testing, and quantity verification. Contractor shall be responsible for all testing of earthwork/backfill, asphalt, and other project materials. Contractor shall be responsible for mandrel testing of all flexible pipes over 24 inches in diameter. Related testing by an independent third party is included under this item.
- F. Payment shall cover all costs related to developing and obtaining the Storm Water Pollution Prevention Plan (SWPPP) from Utah (UPDES), obtaining the Notice of Intent (NOI), and executing the permit, including installation, maintenance of best management practices during construction, and removal of temporary best management practices as required by the permit and regular scheduled and unscheduled inspections and reporting. Contractor shall submit proof of permit to Owner prior to commencing excavation.
- G. Payment shall include all required permits to be obtained by the Contractor, including but not limited to the Cache County Land Disturbance Permit, Electrical Permits from Logan City and Cache County, Cache County and Logan City Building Permits, Encroachment Permits, and all other clearances and permits listed in the Cache County Conditional Use Permit. Payment shall exclude permits and costs covered under 'Dewatering/Water Management – Bid Item 4'.
- H. Payment will include conforming to all applicable local, State, and Federal requirements.

1.2 Construction Surveying and Staking – Bid Item 2

- A. Measurement shall be made on a LUMP SUM BASIS.

- B. Payment shall cover the cost of providing Construction Surveying including establishment of survey control, property and easement corners, stakes for line and grade on all features and related items, and costs to reestablish stakes that are damaged by contractors or vandalism.
- C. Payment shall cover cost of providing all surveying activities required to comply with the Specifications and to quantify quantities for Bid Items payable on a volume, area, or length basis. Owner may utilize an independent third-party survey to check quantities.
- D. Payment will be made on a percentage basis as follows:

<u>Percent of Original Contract Bid Amount Earned</u>	<u>Percent of Amount Bid for this Bid Item to be Paid</u>
10	30
25	20
60	20
90	30

1.3 Site Demolition and Preparation – Bid Item 3

- A. Measurement shall be made on a LUMP SUM BASIS.
- B. Payment shall cover the cost of removal of existing structures as indicated on the Drawings. This includes the existing diversion structure, flume, bridge crossings, check structures, culverts and headwalls, headgates, pipes, and other structures, per the Drawing Plans. The salvaged bridge crossings per the Drawings shall be picked up from the site by the indicated parties.
- C. Payment shall cover the cost of the removal of all woody brush and roots and other vegetation along canal banks and the required disposal.
- D. Removal of any trees not indicated on the Drawings must be approved by the Engineer. The wetland boundary shall not be disturbed.
- E. Payment shall cover the cost for importing any necessary backfill for proper gradation, and any necessary work and grading to gain access to the streambed to construct the Project. All imported and reused materials shall follow the Specifications and Drawings. Payment shall exclude any earthwork/backfill and related costs covered in other bid items.

1.4 Dewatering/Water Management – Bid Item 4

- A. Measurement shall be made on a LUMP SUM BASIS.
- B. Payment shall cover the cost of dewatering and managing the flows of the Lower Logan River during the construction of the project, as indicated in the Specifications. The Contractor will be responsible for preparing a plan for managing the flows of the River. The plan will be a submittal due prior to construction. It will be the responsibility of the Contractor to protect their ongoing work.
- C. Payment shall cover cost of installing required pumps, motors, generators, equipment, backup equipment, and all other items required to dewater the pipe trench so that backfill

material, concrete, pipe, and other project items can be placed and compacted per Drawings and Specifications.

- D. Payment shall cover the cost of all materials, labor, equipment and tools required to maintain surface water control and dewatering systems on site so that project work can proceed in a smooth and timely manner.
- E. Payment shall cover cost of acquiring the joint stream alteration permits from the Utah Division of Water Rights and U.S. Army Corp of Engineers, and related correct permits from Cache County, and Logan City to dewater and properly dispose of the water. Payment shall also cover coordination with the required entities. Payment shall exclude all permits and related costs covered under 'Mobilization - Bid Item 1'.

1.5 Furnish and Place Hot Mix Asphalt at Road Crossings – Bid Item 5

- A. Measurement shall be made on a SQUARE YARD BASIS.
- B. Payment shall cover cost of furnishing and installing the pavement section as specified in the design drawings including all hot mix asphalt, roadbase, Type S3 backfill borrow, tack oil, and primer.
- C. Payment shall cover the cost for removal of asphalt at the road as specified in the design drawings. There will be no payment for over-excavation of the asphalt unless approved in writing by the Engineer prior to excavation. Payment shall cover cost of the necessary work including saw-cutting, removal, and proper disposal of removed asphalt.
- D. The cost of soil excavation, furnishing and installing pipe at the road crossings is included in the pipe installation costs and shall not be added to this bid item.
- E. Payment shall include all work required for a complete job to restore the road crossings to existing conditions or better, and shall cover all required labor, materials, equipment and tools, and exclude work covered in other bid items. Work shall conform to Cache County standards.
- F. The cost for material testing, including Proctor, compaction tests, asphalt density tests, etc., will be paid for under Bid Item 1 and must not be included in this bid item.

1.6 Site Restoration and Seeding – Bid Item 6

- A. Measurement shall be made on a LUMP SUM BASIS.
- B. Payment shall cover cost for restoring the construction site to pre-project conditions or better. Contractor will be responsible for taking drone overflight photos of all work sites before construction begins. The drone images shall be provided in a report to the Engineer to document pre-project conditions.
- C. Payment shall cover the cost for final grading of the work area disturbed during the construction process. Stockpiled topsoil shall be replaced in disturbed areas along the pipe alignment per the Drawings and Specifications. All excess materials and debris are to be removed and properly disposed of.

- D. Payment shall cover the cost to furnish seed and plant all disturbed areas along the pipe alignment as directed in the specifications. Payment shall cover the cost of the noxious weed and revegetation plan to be submitted to Cache County Weed Management Division for Approval.
 - E. Payment shall cover the cost of restoring 1600 West access road as outlined in the Cache County Conditional Use Permit. All access roads are to be restored to pre-project conditions. Fences that were removed or damaged are to be reinstalled or replaced. Any damage or disturbance caused to residential property or items located on the property is to be replaced or restored to pre-project conditions.
 - F. Payment shall cover the cost of all work required for a complete job to include materials, labor, equipment, and tools, and shall exclude all costs covered under other bid items.
 - G. Sales tax shall not be included in this bid item as the Owner is a tax-free entity. With a form from the Owner, the Contractor will be able to purchase the seed supplies tax-free.
- 1.7 Traffic Control, Dust Control, and Maintaining Temporary Roadway – Bid Item 7
- A. Measurement shall be made on a LUMP SUM BASIS.
 - B. Payment shall cover cost of dust control on trenches, access routes and unpaved surfaces. If the Contractor's methods of dust control are not adequate, Contractor must modify methods and correct the deficiency at no additional cost to the Owner. This item also covers cost of filling potholes in trench area that may have occurred during construction. Maintaining roadways and dust control is of the utmost importance; other work by Contractor may be halted by the Owner or the Owner's representative if conditions warrant and immediate attention to this item is required. Contractor shall coordinate work with Owner.
 - C. Payment shall also cover the costs of traffic control, rerouting traffic, related barricades, and signage, and flagging in compliance with the plans and specifications when Work is on or near the public right of way including roads, streets, and trails.
- 1.8 Furnish and Install Cast-in-Place Concrete Diversion Structure with One (1) 6' x 3' Gate Opening and One (1) 48" Diameter Pipe Opening – Bid Item 8
- A. Measurement shall be made on a CUBIC YARD BASIS.
 - B. Payment shall cover cost of forming, providing and tying reinforcement, furnishing concrete, placing and finishing of the concrete, and providing for the gate openings, per the Drawings. All concrete used shall meet the requirements found in the Specifications. Payment excludes the price of the canal gates.
 - C. Payment shall include the cost of excavation, and furnishing and installing bedding and backfill materials with proper compaction, per the Drawings and Specifications. Payment shall exclude backfill covered under other bid items.
 - D. Payment shall cover the cost of all work required for a complete job to include labor, materials, equipment, and tools, and shall exclude costs covered under other bid items.

- 1.9 Furnish and Install 10' x 10' x 6" Cast-in-Place Concrete Pad at Diversion Structure for Screen Debris – Bid Item 9
- A. Measurement shall be made on a CUBIC YARD BASIS.
 - B. Payment shall cover cost of providing and tying reinforcement, furnishing concrete, placing and finishing of the concrete for the concrete pad. All concrete used shall meet the requirements found in the Specifications.
 - C. Payment shall include the cost of excavation, and furnishing and installing bedding and backfill materials with proper compaction, per the Drawings and Specifications. Payment shall exclude backfill covered under other bid items.
- 1.10 Furnish and Install Grating on Diversion Structure – Bid Item 10
- A. Measurement shall be made on a LUMP SUM BASIS.
 - B. Payment shall cover the cost of furnishing and installing the grating on the diversion structure per the Drawings and Specifications, and shall include all materials, labor, equipment and tools required to install the grating.
- 1.11 Furnish and Install One (1) 6' x 3' Waterman SS-250 Stainless Steel Slide Gate for Diversion Structure – Bid Item 11
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall include the cost of the canal gate, and all material, equipment, and labor required to install the gate on the diversion structure per the Drawings and the manufacturer's instructions.
- 1.12 Furnish and Install One (1) 48" Waterman C-10 Gate for Diversion Structure – Bid Item 12
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall include the cost of the canal gate, and all material, equipment, and labor required to install the gate on the diversion structure per the Drawings and the manufacturer's instructions.
- 1.13 Furnish and Install Debris Deflection on Diversion Structure – Bid Item 13
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall include the cost of furnishing and installing the debris deflection bar, and all material, equipment, and labor required to install the debris deflection bar on the diversion structure per the Drawings and Specifications.
- 1.14 Furnish and Install Traveling Screen on Diversion Structure with Debris Trough – Bid Item 14
- A. Measurement shall be made on a PER EACH BASIS.

- B. Payment shall cover cost to furnish and install the traveling screen and debris trough on the diversion structure per the Drawings and Specifications. Payment excludes the cost of the concrete pad.
 - C. Payment shall cover all materials, labor, equipment, and tools required to furnish and install the traveling screen and debris trough per the Drawings and Specifications.
 - D. Payment shall cover commissioning of the traveling screen.
 - E. Electrical connections to the traveling screen are per another bid item.
- 1.15 Electrical Work for 48" Waterman C-10 Canal Gate and Traveling Screen on Diversion Structure – Bid Item 15
- A. Measurement shall be made on a LUMP SUM BASIS.
 - B. Payment shall cover cost to furnish and install all conduits and other appurtenances necessary to connect the Waterman C-10 gate and the traveling screen at the diversion structure to the power grid. Contractor is responsible for coordination with the landowners and power company to connect to existing power and run power to the site.
 - C. Payment shall cover cost of required electrical inspections by Logan City and Cache County and for coordination with Logan City and Cache County as required. There will be no payment for extra work due to an inspection failure.
- 1.16 Furnish and Install Temporary Riprap around Diversion Structure – Bid Item 16
- A. Measurement shall be made on a CUBIC YARD BASIS.
 - B. Payment shall cover the cost of riprap and all other material, labor, equipment, and tools required to furnish and install the riprap per the Drawings. The size of the riprap shall be as indicated in the Specifications.
- 1.17 Furnish and Install Dual Wall Corrugated HDPE Pipe – Bid Item 17 – 22
- A. Measurement shall be made on a LINEAR FOOT BASIS.
 - B. Payment shall cover cost to furnish and install the pipe at the locations indicated on the Drawings. Payment shall include the cost to furnish and install concrete collars at the pipe-to-manhole and pipe-to-box connections, and the cost of all other materials and fittings required to install the pipe per the Drawings and Specifications
 - C. Payment shall include the cost of trench excavation, and furnishing and installing bedding and backfill materials, tracer wire, and metallic warning tape, as indicated on the Drawings and in the Specifications.
 - D. Sales tax shall not be included in this bid item as the Owner is a tax-free entity. With a form from the Owner, the Contractor will be able to purchase the pipe tax-free.
- 1.18 Furnish and Install 18" Reinforced Concrete Pipe – Bid Item 23
- A. Measurement shall be made on a LINEAR FOOT BASIS.

- B. Payment shall cover cost to furnish and install Class III reinforced concrete pipe at the locations indicated on the Drawings. Payment shall include the cost to furnish and install concrete collars at the pipe-to-manhole, pipe-to-box, and pipe-to-flared end section connections, and the cost of all other materials and fittings required to install the pipe per the Drawings and Specifications.
 - C. Payment shall include the cost of trench excavation and furnishing and installing bedding and backfill materials, tracer wire, and metallic warning tape, as indicated on the Drawings and in the Specifications.
 - D. Payment shall cover all materials, labor, equipment, and tools necessary to install the pipe per the Drawings and Specifications.
- 1.19 Furnish and Install 18" Corrugated Metal Pipe with Coupler Transition from Existing Pipe – Bid Item 24
- A. Measurement shall be made on a LINEAR FOOT BASIS.
 - B. Payment shall cover cost to furnish and install the specified length of pipe at the location indicated on the Drawings. Payment shall include the cost to furnish and install the concrete collar at the pipe-to-box connection, and all other materials and fittings required to install the pipe per the Drawings and Specifications. All pipe joints shall be water-tight.
 - C. Payment shall include the cost of trench excavation and furnishing and installing bedding and backfill materials, tracer wire, and metallic warning tape, as indicated on the Drawings and in the Specifications.
 - D. Payment shall cover all materials, labor, equipment, and tools necessary to install the pipe per the Drawings and Specifications.
- 1.20 Furnish and Install 35" x 23" Elliptical Corrugated Metal Pipe with Coupler Transition from Existing Pipe – Bid Item 25
- A. Measurement shall be made on a LINEAR FOOT BASIS.
 - B. Payment shall cover cost to furnish and install the specified length of pipe at the location indicated on the Drawings. Payment shall include the cost to furnish and install the concrete collar at the pipe-to-box connection, the cost to furnish and install a coupler transition from the new pipe to the existing pipe, and all other materials and fittings required to install the pipe per the Drawings and Specifications. All pipe joints shall be water-tight.
 - C. Payment shall include the cost of trench excavation and furnishing and installing bedding and backfill materials, tracer wire, and metallic warning tape, as indicated on the Drawings and in the Specifications.
 - D. Payment shall cover all materials, labor, equipment, and tools necessary to install the pipe per the Drawings and Specifications.

- 1.21 Furnish and Install 6" EPDM Hose with Connection Fittings (2) for 6" Steel Well to EPDM Hose – Bid Item 26
- A. Measurement shall be made on a LINEAR FOOT BASIS.
 - B. Payment shall cover cost to furnish and install the required length of EPDM hose at the locations indicated on the Drawings. Payment shall include the cost to furnish and install two (2) 6" steel well to EPDM hose connection fittings and to connect the EPDM hose at the cleanout boxes per the Drawings.
 - C. Payment shall cover all materials, labor, equipment, and tools necessary to install the EPDM hose per the Drawings and Specifications.
- 1.22 Furnish and Install 4' x 4' x 6' Precast Concrete Inlet Box with 4 Openings – Bid Item 27
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost to furnish and install the box per the Drawings and Specifications. A safety grate shall be installed on top of the box.
 - C. Payment includes the appropriate block outs on the box for the appropriate size of connecting pipes indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the box, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall cover all material, labor equipment, and tools necessary to install the box, grate, and other required appurtenances, per the Drawings and Specifications.
- 1.23 Furnish and Install 6' x 6' x 8' Precast Concrete Inlet Box with 3 Openings – Bid Item 28
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost to furnish and install the box per the Drawings and Specifications. A safety grate shall be installed on top of the box.
 - C. Payment includes the appropriate block outs on the box for the appropriate size of connecting pipes indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the box, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall cover all material, labor, equipment, and tools necessary to install the box, grate, and other required appurtenances, per the Drawings and Specifications.
- 1.24 Furnish and Install 8' x 8' x 8' Precast Concrete Inlet Box with 3 Openings – Bid Item 29
- A. Measurement shall be made on a PER EACH BASIS.

- B. Payment shall cover cost to furnish and install the box per the Drawings and Specifications. A safety grate shall be installed on top of the box.
 - C. Payment includes the appropriate block outs on the boxes for the appropriate size of connecting pipes indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the box, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall cover all material, labor, equipment, and tools necessary to install the box, grate, and other required appurtenances, per the Drawings and Specifications.
- 1.25 Furnish and Install 4' x 4' x 5' Precast Concrete Cleanout Box with 2 Openings – Bid Item 30
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost to furnish and install the box per the Drawings and Specifications. A safety grate shall be installed on top of the box.
 - C. Payment includes the appropriate block outs on the boxes for the appropriate size of connecting pipes indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the box, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall cover all material, labor, equipment, and tools necessary to install the box, grate, and other required appurtenances, per the Drawings and Specifications.
- 1.26 Furnish and Install 4' x 4' x 8' Precast Concrete Cleanout Box with 3 Openings – Bid Item 31
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost to furnish and install the box per the Drawings and Specifications. A safety grate shall be installed on top of the box.
 - C. Payment includes the appropriate block outs on the boxes for the appropriate size of connecting pipes indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the box, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall cover all material, labor, equipment, and tools necessary to install the box, grate, and other required appurtenances, per the Drawings and Specifications.
- 1.27 Furnish and Install 6' x 6' x 8' Precast Concrete Cleanout Box with 3 Openings – Bid Item 32
- A. Measurement shall be made on a PER EACH BASIS.

- B. Payment shall cover cost to furnish and install the box per the Drawings and Specifications. A safety grate shall be installed on top of the box.
 - C. Payment includes the appropriate block outs on the boxes for the appropriate size of connecting pipes indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the box, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall cover all material, labor, equipment, and tools necessary to install the box, grate, and other required appurtenances, per the Drawings and Specifications.
- 1.28 Furnish and Install 6' x 6' x 8' Precast Concrete Cleanout Box with 2 Openings – Bid Item 33
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost to furnish and install the box per the Drawings and Specifications. A safety grate shall be installed on top of the box.
 - C. Payment includes the appropriate block outs on the boxes for the appropriate size of connecting pipes indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the box, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall cover all material, labor, equipment, and tools necessary to install the box, grate, and other required appurtenances, per the Drawings and Specifications.
- 1.29 Furnish and Install 4' x 4' x 6' Precast Concrete Diversion Box with 3 Openings, One (1) 18" Waterman C-10 Gate, and One (1) 15" Waterman C-10 Gate – Bid Item 34
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost to furnish and install the box and canal gate per the Drawings and Specifications. A safety grate shall be installed on top of the box.
 - C. Payment includes the appropriate block outs on the box for the appropriate size of connecting pipes and gates indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the box, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall include the cost of all material, labor, equipment, and tools necessary to install the box, grate, and other required appurtenances, per the Drawings and Specifications.
- 1.30 Furnish and Install 6' x 6' x 8' Precast Concrete Diversion Box with 3 Openings and One (1) 30" Waterman C-10 Gate – Bid Item 35
- A. Measurement shall be made on a PER EACH BASIS.

- B. Payment shall cover cost to furnish and install the box and canal gates per the Drawings and Specifications. A safety grate shall be installed on top of the box.
 - C. Payment includes the appropriate block outs on the boxes for the appropriate size of connecting pipes and gates indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the box, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall cover all material, labor, equipment, and tools necessary to install the box, grate, and other required appurtenances, per the Drawings and Specifications.
- 1.31 Furnish and Install 6' x 6' x 8' Precast Concrete Diversion Box with 4 Openings and Two (2) 18" Waterman C-10 Gates – Bid Item 36
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost to furnish and install the box and canal gates per the Drawings and Specifications. A safety grate shall be installed on top of the box.
 - C. Payment includes the appropriate block outs on the boxes for the appropriate size of connecting pipes and gates indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the box, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall cover all material, labor, equipment, and tools necessary to install the box, grate, and other required appurtenances, per the Drawings and Specifications.
- 1.32 Furnish and Install 6' x 8' x 8' Cast-in-Place Concrete Check Box with 4 Openings, One (1) 18" Waterman C-10 Gate, One (1) 24" Waterman C-10 Gate, and One (1) 4' x 5' Waterman SS-250 Stainless Steel Slide Gate – Bid Item 37
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost of forming, providing & tying reinforcement, furnishing concrete, and placing & finishing concrete for the check box, per the Drawings and Specifications. Payment shall include the cost of furnishing and installing the specified canal gates per the Drawings and Specifications. A safety grate shall be installed on top of the box.
 - C. Payment includes the appropriate block outs on the box for the appropriate size of connecting pipes and gates indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the box, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall cover all material, labor, equipment, and tools necessary to install the box, gates, grate, and other required appurtenances, per the Drawings and Specifications.

- 1.33 Furnish and Install 6' x 8' x 8' Cast-in-Place Concrete Check Box with 4 Openings, Two (2) 18" Waterman C-10 Gates, and One (1) 4' x 3' Waterman SS-250 Stainless Steel Slide Gate – Bid Item 38
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost of forming, providing & tying reinforcement, furnishing concrete, and placing & finishing concrete for the check box, per the Drawings and Specifications. Payment shall include the cost of furnishing and installing the specified canal gates per the Drawings and Specifications. A safety grate shall be installed on top of the box.
 - C. Payment includes the appropriate block outs on the box for the appropriate size of connecting pipes and gates indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the box, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall cover all material, labor, equipment, and tools necessary to install the box, gates, grate, and other required appurtenances, per the Drawings and Specifications.
- 1.34 Furnish and Install 6' x 8' x 8' Cast-in-Place Concrete Check Box with 3 Openings, One (1) 18" Waterman C-10 Gate, and One (1) 4' x 5' Waterman SS-250 Stainless Steel Slide Gate – Bid Item 39
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost of forming, providing & tying reinforcement, furnishing concrete, and placing & finishing concrete for the check box, per the Drawings and Specifications. Payment shall include the cost of furnishing and installing the specified canal gates per the Drawings and Specifications. A safety grate shall be installed on top of the box.
 - C. Payment includes the appropriate block outs on the box for the appropriate size of connecting pipes and gates indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the box, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall cover all material, labor, equipment, and tools necessary to install the box, gates, grate, and other required appurtenances, per the Drawings and Specifications.
- 1.35 Furnish and Install 8' x 9' x 9' Cast-in-Place Concrete Overflow Box with 3 Openings, One (1) Weir Wall, and One (1) 30" Waterman C-10 Gate – Bid Item 40
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost of forming, providing & tying reinforcement, furnishing concrete, and placing & finishing concrete for the overflow box and weir wall, per the Drawings and Specifications. Payment shall include the cost of furnishing and installing the specified canal gate per the Drawings and Specifications. A safety grate shall be installed on top of the box.

- C. Payment includes the appropriate block outs on the box for the appropriate size of connecting pipes and gates indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the box, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall cover all material, labor, equipment, and tools necessary to install the box, gates, grate, and other required appurtenances, per the Drawings and Specifications.
- 1.36 Furnish and Install 4' Diameter x 6' Concrete Manhole with 2 Openings – Bid Item 41
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost of furnishing and installing the precast concrete manhole sections, including the base, required sections, cone, ring, cover, concrete collar, and ladder. Mastic and related costs shall be included under this bid item.
 - C. Payment includes the appropriate block outs on the manhole for the appropriate size of connecting pipes indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the manhole, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall cover all material, labor, equipment, and tools necessary to install the manhole sections, lid, and other required appurtenances, per the Drawings and Specifications.
- 1.37 Furnish and Install 4' Diameter x 6' Concrete Manhole with 1 Opening – Bid Item 42
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost of furnishing and installing the precast concrete manhole sections, including the base, required sections, cone, ring, cover, concrete collar, and ladder. Mastic and related costs shall be included under this bid item.
 - C. Payment includes the appropriate block outs on the manhole for the appropriate size of connecting pipes indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
 - D. Payment shall include the cost of excavation, bedding and backfill around the manhole, and compaction of the bedding and backfill material to the required grade and specifications.
 - E. Payment shall cover all material, labor, equipment, and tools necessary to install the manhole sections, lid, and other required appurtenances, per the Drawings and Specifications.
- 1.38 Furnish and Install 4' Diameter x 8' Concrete Manhole with 1 Opening – Bid Item 43
- A. Measurement shall be made on a PER EACH BASIS.

- B. Payment shall cover cost of furnishing and installing the precast concrete manhole sections, including the base, required sections, cone, ring, cover, concrete collar, and ladder. Mastic and related costs shall be included under this bid item.
- C. Payment includes the appropriate block outs on the manhole for the appropriate size of connecting pipes indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
- D. Payment shall include the cost of excavation, bedding and backfill around the manhole, and compaction of the bedding and backfill material to the required grade and specifications.
- E. Payment shall cover all material, labor, equipment, and tools necessary to install the manhole sections, lid, and other required appurtenances, per the Drawings and Specifications.

1.39 Furnish and Install 6' Diameter x 8' Concrete Manhole with 2 Openings – Bid Item 44

- A. Measurement shall be made on a PER EACH BASIS.
- B. Payment shall cover cost of furnishing and installing the precast concrete manhole sections, including the base, required sections, cone, ring, cover, concrete collar, and ladder. Mastic and related costs shall be included under this bid item.
- C. Payment includes the appropriate block outs on the manhole for the appropriate size of connecting pipes indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
- D. Payment shall include the cost of excavation, bedding and backfill around the manhole, and compaction of the bedding and backfill material to the required grade and specifications.
- E. Payment shall cover all material, labor, equipment, and tools necessary to install the manhole sections, lid, and other required appurtenances, per the Drawings and Specifications.

1.40 Furnish and Install 7' Diameter x 8' Concrete Manhole with 3 Openings – Bid Item 45

- A. Measurement shall be made on a PER EACH BASIS.
- B. Payment shall cover cost of furnishing and installing the precast concrete manhole sections, including the base, required sections, cone, ring, cover, concrete collar, and ladder. Mastic and related costs shall be included under this bid item.
- C. Payment includes the appropriate block outs on the manhole for the appropriate size of connecting pipes indicated on the Drawings. Cost to furnish and connect pipe to the box is per another bid item.
- D. Payment shall include the cost of excavation, bedding and backfill around the manhole, and compaction of the bedding and backfill material to the required grade and specifications.
- E. Payment shall cover all material, labor, equipment, and tools necessary to install the manhole sections, lid, and other required appurtenances, per the Drawings and Specifications.

- 1.41 Furnish and Install 42" Concrete Flared End Outlet – Bid Item 46
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost of furnishing and connecting the concrete flared end section to the 42" pipe per the Drawings and Specifications.
 - C. Payment shall include the cost of excavation, bedding and backfill around the flared end section, and compaction of the bedding and backfill material to the required grade and specifications.
 - D. Payment shall cover all materials, labor, equipment, and tools necessary to install the concrete flared end section, per the Drawings and Specifications.
- 1.42 Furnish and Install 30" Concrete Flared End Outlet – Bid Item 47
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost of furnishing and connecting the concrete flared end section to the 30" pipe per the Drawings and Specifications.
 - C. Payment shall include the cost of excavation, bedding and backfill around the flared end section, and compaction of the bedding and backfill material to the required grade and specifications.
 - D. Payment shall cover all materials, labor, equipment, and tools necessary to install the concrete flared end section, per the Drawings and Specifications.
- 1.43 Furnish and Install 18" Concrete Flared End Outlet – Bid Item 48
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost of furnishing and connecting the concrete flared end section to the 18" pipe per the Drawings and Specifications.
 - C. Payment shall include the cost of excavation, bedding and backfill around the flared end section, and compaction of the bedding and backfill material to the required grade and specifications.
 - D. Payment shall cover all materials, labor, equipment, and tools necessary to install the concrete flared end section, per the Drawings and Specifications.
- 1.44 Furnish and Install 18" Concrete Flared End Inlet with Trash Rack – Bid Item 49
- A. Measurement shall be made on a PER EACH BASIS.
 - B. Payment shall cover cost of furnishing and connecting the concrete flared end section to the 18" pipe per the Drawings and Specifications.
 - C. Payment shall include the cost of excavation, bedding and backfill around the flared end section, and compaction of the bedding and backfill material to the required grade and specifications.

- D. Payment shall cover all materials, labor, equipment, and tools necessary to install the concrete flared end section, per the Drawings and Specifications.

1.45 Non-Listed Items

- A. The preceding list has been prepared in a best effort to include all items necessary for construction of the project.
- B. The list is not all-inclusive of items that may be necessary for final completion of the project. Contractor is responsible to include all construction items that may be necessary to complete the project as shown on the Plans and described in the Specifications.
- C. Any items not listed above shall be included in the item most closely related.
- D. Contractor must inform Engineer of any significant construction items that may be considered necessary to complete the project, but which are not included on the Plans and described in the Specifications. Engineer will evaluate the information and provide an addendum to include the information, if deemed necessary.

END OF DOCUMENT

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DOCUMENT 00 43 13

BID BOND

<p>Bidder Name: [Full formal name of Bidder] Address <i>(principal place of business)</i>: [Address of Bidder's principal place of business]</p>	<p>Surety Name: [Full formal name of Surety] Address <i>(principal place of business)</i>: [Address of Surety's principal place of business]</p>
<p>Owner Name: [Full formal name of Owner] Address <i>(principal place of business)</i>: [Address of Owner's principal place of business]</p>	<p>Bid Project <i>(name and location)</i>: [Owner project/contract name, and location of the project] Bid Due Date: [Enter date bid is due]</p>
<p>Bond Bond Amount: [Amount] Date of Bond: [Date]</p>	
<p>Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.</p>	
<p>Bidder</p>	<p>Surety</p>
<p align="center"><i>(Full formal name of Bidder)</i></p>	<p align="center"><i>(Full formal name of Surety) (corporate seal)</i></p>
<p>By: _____ <i>(Signature)</i></p>	<p>By: _____ <i>(Signature) (Attach Power of Attorney)</i></p>
<p>Name: _____ <i>(Printed or typed)</i></p>	<p>Name: _____ <i>(Printed or typed)</i></p>
<p>Title: _____</p>	<p>Title: _____</p>
<p>Attest: _____ <i>(Signature)</i></p>	<p>Attest: _____ <i>(Signature)</i></p>
<p>Name: _____ <i>(Printed or typed)</i></p>	<p>Name: _____ <i>(Printed or typed)</i></p>
<p>Title: _____</p>	<p>Title: _____</p>
<p><i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i></p>	

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

DOCUMENT 00 51 00

NOTICE OF AWARD

Date of Issuance:

Owner:

Owner's Project No.:

Engineer:

Engineer's Project No.:

Project:

Contract Name:

Bidder:

Bidder's Address:

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

[Description of Work, alternates, or sections of Work to be awarded will be added.]

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

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

Drawings will be delivered separately from the other Contract Documents.

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

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

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

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

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

Copy: Engineer

EJCDC® C 510, Notice of Award.
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and American Society of Civil Engineers. All rights reserved.

DOCUMENT 00 52 00

AGREEMENT

This Agreement is by and between Cache Water District (“Owner”) and [*name of contracting entity*] (“Contractor”).

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

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

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

Installing approximately 6,000 feet of pipe, ranging in diameter from 48 to 15 inches, to replace about 1.1 miles of the existing open canal. The project includes replacing the existing diversion structure at the Lower Logan River and installing concrete diversion boxes with gates at lateral and turnout locations for water management. The new diversion structure will feature an electric traveling screen and gate. As part of the project, power will be supplied to the diversion structure area. Work includes, but is not limited to, installing fittings and appurtenances, excavation and backfill, erosion and sediment control, and related activities.

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Lower Logan River -Trapper Park Canal Enclosure Project

ARTICLE 3—ENGINEER

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

3.02 The part of the Project that pertains to the Work has been designed by Engineer.

ARTICLE 4—CONTRACT TIMES

4.01 *Time is of the Essence*

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

4.02 *Contract Times: Dates*

A. The Work will be substantially complete on or before April 1, 2025, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before May 1, 2025.

4.03 *Milestones*

A. Parts of the Work must be substantially completed on or before the following Milestone(s):

N/A

4.04 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
1. *Substantial Completion*: Contractor shall pay Owner \$2,000 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
 2. *Completion of Remaining Work*: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$2,000 for each day that expires after such time until the Work is completed and ready for final payment.
 3. *Milestones*: Contractor shall pay Owner \$2,000 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for achievement of each Milestone, until such Milestone is achieved, or until the time specified for Substantial Completion is reached, at which time the rate indicated in Paragraph 4.05.A.1 will apply, rather than the Milestone rate.
 4. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

ARTICLE 5—CONTRACT PRICE

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

ARTICLE 6—PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

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

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment on or about the first 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. 95 percent of the value of the Work completed (with the balance being retainage).
 - 1) If 50 percent or more of the Work has been completed, as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
 - b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 200 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

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

6.04 *Consent of Surety*

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

6.05 *Interest*

- A. All amounts not paid when due will bear interest at the rate of 10 percent per annum.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
 1. This Agreement.
 2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
 3. General Conditions.
 4. Supplementary Conditions.
 5. Specifications as listed in the table of contents.
 7. Drawings as listed on the sheet index.

8. Addenda as issued.
 9. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid.
 - b. FONSI for the Lower Logan River Trapper Park Restoration Project Environmental Assessment
 - c. Stream Alteration Permit when completed
 - d. Pipe Alignment Easement Exhibits when completed.
 - e. Cache County Flood Development Permit when completed.
 10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
 - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 Contractor's Representations

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.

6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 *Contractor's Certifications*

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

8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the

standard wording of such published document to the Contractor, through a process such as highlighting or “track changes” (redline/strikeout), or in the Supplementary Conditions.

EJCDC® C 520, Agreement between Owner and Contractor for Construction Contract (Stipulated Price).
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and American Society of Civil Engineers. All rights reserved.

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

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

Owner:

Contractor:

(typed or printed name of organization)

(typed or printed name of organization)

By: _____
(individual's signature)

By: _____
(individual's signature)

Date: _____
(date signed)

Date: _____
(date signed)

Name: _____
(typed or printed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

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

Attest: _____
(individual's signature)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

Address for giving notices:

Address for giving notices:

Designated Representative:

Designated Representative:

Name: _____
(typed or printed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

Address:

Phone: _____

Phone: _____

Email: _____

Email: _____

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

License No.: _____
(where applicable)

State: _____

END OF DOCUMENT

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DOCUMENT 00 55 00

NOTICE TO PROCEED

Owner: _____ Owner's Project No.: _____
Engineer: _____ Engineer's Project No.: _____
Contractor: _____ Contractor's Project No.: _____
Project: _____
Contract Name: _____
Effective Date of Contract: _____

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

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

In accordance with the Agreement:

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

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

[Any access limitations, security procedures, or other restrictions will be added]

Owner: _____
By *(signature)*: _____
Name *(printed)*: _____
Title: _____
Date Issued: _____

Copy: Engineer

This page is intentionally left blank.

DOCUMENT 00 61 10

PERFORMANCE BOND

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

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

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

- 14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
 - 14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
 - 14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
 16. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**

EJCDC® C 610, Performance Bond.
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DOCUMENT 00 61 15

PAYMENT BOND

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

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

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

16. Definitions

16.1. *Claim*—A written statement by the Claimant including at a minimum:

16.1.1. The name of the Claimant;

16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;

16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;

16.1.4. A brief description of the labor, materials, or equipment furnished;

16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;

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

EJCDC® C 615, Payment Bond.
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Contractor's Application for Payment

Owner: _____	Owner's Project No.: _____
Engineer: _____	Engineer's Project No.: _____
Contractor: _____	Contractor's Project No.: _____
Project: _____	
Contract: _____	
Application No.: _____	Application Date: _____
Application Period: From _____ to _____	

1. Original Contract Price	\$	-
2. Net change by Change Orders	\$	-
3. Current Contract Price (Line 1 + Line 2)	\$	-
4. Total Work completed and materials stored to date (Sum of Column G Lump Sum Total and Column J Unit Price Total)	\$	-
5. Retainage		
a. _____ X \$ _____ - Work Completed	\$	-
b. _____ X \$ _____ - Stored Materials	\$	-
c. Total Retainage (Line 5.a + Line 5.b)	\$	-
6. Amount eligible to date (Line 4 - Line 5.c)	\$	-
7. Less previous payments (Line 6 from prior application)		
8. Amount due this application	\$	-
9. Balance to finish, including retainage (Line 3 - Line 4)	\$	-

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, 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.

Contractor: _____

Signature: _____ **Date:** _____

Recommended by Engineer	Approved by Owner
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Date: _____
Approved by Funding Agency	
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Date: _____

Progress Estimate - Lump Sum Work

Contractor's Application for Payment

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

Application No.: _____ Application Period: From _____ to _____ Application Date: _____

A	B	C	D		E	F	G	H	I
Item No.	Description	Scheduled Value (\$)	Work Completed		Materials Currently Stored (not in D or E) (\$)	Work Completed and Materials Stored to Date (D + E + F) (\$)	% of Scheduled Value (G / C) (%)	Balance to Finish (C - G) (\$)	
			(D + E) From Previous Application (\$)	This Period (\$)					
Change Orders									
							-		-
							-		-
							-		-
							-		-
							-		-
							-		-
							-		-
							-		-
							-		-
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							-		-
							-		-
							-		-
							-		-
							-		-
							-		-
							-		-
Change Order Totals		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -
Original Contract and Change Orders									
Project Totals		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -

Progress Estimate - Unit Price Work

Contractor's Application for Payment

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

Application No.: _____ Application Period: From _____ to _____ Application Date: _____

A	B	C	D	E	F	G	H	I	J	K	L	
Bid Item No.	Description	Contract Information				Work Completed		Materials Currently Stored (not in G) (\$)	Work Completed and Materials Stored to Date (H + I) (\$)	% of Value of Item (J / F) (%)	Balance to Finish (F - J) (\$)	
		Item Quantity	Units	Unit Price (\$)	Value of Bid Item (C X E) (\$)	Estimated Quantity Incorporated in the Work	Value of Work Completed to Date (E X G) (\$)					
Original Contract												
					-		-		-		-	
					-		-		-		-	
					-		-		-		-	
					-		-		-		-	
					-		-		-		-	
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					-		-		-		-	
					-		-		-		-	
					-		-		-		-	
					-		-		-		-	
					-		-		-		-	
Original Contract Totals					\$	-	\$	-	\$	-	\$	-

Progress Estimate - Unit Price Work

Contractor's Application for Payment

Owner: _____
 Engineer: _____
 Contractor: _____
 Project: _____
 Contract: _____

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

Application No.: _____ Application Period: From _____ to _____ Application Date: _____

A	B	C	D	E	F	G	H	I	J	K	L
Bid Item No.	Description	Contract Information				Work Completed		Materials Currently Stored (not in G) (\$)	Work Completed and Materials Stored to Date (H + I) (\$)	% of Value of Item (J / F) (%)	Balance to Finish (F - J) (\$)
		Item Quantity	Units	Unit Price (\$)	Value of Bid Item (C X E) (\$)	Estimated Quantity Incorporated in the Work	Value of Work Completed to Date (E X G) (\$)				
Change Orders											
					-		-		-		-
					-		-		-		-
					-		-		-		-
					-		-		-		-
					-		-		-		-
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					-		-		-		-
					-		-		-		-
					-		-		-		-
					-		-		-		-
Change Order Totals					\$ -		\$ -	\$ -	\$ -		\$ -
Original Contract and Change Orders											
Project Totals					\$ -		\$ -	\$ -	\$ -		\$ -

Stored Materials Summary

Contractor's Application for Payment

Owner: _____ Engineer: _____ Contractor: _____ Project: _____ Contract: _____	Owner's Project No.: _____ Engineer's Project No.: _____ Contractor's Project No.: _____
---	--

Application No.: _____ Application Period: From _____ to _____ Application Date: _____

A	B	C	D	E	F	G	H	I	J	K	L	M						
Item No. (Lump Sum Tab) or Bid Item No. (Unit Price Tab)	Supplier Invoice No.	Submittal No. (with Specification Section No.)	Description of Materials or Equipment Stored	Storage Location	Application No. When Materials Placed in Storage	Materials Stored			Incorporated in Work			Materials Remaining in Storage (I-L) (\$)						
						Previous Amount Stored (\$)	Amount Stored this Period (\$)	Amount Stored to Date (G+H) (\$)	Amount Previously Incorporated in the Work (\$)	Amount Incorporated in the Work this Period (\$)	Total Amount Incorporated in the Work (J+K) (\$)							
						Totals	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-

DOCUMENT 00 72 00

**STANDARD GENERAL CONDITIONS
OF THE CONSTRUCTION CONTRACT**

Prepared By



Endorsed By



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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

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

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

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

35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion of such Work.
43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
46. *Technical Data*
 - a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or

existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.

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

1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives*: The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or

- authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day*: The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective*: The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
1. does not conform to the Contract Documents;
 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 3. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

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

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of

insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.

- C. *Evidence of Owner's Insurance:* After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

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

2.03 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

2.05 *Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

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

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

G. Nothing in the Contract Documents creates:

1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

A. *Standards Specifications, Codes, Laws and Regulations*

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

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

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

B. *Resolving Discrepancies*

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

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

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

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

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

4.02 *Starting the Work*

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

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

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

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those

for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. Abnormal weather conditions;
 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 4. Acts of war or terrorism.
- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.

- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

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

5.01 Availability of Lands

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 Use of Site and Other Areas

A. Limitation on Use of Site and Other Areas

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

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
 - 2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
 - 3. Technical Data contained in such reports and drawings.
- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.
- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.
- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
 - 3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
 - 4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

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

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

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

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

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
 - 1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - 2. complying with applicable state and local utility damage prevention Laws and Regulations;
 - 3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 - 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated

on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.

C. *Engineer's Review*: Engineer will:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

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

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

F. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
 - c. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

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

5.06 *Hazardous Environmental Conditions at Site*

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

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

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

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims,

- costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.

- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.
- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party’s full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party’s obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner’s option, may purchase and maintain Owner’s own liability insurance. Owner’s liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner’s liability policies for any of Contractor’s obligations to the Owner, Engineer, or third parties.

- H. Contractor shall require:
1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.
- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
1. include at least the specific coverages required;
 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or

correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;

4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);
 4. not seek contribution from insurance maintained by the additional insured; and
 5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then

Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.

- E. *Insurance of Other Property; Additional Insurance:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.
1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
 2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to

Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.

- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

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

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

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

7.02 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

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

7.04 *Services, Materials, and Equipment*

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

7.05 *"Or Equals"*

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

of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

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

7.06 *Substitutes*

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

2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract

Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

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

7.07 *Concerning Subcontractors and Suppliers*

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

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

7.08 *Patent Fees and Royalties*

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

7.09 *Permits*

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

negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

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

7.11 *Laws and Regulations*

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

7.12 *Record Documents*

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

7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.

- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

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

7.15 *Emergencies*

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

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

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

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. *Shop Drawings*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide,

and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. *Samples*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Engineer's Review of Shop Drawings and Samples*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.
 5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
 7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
 8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.
- D. *Resubmittal Procedures for Shop Drawings and Samples*
1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for

review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.

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

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

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.
 - d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.

F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
 1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and

2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
1. Observations by Engineer;
 2. Recommendation by Engineer or payment by Owner of any progress or final payment;
 3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. Use or occupancy of the Work or any part thereof by Owner;
 5. Any review and approval of a Shop Drawing or Sample submittal;
 6. The issuance of a notice of acceptability by Engineer;
 7. The end of the correction period established in Paragraph 15.08;
 8. Any inspection, test, or approval by others; or
 9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

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

- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.
- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;
 - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

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

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER’S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

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

9.03 *Furnish Data*

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

9.04 *Pay When Due*

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

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

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

9.06 *Insurance*

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

9.07 *Change Orders*

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

9.08 *Inspections, Tests, and Approvals*

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

9.09 *Limitations on Owner’s Responsibilities*

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

9.10 *Undisclosed Hazardous Environmental Condition*

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

9.11 *Evidence of Financial Arrangements*

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

9.12 *Safety Programs*

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

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

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

10.02 *Visits to Site*

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

10.03 *Resident Project Representative*

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

10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.
- E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

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

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

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

10.07 *Limitations on Engineer's Authority and Responsibilities*

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

10.08 *Compliance with Safety Program*

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

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

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

11.02 *Change Orders*

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

11.03 *Work Change Directives*

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

Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

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

11.04 *Field Orders*

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

11.05 *Owner-Authorized Changes in the Work*

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

11.06 *Unauthorized Changes in the Work*

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

11.07 *Change of Contract Price*

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

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

11.08 *Change of Contract Times*

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

11.09 *Change Proposals*

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

B. *Change Proposal Procedures*

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

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

3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

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

11.10 *Notification to Surety*

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

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*

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

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

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality

of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
5. Other costs consisting of the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.
 - c. *Construction Equipment Rental*
 - 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any

surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.

- 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
 - 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price (“changed Work”), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder’s risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor’s fee.
 - g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

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

1. Payroll costs and other compensation of Contractor’s officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor’s principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor’s fee.

2. The cost of purchasing, renting, or furnishing small tools and hand tools.
3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
6. Expenses incurred in preparing and advancing Claims.
7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

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

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

13.02 *Allowances*

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

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

13.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.
- E. *Adjustments in Unit Price*
1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
 2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
 3. Adjusted unit prices will apply to all units of that item.

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

14.01 *Access to Work*

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

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

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

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless

Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects*: Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

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

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

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

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

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

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

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
 2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon

Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

- c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. Payment Becomes Due

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

E. Reductions in Payment by Owner

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

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

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

15.03 *Substantial Completion*

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

- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
 - 2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

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

15.06 *Final Payment*

A. *Application for Payment*

- 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.

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

15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim, appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

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

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

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

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

16.02 *Owner May Terminate for Cause*

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

unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

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

16.03 *Owner May Terminate for Convenience*

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

16.04 *Contractor May Stop Work or Terminate*

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

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

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

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

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

18.02 *Computation of Times*

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

18.03 *Cumulative Remedies*

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

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors,

members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

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

18.09 *Successors and Assigns*

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

18.10 *Headings*

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

DOCUMENT 00 73 00

SUPPLEMENTARY CONDITIONS

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

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

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

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

No Supplementary Conditions in this Article.

ARTICLE 2—PRELIMINARY MATTERS

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

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

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

No Supplementary Conditions in this Article.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

No Supplementary Conditions in this Article.

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

5.03 *Subsurface and Physical Conditions*

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

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

There are no such reports.

- F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

There are no such drawings.

5.06 *Hazardous Environmental Conditions*

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

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

There are no such reports.

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

There are no such drawings.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

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

1. *Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC® C-610, Performance Bond (2018 edition).
2. *Required Payment Bond Form:* The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2018 edition).

6.02 *Insurance—General Provisions*

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

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

6.03 *Contractor's Insurance*

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

- D. *Other Additional Insureds:* As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following: None.

- E. *Workers' Compensation and Employer's Liability*: Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

Workers' Compensation and Related Policies	Policy limits of not less than:
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
Employer's Liability	
Each accident	\$1,000,000
Each employee	\$1,000,000
Policy limit	\$1,000,000

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

endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.

7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 “Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured” or its equivalent.
- H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of “insured contract” (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
 2. Any exclusion for water intrusion or water damage.
 3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
 4. Any exclusion of coverage relating to earth subsidence or movement.
 5. Any exclusion for the insured’s vicarious liability, strict liability, or statutory liability (other than worker’s compensation).
 6. Any limitation or exclusion based on the nature of Contractor’s work.
 7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.
- I. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability	Policy limits of not less than:
General Aggregate	\$2,000,000
Products—Completed Operations Aggregate	\$2,000,000
Personal and Advertising Injury	\$1,000,000
Bodily Injury and Property Damage—Each Occurrence	\$1,000,000

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

Automobile Liability	Policy limits of not less than:
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	\$1,000,000

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

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	\$4,000,000
General Aggregate	\$4,000,000

6.04 *Builder’s Risk and Other Property Insurance*

SC-6.04 Delete Paragraph 6.04.A of the General Conditions and substitute the following in its place:

A. *Installation Floater*

1. Contractor shall provide and maintain installation floater insurance on a broad form or “all risk” policy providing coverage for materials, supplies, machinery, fixtures, and equipment that will be incorporated into the Work (“Covered Property”). Coverage under the Contractor’s installation floater will include loss from covered “all risk” causes (perils) to Covered Property:
 - a. of the Contractor, and Covered Property of others that is in Contractor’s care, custody, and control;
 - b. while in transit to the Site, including while at temporary storage sites;
 - c. while at the Site awaiting and during installation, erection, and testing;
 - d. continuing at least until the installation or erection of the Covered Property is completed, and the Work into which it is incorporated is accepted by Owner.
2. The installation floater coverage cannot be contingent on an external cause or risk, or limited to property for which the Contractor is legally liable.
3. The installation floater coverage will be in an amount sufficient to protect Contractor’s interest in the Covered Property. The Contractor will be solely responsible for any deductible carried under this coverage.
4. This policy will include a waiver of subrogation applicable to Owner, Contractor, Engineer, all Subcontractors, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them.

ARTICLE 7—CONTRACTOR’S RESPONSIBILITIES

7.10 *Taxes*

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

- A. Owner is exempt from payment of sales and compensating use taxes of the State of **Utah** and of cities and counties thereof on all materials to be incorporated into the Work.
 1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.
 2. Owner’s exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

7.13 *Safety and Protection*

SC-7.13 Insert the following after the second sentence of Paragraph 7.13.G:

The following Owner safety programs are applicable to the Work: N/A.

ARTICLE 8—OTHER WORK AT THE SITE

No Supplementary Conditions in this Article.

ARTICLE 9—OWNER’S RESPONSIBILITIES

No Supplementary Conditions in this Article.

ARTICLE 10—ENGINEER’S STATUS DURING CONSTRUCTION

10.03 Resident Project Representative

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

- C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:
1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor’s safety meetings), and as appropriate prepare and circulate copies of minutes thereof.
 2. *Safety Compliance:* Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR’s own personal safety while at the Site.
 3. *Liaison*
 - a. Serve as Engineer’s liaison with Contractor. Working principally through Contractor’s authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner’s liaison with Contractor when Contractor’s operations affect Owner’s on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for Contractor’s proper execution of the Work.
 4. *Review of Work; Defective Work*
 - a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Observe whether any Work in place appears to be defective.
 - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.
 5. *Inspections and Tests*
 - a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.

- b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
 - 6. *Payment Requests: Review Applications for Payment with Contractor.*
 - 7. *Completion*
 - a. Participate in Engineer's visits regarding Substantial Completion.
 - b. Assist in the preparation of a punch list of items to be completed or corrected.
 - c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
 - d. Observe whether items on the final punch list have been completed or corrected.
- D. The RPR will not:
- 1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
 - 2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
 - 3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
 - 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.
 - 5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
 - 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
 - 7. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 11—CHANGES TO THE CONTRACT

No Supplementary Conditions in this Article.

ARTICLE 12—CLAIMS

No Supplementary Conditions in this Article.

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

13.03 *Unit Price Work*

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

- E. *Adjustments in Unit Price*
 - 1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the extended price of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price (based on estimated quantities at the time of Contract

formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 20 percent from the estimated quantity of such item indicated in the Agreement; and

- b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

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

No Supplementary Conditions in this Article.

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

No Supplementary Conditions in this Article.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

No Supplementary Conditions in this Article.

ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES

No Supplementary Conditions in this Article.

ARTICLE 18—MISCELLANEOUS

No Supplementary Conditions in this Article.

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END OF DOCUMENT

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SUPPLEMENTARY CONDITIONS

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

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

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

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

No Supplementary Conditions in this Article.

ARTICLE 2—PRELIMINARY MATTERS

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

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

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

No Supplementary Conditions in this Article.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

No Supplementary Conditions in this Article.

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

5.03 *Subsurface and Physical Conditions*

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

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

There are no such reports.

- F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

There are no such drawings.

5.06 *Hazardous Environmental Conditions*

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

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

There are no such reports.

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

There are no such drawings.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

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

1. *Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC® C-610, Performance Bond (2018 edition).
2. *Required Payment Bond Form:* The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2018 edition).

6.02 *Insurance—General Provisions*

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

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

6.03 *Contractor's Insurance*

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

- D. *Other Additional Insureds:* As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following: None.

- E. *Workers' Compensation and Employer's Liability*: Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

Workers' Compensation and Related Policies	Policy limits of not less than:
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
Employer's Liability	
Each accident	\$1,000,000
Each employee	\$1,000,000
Policy limit	\$1,000,000

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

endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.

7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 “Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured” or its equivalent.
- H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of “insured contract” (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
 2. Any exclusion for water intrusion or water damage.
 3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
 4. Any exclusion of coverage relating to earth subsidence or movement.
 5. Any exclusion for the insured’s vicarious liability, strict liability, or statutory liability (other than worker’s compensation).
 6. Any limitation or exclusion based on the nature of Contractor’s work.
 7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.
- I. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability	Policy limits of not less than:
General Aggregate	\$2,000,000
Products—Completed Operations Aggregate	\$2,000,000
Personal and Advertising Injury	\$1,000,000
Bodily Injury and Property Damage—Each Occurrence	\$1,000,000

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

Automobile Liability	Policy limits of not less than:
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	\$1,000,000

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

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	\$4,000,000
General Aggregate	\$4,000,000

6.04 *Builder’s Risk and Other Property Insurance*

SC-6.04 Delete Paragraph 6.04.A of the General Conditions and substitute the following in its place:

A. *Installation Floater*

1. Contractor shall provide and maintain installation floater insurance on a broad form or “all risk” policy providing coverage for materials, supplies, machinery, fixtures, and equipment that will be incorporated into the Work (“Covered Property”). Coverage under the Contractor’s installation floater will include loss from covered “all risk” causes (perils) to Covered Property:
 - a. of the Contractor, and Covered Property of others that is in Contractor’s care, custody, and control;
 - b. while in transit to the Site, including while at temporary storage sites;
 - c. while at the Site awaiting and during installation, erection, and testing;
 - d. continuing at least until the installation or erection of the Covered Property is completed, and the Work into which it is incorporated is accepted by Owner.
2. The installation floater coverage cannot be contingent on an external cause or risk, or limited to property for which the Contractor is legally liable.
3. The installation floater coverage will be in an amount sufficient to protect Contractor’s interest in the Covered Property. The Contractor will be solely responsible for any deductible carried under this coverage.
4. This policy will include a waiver of subrogation applicable to Owner, Contractor, Engineer, all Subcontractors, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them.

ARTICLE 7—CONTRACTOR’S RESPONSIBILITIES

7.10 *Taxes*

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

- A. Owner is exempt from payment of sales and compensating use taxes of the State of **Utah** and of cities and counties thereof on all materials to be incorporated into the Work.
 1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.
 2. Owner’s exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

7.13 *Safety and Protection*

SC-7.13 Insert the following after the second sentence of Paragraph 7.13.G:

The following Owner safety programs are applicable to the Work: N/A.

ARTICLE 8—OTHER WORK AT THE SITE

No Supplementary Conditions in this Article.

ARTICLE 9—OWNER’S RESPONSIBILITIES

No Supplementary Conditions in this Article.

ARTICLE 10—ENGINEER’S STATUS DURING CONSTRUCTION

10.03 *Resident Project Representative*

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

- C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:
1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor’s safety meetings), and as appropriate prepare and circulate copies of minutes thereof.
 2. *Safety Compliance:* Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR’s own personal safety while at the Site.
 3. *Liaison*
 - a. Serve as Engineer’s liaison with Contractor. Working principally through Contractor’s authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner’s liaison with Contractor when Contractor’s operations affect Owner’s on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for Contractor’s proper execution of the Work.
 4. *Review of Work; Defective Work*
 - a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Observe whether any Work in place appears to be defective.
 - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.
 5. *Inspections and Tests*
 - a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.

- b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
 - 6. *Payment Requests: Review Applications for Payment with Contractor.*
 - 7. *Completion*
 - a. Participate in Engineer's visits regarding Substantial Completion.
 - b. Assist in the preparation of a punch list of items to be completed or corrected.
 - c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
 - d. Observe whether items on the final punch list have been completed or corrected.
- D. The RPR will not:
- 1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
 - 2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
 - 3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
 - 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.
 - 5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
 - 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
 - 7. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 11—CHANGES TO THE CONTRACT

No Supplementary Conditions in this Article.

ARTICLE 12—CLAIMS

No Supplementary Conditions in this Article.

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

13.03 *Unit Price Work*

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

- E. *Adjustments in Unit Price*
 - 1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the extended price of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price (based on estimated quantities at the time of Contract

formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 20 percent from the estimated quantity of such item indicated in the Agreement; and

- b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

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

No Supplementary Conditions in this Article.

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

No Supplementary Conditions in this Article.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

No Supplementary Conditions in this Article.

ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES

No Supplementary Conditions in this Article.

ARTICLE 18—MISCELLANEOUS

No Supplementary Conditions in this Article.

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END OF DOCUMENT

SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Contract description.
 - 2. Contractor's use of Site.
 - 3. Specification conventions.
 - 4. Sequencing of Work.

1.2 CONTRACT DESCRIPTION

- A. Work of the Project includes:

Piping approximately 1.1 miles of the existing open canal with approximately 1,200 feet of 48-inch pipe, 2,900 feet of 42-inch pipe, and 1,600 feet of 30-inch pipe; replacing the existing diversion structure at the Lower Logan River; and installing concrete diversion boxes at laterals and turnout locations with gates to manage the water. The new diversion structure will include an electric traveling screen and gate. As part of the project, power will be supplied to the diversion structure area. Work includes, but is not limited to, the installation of fittings and appurtenances, excavation and backfill, erosion and sediment control, and related activities.

1.3 CONTRACTOR'S USE OF SITE

- A. Access to Site: As indicated on Drawings.
- B. Construction Operations: Limited to areas indicated on Drawings.
- C. Time Restrictions for Performing Work: As indicated in SC-7.02.
- D. Utility Outages and Shutdown:
 - 1. Coordinate and schedule electrical and other utility outages with Owner.

1.4 SPECIFICATION CONVENTIONS

- A. These Specifications are written in imperative mood and streamlined form. This imperative language is directed to Contractor unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 SEQUENCING OF WORK

- A. Work must be sequenced to provide for surface water control concurrent with a work sequence consisting of removing existing structures, excavation, installing subsurface materials, forming and placing concrete structures, installing and testing gates and appurtenances, and installing miscellaneous components.

END OF SECTION

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Schedule of Values.
- B. Application for Payment.
- C. Change procedures.
- D. Defect assessment.
- E. Unit prices.
- F. Alternates.

1.2 SCHEDULE OF VALUES

- A. Submit printed schedule on Contractor's standard form.
- B. Submit Schedule of Values electronically to the Engineer within 20 days after date of Owner-Contractor Agreement.
- C. Include in each line item amount of allowances as specified in this Section. For unit cost allowances, identify quantities taken from Contract Documents multiplied by unit cost to achieve total for each item.
- D. Revise schedule to list approved Change Orders with each Application for Payment.

1.3 APPLICATION FOR PAYMENT

- A. Submit Application for Payment electronically to Engineer.
- B. Content and Format: Use Schedule of Values for listing items in Application for Payment.
- C. Submit updated construction schedule with each Application for Payment.
- D. Payment Period: Submit at intervals stipulated in the Agreement.
- E. Submit with transmittal letter as specified in Section 01 33 00 - Submittal Procedures.
- F. Substantiating Data: When Engineer requires substantiating information, submit data justifying dollar amounts in question. Include the following with Application for Payment:

1. Current construction photographs specified in Section 01 33 00 - Submittal Procedures.
2. Partial release of liens from major Subcontractors and vendors.
3. Record Documents as specified in Section 01 70 00 - Execution and Closeout Requirements, for review by Owner, which will be returned to Contractor.
4. Affidavits attesting to off-Site stored products.
5. Construction Progress Schedule, revised and current as specified in Section 01 33 00 - Submittal Procedures.

1.4 CHANGE PROCEDURES

- A. Submittals: Submit name of individual who is authorized to receive change documents and is responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
- B. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Engineer of any error, inconsistency, omission, or apparent discrepancy.
- C. Requests for Information (RFI) and Clarifications: Allot time in construction scheduling for liaison with Engineer; establish procedures for handling queries and clarifications.
 1. Use Contractor provided Request for Information form for requesting interpretations.
 2. Engineer may respond with a direct answer on the Request for Information form or Field Order Form 00 94 20.
- D. Engineer will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions on a Field Order Form.
- E. Engineer may issue a Work Change Directive Form 00 94 00 including a detailed description of proposed change with supplementary or revised Drawings and Specifications, and a change in Contract Time for executing the change. Contractor will prepare and submit estimate within 7 days.
- F. Document requested substitutions according to Section 01 25 00 - Substitution Procedures.
- G. Stipulated Sum/Price Change Order: Based on Work Change Directive and Contractor's fixed or estimated price quotation.
- H. Unit Price Change Order: For Contract unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of that which are not predetermined, execute Work under Work Change Directive. Changes in Contract Sum/Price or Contract Time will be computed as specified for the specific Change Order.

- I. Work Change Directive: Engineer may issue directive instructing Contractor to proceed with change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute change.
- J. Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in Conditions of the Contract. Engineer will determine change allowable in Contract Sum/Price and Contract Time as provided in Contract Documents.
- K. Maintain detailed records of Work done. Provide full information required for evaluation of proposed changes and to substantiate costs for changes in the Work.
- L. Document each quotation for change in Project Cost or Time with sufficient data to allow evaluation of quotation.
- M. Change Order Form: Change Order Form 00 94 10.
- N. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in Conditions of the Contract.
- O. Correlation of Contractor Submittals:
 - 1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
 - 2. Promptly revise Progress Schedules to reflect change in Contract Time, revise subschedules to adjust times for other items of Work affected by the change, and resubmit.
 - 3. Promptly enter changes in Record Documents.

1.5 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of Engineer or Owner, it is not practical to remove and replace the Work, Engineer and Owner will direct appropriate remedy or adjust payment.
- C. The defective Work may remain, but unit sum/price will be adjusted to new sum/price at discretion of Engineer and Owner.
- D. Defective Work will be partially repaired according to instructions of Engineer and Owner, and unit sum/price will be adjusted to new sum/price at discretion of Engineer and Owner.
- E. Individual Specification Sections may modify these options or may identify specific formula or percentage sum/price reduction.
- F. Authority of Engineer and Owner to assess defects and identify payment adjustments is final.

- G. Nonpayment for Rejected Products: Payment will not be made for rejected products for any of the following reasons:
1. Products wasted or disposed of in a manner that is not acceptable.
 2. Products determined as unacceptable before or after placement.
 3. Products not completely unloaded from transporting vehicle.
 4. Products placed beyond lines and levels of the required Work.
 5. Products remaining on hand after completion of the Work.
 6. Loading, hauling, and disposing of rejected products.

1.6 UNIT PRICES

- A. Engineer will take measurements and compute quantities accordingly. Provide assistance in taking of measurements.
- B. Unit Quantities: Quantities and measurements indicated on Bid Form are for Contract purposes only. Quantities and measurements supplied or placed in the Work shall determine payment.
1. When actual Work requires more or fewer quantities than those quantities indicated, provide required quantities at contracted unit sum/prices.
 2. When actual Work requires 25 percent or greater change in quantity than those quantities indicated, Owner or Contractor may claim a Contract Price adjustment.
- C. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application, or installation of item of the Work; overhead and profit.
- D. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Engineer multiplied by unit sum/price for Work incorporated in or made necessary by the Work.
- E. Measurement of Quantities:
1. Weigh Scales: Inspected, tested, and certified by applicable State of Utah weights and measures department within past year.
 2. Platform Scales: Of sufficient size and capacity to accommodate conveying vehicle.
 3. Metering Devices: Inspected, tested, and certified by applicable State of Utah department within past year.
 4. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel, or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.

5. Measurement by Volume: Measured by cubic dimension using mean length, width, and height or thickness.
 6. Measurement by Area: Measured by square dimension using mean length and width or radius.
 7. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.
 8. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.
- F. Unit Price Schedule:
1. Refer to Bid Form, Section 00 41 13, for schedule of unit price items.

1.7 ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in Owner-Contractor Agreement. The Owner-Contractor Agreement may identify certain Alternates to remain an Owner option for a stipulated period of time.
- B. Coordinate related Work and modify surrounding Work. Description for each Alternate is recognized to be abbreviated but requires that each change shall be complete for scope of Work affected.
1. Coordinate related requirements among Specification Sections as required.
 2. Include as part of each Alternate: Miscellaneous devices, appurtenances, and similar items incidental to or necessary for complete installation.
 3. Coordinate Alternate with adjacent Work and modify or adjust as necessary to ensure integration.
- C. Schedule of Alternates:
1. If applicable, alternatives are fully described in the Bid Form.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

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SECTION 01 25 00

SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality assurance.
- B. Product options.
- C. Product substitution procedures.
- D. Installer Substitution Procedures.

1.2 QUALITY ASSURANCE

- A. Contract is based on products and standards established in Contract Documents without consideration of proposed substitutions.
- B. Products specified define standard of quality, type, function, dimension, appearance, and performance required.
- C. Substitution Proposals: Permitted for specified products except where specified otherwise. Do not substitute products unless substitution has been accepted and approved in writing by Owner.

1.3 PRODUCT OPTIONS

- A. See Section 01 60 00 - Product Requirements.

1.4 PRODUCT SUBSTITUTION PROCEDURES

- A. Engineer will consider requests for substitutions only within 30 days after date established in Notice to Proceed.
- B. Substitutions may be considered when a product becomes unavailable through no fault of Contractor.
- C. Document each request with complete data, substantiating compliance of proposed substitution with Contract Documents, including:
 - 1. Manufacturer's name and address, product, trade name, model, or catalog number, performance and test data, and reference standards.
 - 2. Itemized point-by-point comparison of proposed substitution with specified product, listing variations in quality, performance, and other pertinent characteristics.

3. Reference to Article and Paragraph numbers in Specification Section.
 4. Cost data comparing proposed substitution with specified product and amount of net change to Contract Sum.
 5. Changes required in other Work.
 6. Availability of maintenance service and source of replacement parts as applicable.
 7. Certified test data to show compliance with performance characteristics specified.
 8. Samples when applicable or requested.
 9. Other information as necessary to assist Engineer's evaluation.
- D. A request constitutes a representation that Contractor:
1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
 2. Will provide same warranty for substitution as for specified product.
 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
 4. Waives claims for additional costs or time extension that may subsequently become apparent.
 5. Will coordinate installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.
 6. Will reimburse Owner and/or Engineer for review or redesign services associated with reapproval by authorities having jurisdiction.
- E. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals without separate written request or when acceptance will require revision to Contract Documents.
- F. Substitution Submittal Procedure:
1. Submit requests for substitutions on Contractor provided form.
 2. Submit Request for Substitution form electronically to Engineer for consideration. Limit each request to one proposed substitution.
 3. Submit Shop Drawings, Product Data, and certified test results attesting to proposed product equivalence. Burden of proof is on proposer.
 4. Engineer will notify Contractor in writing of decision to accept or reject request.

1.5 INSTALLER SUBSTITUTION PROCEDURES

- A. Engineer will consider requests for substitutions only within 30 days after date established in Notice to Proceed.
- B. Document each request with:
 - 1. Installer's qualifications.
 - 2. Installer's experience in work similar to that specified.
 - 3. Other information as necessary to assist Engineer's evaluation.
- C. Substitution Submittal Procedure:
 - 1. Submit Request for Substitution form electronically to Engineer for consideration. Limit each request to one proposed substitution.
 - 2. Engineer will notify Contractor in writing of decision to accept or reject request.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

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SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination and Project conditions.
- B. Preconstruction meeting.
- C. Site mobilization meeting.
- D. Progress meetings.
- E. Preinstallation meetings.
- F. Closeout meeting.

1.2 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals, and Work of various Sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.
- B. Verify that utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing operating equipment in service.
- C. Coordinate space requirements, supports, and installation of mechanical and electrical Work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit as closely as practical; place runs parallel with lines of building. Use spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
 - 1. Coordination Drawings: Prepare as required to coordinate all portions of Work. Show relationship and integration of different construction elements that require coordination during fabrication or installation to fit in space provided or to function as intended. Indicate locations where space is limited for installation and access and where sequencing and coordination of installations are important.
- D. Coordination Meetings: In addition to other meetings specified in this Section, hold coordination meetings with personnel and Subcontractors to ensure coordination of Work.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within construction. Coordinate locations of fixtures and outlets with finish elements.

- F. Coordinate completion and clean-up of Work of separate Sections in preparation for Substantial Completion.
- G. After construction completion, coordinate access to Site for correction of defective Work and Work not complying with Contract Documents, to minimize disruption of Owner's activities.

1.3 PRECONSTRUCTION MEETING

- A. Engineer will schedule and preside over meeting after Notice of Award.
- B. Attendance Required: Engineer, Owner, Contractor, and any other appropriate governmental agency representatives.
- C. Minimum Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of list of Subcontractors, list of products, Schedule of Values, and Progress Schedule.
 - 5. Designation of personnel representing parties in Contract, and Engineer.
 - 6. Communication procedures.
 - 7. Procedures and processing of requests for interpretations, field decisions, submittals, substitutions, Applications for Payments, proposal request, Change Orders, and Contract closeout procedures.
 - 8. Scheduling.
 - 9. Critical Work sequencing.
- D. Engineer: Record minutes and distribute copies to participants within two days after meeting, with copies to Contractor, Owner, and those affected by decisions made.

1.4 SITE MOBILIZATION MEETING

- A. Engineer will schedule and preside over meeting at Project Site prior to Contractor occupancy.
- B. Attendance Required: Engineer, Owner, Contractor, Contractor's superintendent, and Construction Manager.
- C. Minimum Agenda:
 - 1. Use of premises by Owner and Contractor.

2. Owner's requirements.
 3. Construction facilities and controls.
 4. Temporary utilities.
 5. Survey and layout.
 6. Security and housekeeping procedures.
 7. Schedules.
 8. Procedures for testing.
 9. Procedures for maintaining record documents.
 10. Requirements for startup of equipment.
 11. Inspection and acceptance of equipment put into service during construction period.
- D. Engineer: Record minutes and distribute copies to participants within three days after meeting, with copies to Contractor, Owner, and those affected by decisions made.

1.5 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at weekly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, and preside over meetings.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, Engineer, and Owner, as appropriate to agenda topics for each meeting.
- D. Minimum Agenda:
 1. Review minutes and action items of previous meetings.
 2. Review of Work progress.
 3. Submittal and review of week's inspection reports including:
 - a. Quality Control Reports
 - b. SWPPP inspections and responses
 - c. Safety and tailgate meeting topics and observations.
 - d. Crew observations.
 4. Field observations, problems, and decisions.
 5. Identification of problems impeding planned progress.
 6. Review of submittal schedule and status of submittals.

7. Review of off-site fabrication and delivery schedules.
 8. Maintenance of Progress Schedule.
 9. Corrective measures to regain projected schedules.
 10. Planned progress during succeeding work period.
 11. Coordination of projected progress.
 12. Maintenance of quality and work standards.
 13. Effect of proposed changes on Progress Schedule and coordination.
 14. Other business relating to Work.
- E. Engineer: Record minutes (digitally and in writing) and distribute copies to participants within three days after meeting, with copies to Contractor, Owner, and those affected by decisions made.

1.6 PREINSTALLATION MEETINGS

- A. When required in individual Specification Sections, convene preinstallation meetings at Project Site before starting Work of specific Section.
- B. Require attendance of parties directly affecting, or affected by, Work of specific Section.
- C. Notify Engineer four days in advance of meeting date.
- D. Prepare agenda and preside over meeting:
 1. Review conditions of installation, preparation, and installation procedures.
 2. Review coordination with related Work.
- E. Engineer: Record minutes and distribute copies to participants within three days after meeting, with copies to Contractor, Owner, and those affected by decisions made.

1.7 CLOSEOUT MEETING

- A. Schedule Project closeout meeting with sufficient time to prepare for requesting Substantial Completion.
- B. Attendance Required: Contractor, Engineer, Owner, and others appropriate to agenda.
- C. Notify Engineer seven days in advance of meeting date.
- D. Minimum Agenda:
 1. Start-up of facilities and systems.
 2. Operations and maintenance manuals.

3. Testing, adjusting, and balancing.
 4. System demonstration and observation.
 5. Operation and maintenance instructions for Owner's personnel.
 6. Contractor's inspection of Work.
 7. Contractor's preparation of an initial "punch list."
 8. Procedure to request Engineer inspection to determine date of Substantial Completion.
 9. Completion time for correcting deficiencies.
 10. Inspections by authorities having jurisdiction.
 11. Certificate of Occupancy and transfer of insurance responsibilities.
 12. Partial release of retainage.
 13. Final cleaning.
 14. Preparation for final inspection.
 15. Closeout Submittals:
 - a. Project record documents.
 - b. Operating and maintenance documents.
 - c. Operating and maintenance materials.
 - d. Affidavits.
 16. Final Application for Payment.
 17. Contractor's demobilization of Site.
 18. Maintenance.
- E. Engineer: Record minutes and distribute copies to participants within three days after meeting, with copies to Contractor, Owner, and those affected by decisions made.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

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SECTION 01 32 16

CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittals.
- B. Quality assurance.
- C. Bar chart schedules.
- D. Review and evaluation.
- E. Updating schedules.
- F. Distribution.

1.2 SUBMITTALS

- A. Schedule Updates:
 - 1. Overall percent complete, projected and actual.
 - 2. Completion progress by listed activity and subactivity, to within five working days prior to submittal.
 - 3. Changes in Work scope and activities modified since submittal.
 - 4. Delays in submittals or resubmittals, deliveries, or Work.
 - 5. Adjusted or modified sequences of Work.
 - 6. Other identifiable changes.
 - 7. Revised projections of progress and completion.
- B. Narrative Progress Report:
 - 1. Submit with each monthly submission of Progress Schedule.
 - 2. Summary of Work completed during the past period between reports.
 - 3. Work planned during the next period.
 - 4. Explanation of differences between summary of Work completed and Work planned in previously submitted report.

5. Current and anticipated delaying factors and estimated impact on other activities and completion milestones.

1.3 QUALITY ASSURANCE

- A. Scheduler: Contractor's personnel specializing in scheduling with two years' minimum experience in scheduling construction work of complexity comparable to the Project, and having use of computer facilities capable of delivering detailed graphic printout within 48 hours of request.
- B. Contractor's Administrative Personnel: Two years' minimum experience in using and monitoring schedules on comparable Projects.

1.4 BAR CHART SCHEDULES

- A. Format: Bar chart Schedule, to include at least:
 1. Identification and listing in chronological order of those activities reasonably required to complete the Work, including:
 - a. Subcontract Work.
 - b. Major equipment design, fabrication, factory testing, and delivery dates including required lead times.
 - c. Move-in and other preliminary activities.
 - d. Equipment and equipment system test and startup activities.
 - e. Project closeout and cleanup.
 - f. Work sequences, constraints, and milestones.
 2. Listings identified by Specification Section number.
 3. Identification of the following:
 - a. Horizontal time frame by year, month, and week.
 - b. Duration, early start, and completion for each activity and subactivity.
 - c. Critical activities and Project float.
 - d. Subschedules to further define critical portions of Work.

1.5 REVIEW AND EVALUATION

- A. Participate in joint review and evaluation of schedules with Engineer at each submittal.
- B. Evaluate Project status to determine Work behind schedule and Work ahead of schedule.
- C. After review, revise schedules incorporating results of review, and resubmit within 10 days.

1.6 UPDATING SCHEDULES

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity. Update schedules to depict current status of Work.

- C. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- D. Upon approval of a Change Order, include the change in the next schedule submittal.
- E. Indicate changes required to maintain Date of Substantial Completion.
- F. Submit sorts as required to support recommended changes.
- G. Prepare narrative report to define problem areas, anticipated delays, and impact on schedule. Report corrective action taken or proposed and its effect.

1.7 DISTRIBUTION

- A. Following joint review, distribute copies of updated schedules to Contractor's Project site file, to Subcontractors, suppliers, Engineer, Owner, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

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SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Proposed product list.
- D. Product data.
- E. Shop Drawings.
- F. Samples.
- G. Test reports.
- H. Certificates.
- I. Manufacturer's instructions.
- J. Construction photographs.
- K. Contractor review.
- L. Engineer review.
- M. Submittal schedule.

1.2 SUBMITTAL PROCEDURES

- A. Transmit each submittal to Engineer with accepted form.
- B. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.
- C. Identify: Project, Contractor, Subcontractor and supplier, pertinent Drawing and detail number, and Specification Section number appropriate to submittal.
- D. Apply Contractor's stamp, signed or initialed, certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is according to requirements of the Work and Contract Documents.

- E. Schedule submittals to expedite Project and deliver to Engineer electronically. Coordinate submission of related items.
- F. For each submittal for review, allow 15 days excluding delivery time to and from Contractor.
- G. Identify variations in Contract Documents and product or system limitations that may be detrimental to successful performance of completed Work.
- H. Allow space on submittals for Contractor and Engineer review stamps.
- I. When revised for resubmission, identify changes made since previous submission.
- J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.
- K. Submittals not requested will not be recognized nor processed.
- L. Incomplete Submittals: Engineer will not review. Complete submittals for each item are required. Delays resulting from incomplete submittals are not the responsibility of Engineer.

1.3 CONSTRUCTION PROGRESS SCHEDULES

- A. Comply with Section 01 32 16 - Construction Progress Schedule.

1.4 PROPOSED PRODUCT LIST

- A. At pre-construction meeting, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, indicate manufacturer, trade name, model or catalog designation, and reference standards.

1.5 PRODUCT DATA

- A. Product Data: Action Submittal: Submit to Engineer for review for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Submit electronically to Engineer.
- C. Mark to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- E. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.6 SHOP DRAWINGS

- A. Shop Drawings: Action Submittal: Submit to Engineer for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. When required by individual Specification Sections, provide Shop Drawings signed and sealed by a professional Engineer responsible for designing components shown on Shop Drawings.
 - 1. Include signed and sealed calculations to support design.
 - 2. Submit Shop Drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
 - 3. Make revisions and provide additional information when required by authorities having jurisdiction.
- D. Submit electronically to Engineer.
- E. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.7 SAMPLES

- A. Samples: Action Submittal: Submit to Engineer for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Samples for Selection as Specified in Product Sections:
 - 1. Submit to Engineer for aesthetic, color, and finish selection.
 - 2. Submit Samples of finishes, textures, and patterns for Engineer selection.
- C. Submit Samples to illustrate functional and aesthetic characteristics of products, with integral parts and attachment devices. Coordinate Sample submittals for interfacing work.
- D. Include identification on each Sample, with full Project information.
- E. Submit number of Samples specified in individual Specification Sections; Engineer will retain one Sample.
- F. Reviewed Samples that may be used in the Work are indicated in individual Specification Sections.
- G. Samples will not be used for testing purposes unless specifically stated in Specification Section.

- H. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.8 TEST REPORTS

- A. Informational Submittal: Submit reports for Engineer's knowledge as Contract administrator or for Owner.
- B. Submit test reports for information for assessing conformance with information given and design concept expressed in Contract Documents.

1.9 CERTIFICATES

- A. Informational Submittal: Submit certification by manufacturer, installation/application Subcontractor, or Contractor to Engineer, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product but must be acceptable to Engineer.

1.10 MANUFACTURER'S INSTRUCTIONS

- A. Informational Submittal: Submit manufacturer's installation instructions for Engineer's knowledge as Contract administrator or for Owner.
- B. Submit printed instructions for delivery, storage, assembly, installation, startup, adjusting, and finishing, to Engineer in quantities specified for Product Data.
- C. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.11 CONSTRUCTION PHOTOGRAPHS

- A. Provide photographs of Site and construction throughout progress of Work.
- B. Digital Images: Deliver complete set of digital image electronic files to Engineer with Project record documents. Include date and time in filename for each image.

1.12 CONTRACTOR REVIEW

- A. Review for compliance with Contract Documents and approve submittals before transmitting to Engineer.
- B. Contractor: Responsible for:
 - 1. Determination and verification of materials including manufacturer's catalog numbers.

2. Determination and verification of field measurements and field construction criteria.
 3. Checking and coordinating information in submittal with requirements of Work and of Contract Documents.
 4. Determination of accuracy and completeness of dimensions and quantities.
 5. Confirmation and coordination of dimensions and field conditions at Site.
 6. Construction means, techniques, sequences, and procedures.
 7. Safety precautions.
 8. Coordination and performance of Work of all trades.
- C. Stamp, sign or initial, and date each submittal to certify compliance with requirements of Contract Documents.
- D. Do not fabricate products or begin Work for which submittals are required until approved submittals have been received from Engineer.

1.13 ENGINEER REVIEW

- A. Do not make "mass submittals" to Engineer. "Mass submittals" are defined as six or more submittals or items in one day or 20 or more submittals or items in one week. If "mass submittals" are received, Engineer's review time stated above will be extended as necessary to perform proper review. Engineer will review "mass submittals" based on priority determined by Engineer after consultation with Owner and Contractor.
- B. Informational submittals and other similar data are for Engineer's information, do not require Engineer's responsive action, and will not be reviewed or returned with comment.
- C. Submittals made by Contractor that are not required by Contract Documents may be returned without action.
- D. Submittal approval does not authorize changes to Contract requirements unless accompanied by Change Order, Field Order, or Work Change Directive.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

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SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality control.
- B. Tolerances.
- C. References.
- D. Labeling.
- E. Testing and inspection services.
- F. Manufacturers' field services.

1.2 QUALITY CONTROL

- A. Monitor quality control over suppliers, manufacturers, products, services, Site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with specified standards as the minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- C. Perform Work using persons qualified to produce required and specified quality.
- D. Products, materials, and equipment may be subject to inspection by Engineer and Owner at place of manufacture or fabrication. Such inspections shall not relieve Contractor of complying with requirements of Contract Documents.
- E. Supervise performance of Work in such manner and by such means to ensure that Work, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.

1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' recommended tolerances and tolerance requirements in reference standards. When such tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current as of date of Contract Documents except where specific date is established by code.
- C. Obtain copies of standards and maintain on Site when required by product Specification Sections.
- D. When requirements of indicated reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- E. Neither contractual relationships, duties, or responsibilities of parties in Contract nor those of Engineer shall be altered from Contract Documents by mention or inference in reference documents.

1.5 LABELING

- A. Attach label from agency approved by authorities having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.
- B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label:
 - 1. Model number.
 - 2. Serial number.
 - 3. Performance characteristics.
- C. Manufacturer's Nameplates, Trademarks, Logos, and Other Identifying Marks on Products: Not allowed on surfaces exposed to view in public areas, interior or exterior.

1.6 QUALITY CONTROL TESTING AND INSPECTION SERVICES

- A. Contractor will employ and pay for services of an independent testing agency or laboratory acceptable to Owner to perform specified testing.
 - 1. Before starting Work, submit testing laboratory name, address, and telephone number, and names of full-time Professional Engineer and responsible officer.
 - 2. Submit copy of report of laboratory facilities' inspection made by Materials Reference Laboratory of National Bureau Standards during most recent inspection, with memorandum of remedies of deficiencies reported by inspection.
- B. Independent firm will perform tests, inspections, and other services specified in individual Specification Sections and as required by Engineer.
 - 1. Laboratory: Authorized to operate in State of Utah.

2. Laboratory Staff: Maintain full-time Professional Engineer on staff to review services.
 3. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.
- C. Testing, inspections, and source quality control may occur on or off Project Site. Perform off-Site testing as required by Engineer or Owner in accordance with the specified AASHTO, ASTM, and ANSI standards..
- D. Reports shall be submitted by independent firm to Engineer, Contractor, and authorities having jurisdiction, indicating observations and results of tests and compliance or noncompliance with Contract Documents.
1. Submit weekly reports of testing results and compliance for progress meetings identifying any issues and how they have been addressed.
 2. Submit final report indicating correction of Work previously reported as noncompliant.
- E. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
1. Notify Engineer and independent firm 24 hours before expected time for operations requiring services.
 2. Make arrangements with independent firm and pay for additional Samples and tests required for Contractor's use.
- F. Employment of testing agency or laboratory shall not relieve Contractor of obligation to perform Work according to requirements of Contract Documents.
- G. Retesting or re-inspection required because of nonconformance with specified or indicated requirements shall be performed by same independent firm on instructions from Engineer. Payment for retesting or re-inspection will be charged to Contractor by deducting testing charges from Contract Sum/Price.
- H. Agency Responsibilities:
1. Test Samples of mixes submitted by Contractor.
 2. Provide qualified personnel at Site. Cooperate with Engineer and Contractor in performance of services.
 3. Perform indicated sampling and testing of products according to specified standards.
 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.

5. Promptly notify Engineer and Contractor of observed irregularities or nonconformance of Work or products.
 6. Perform additional tests required by Engineer for quality assurance.
 7. Attend preconstruction meetings and progress meetings.
- I. Agency Reports: After each test, promptly submit copy of report to Engineer, Contractor, and authorities having jurisdiction. When requested by Engineer, provide interpretation of test results. Include the following:
1. Date issued.
 2. Project title and number.
 3. Name of inspector.
 4. Date and time of sampling or inspection.
 5. Identification of product and Specification Section.
 6. Location in Project.
 7. Type of inspection or test.
 8. Date of test.
 9. Results of tests.
 10. Conformance with Contract Documents.
- J. Limits on Testing Authority:
1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 2. Agency or laboratory may not approve or accept any portion of the Work.
 3. Agency or laboratory may not assume duties of Contractor.
 4. Agency or laboratory has no authority to stop the Work.

1.7 MANUFACTURER'S FIELD SERVICES

- A. When specified in individual Specification Sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe Site conditions, conditions of surfaces and installation, quality of workmanship, startup of equipment, testing, adjusting, balancing of equipment, and commissioning as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Engineer 15 days in advance of required observations. Observer is subject to approval of Engineer.

- C. Report observations and Site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.
- D. Refer to Section 01 33 00 - Submittal Procedures, "Manufacturer's Instructions" Article.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

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SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary facilities under Construction Management Agreement.
- B. Temporary Utilities:
 - 1. Temporary electricity.
 - 2. Temporary lighting for construction purposes.
 - 3. Temporary heating.
 - 4. Temporary ventilation.
 - 5. Temporary water service.
 - 6. Temporary sanitary facilities.
- C. Construction Facilities:
 - 1. Field offices and sheds.
 - 2. Vehicular access.
 - 3. Parking.
 - 4. Progress cleaning and waste removal.
 - 5. Project identification.
 - 6. Traffic regulation.
- D. Temporary Controls:
 - 1. Barriers.
 - 2. Enclosures and fencing.
 - 3. Security.
 - 4. Water control.
 - 5. Dust control.
 - 6. Erosion and sediment control.

7. Noise control.
 8. Pest and rodent control.
 9. Pollution control.
- E. Removal of utilities, facilities, and controls.

1.2 TEMPORARY FACILITIES UNDER CONSTRUCTION MANAGEMENT AGREEMENT

A. Temporary Provisions Provided by Construction Manager:

1. Temporary barriers, barricades, covered walkways, fencing, exterior closures, and interior closures.
2. Temporary field offices.
3. Cleaning during construction.
4. Access roads and approaches.
5. Temporary sanitary facilities.
6. Temporary heating and ventilating after enclosure.
7. Temporary electrical service and distribution system for power and lighting.

B. Each Contractor: Coordinate provisions with Construction Manager and provide the following items as necessary for execution of the Work including associated costs:

1. Construction aids.
2. Temporary fire protection, dust control, erosion and sediment control, water control, noise control, and other necessary temporary controls.
3. Temporary barriers, barricades, and similar devices as necessary for safety and protection of construction personnel and public.
4. Temporary tree and plant protection.
5. Temporary heating before building enclosure.
6. Electrical service required in addition to temporary service and distribution provided by Construction Manager.
7. Temporary provisions for protection of installed Work.

1.3 TEMPORARY ELECTRICITY

- A. Provide and pay for power service required from utility source as needed for construction operation.

1.4 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

- A. Provide and maintain lighting for construction operations.

1.5 TEMPORARY HEATING

- A. Provide and pay for heating devices and heat as needed to maintain specified conditions for construction operations.

1.6 TEMPORARY VENTILATION

- A. Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

1.7 TEMPORARY WATER SERVICE

- A. Provide and pay for suitable quality water service as needed to maintain specified conditions for construction operations.

1.8 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Existing facility use is not permitted. Provide facilities at time of Project mobilization.
- B. At end of construction, return existing facilities used for construction operations to same or better condition as original condition.

1.9 FIELD OFFICES AND SHEDS

- A. Field offices are not required by Engineer or Owner. Contractor may install field offices at its own discretion if deemed necessary. Designated existing spaces as indicated in the Drawings may be used for field offices and for storage.
- B. Storage Areas and Sheds: Size to storage requirements for products of individual Sections, allowing for access and orderly provision for maintenance and inspection of products to suit requirements in Section 01 60 00 - Product Requirements.
- C. Preparation: Fill and grade Sites for temporary structures sloped for drainage away from buildings.
- D. Installation:
 - 1. At the Contractor's discretion, install field office spaces ready for occupancy 30 days after date established by Notice to Proceed.
 - 2. Employee Residential Occupancy: Not allowed on Owner's property.
- E. Maintenance and Cleaning:
 - 1. Weekly janitorial services for field offices; periodic cleaning and maintenance for sheds and storage areas.

2. Maintain walks free of mud, water, snow, and the like.
- F. Removal: At completion of Work remove buildings, foundations, utility services, and debris. Restore areas to same or better condition as original condition.

1.10 VEHICULAR ACCESS

- A. Construct temporary all-weather access roads from public thoroughfares to serve construction area, of width and load-bearing capacity to accommodate unimpeded traffic for construction purposes.
- B. Construct temporary bridges and culverts to span low areas and allow unimpeded drainage.
- C. Extend and relocate vehicular access as Work progress requires and provide detours as necessary for unimpeded traffic flow.
- D. Locate as approved by Engineer and approved by Owner.
- E. Provide unimpeded access for emergency vehicles. Maintain 20-foot-wide driveways with turning space between and around combustible materials.
- F. Provide and maintain access to fire hydrants and control valves free of obstructions.
- G. Provide means of removing mud from vehicle wheels before entering streets.
- H. Use designated existing on-Site roads for construction traffic.

1.11 PARKING

- A. Arrange for temporary parking areas to accommodate construction personnel.
- B. Locate as approved by Owner.
- C. Maintenance:
 1. Maintain traffic and parking areas in sound condition, free of excavated material, construction equipment, products, mud, snow, ice, and the like.
 2. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original condition.
- D. Removal, Repair:
 1. Remove temporary materials and construction at Substantial Completion.
 2. Repair existing facilities damaged by use, to original condition.
- E. Mud from Site vehicles: Provide means of removing mud from vehicle wheels before entering streets.

1.12 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain Site in clean and orderly condition.
- B. Collect and remove waste materials, debris, and rubbish from Site weekly and dispose of off-Site.

1.13 PROJECT IDENTIFICATION

- A. Project Identification Sign:
 - 1. Provide Project identification signs if needed.
- B. Maintenance: Maintain clean signs and supports; repair deterioration and damage.
- C. Removal: Remove signs, framing, supports, and foundations at completion of Project and restore area.

1.14 TRAFFIC REGULATION

- A. Signs, Signals, and Devices:
 - 1. Post-Mounted and Wall-Mounted Traffic Control and Informational Signs: As approved by authorities having jurisdiction.
 - 2. Traffic Control Signals: As approved by local jurisdictions.
 - 3. Traffic Cones, Drums, Flares, and Lights: As approved by authorities having jurisdiction.
 - 4. Flag Person Equipment: As required by authorities having jurisdiction.
- B. Flag Persons: Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.
- C. Flares and Lights: Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.
- D. Haul Routes:
 - 1. Consult with authorities having jurisdiction and establish public thoroughfares to be used for haul routes and Site access.
 - 2. Confine construction traffic to designated haul routes.
 - 3. Provide traffic control at critical areas of haul routes to regulate traffic and to minimize interference with public traffic.
- E. Traffic Signs and Signals:

1. Provide signs at approaches to Site and on Site, at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.
 2. Provide, operate, and maintain traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control and areas affected by Contractor's operations.
 3. Relocate signs and signals as Work progresses, to maintain effective traffic control.
- F. Removal:
1. Remove equipment and devices when no longer required.
 2. Repair damage caused by installation.
 3. Remove post settings to depth of 2 feet.

1.15 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Tree and Plant Protection: Preserve and protect existing trees and plants designated to remain.
 1. Protect areas within drip lines from traffic, parking, storage, dumping, chemically injurious materials and liquids, ponding, and continuous running water.
- C. Protect non-owned vehicular traffic, stored materials, Site, and structures from damage.

1.16 ENCLOSURES AND FENCING

- A. Construction: Contractor's option.
- B. Exterior Enclosures:
 1. Provide temporary weathertight closure of exterior openings to accommodate acceptable working conditions and protection for products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual Specification Sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.17 SECURITY

- A. Security Program:
 1. Protect Work on existing premises from theft, vandalism, and unauthorized entry.
 2. Initiate program at Project mobilization.
 3. Maintain program throughout construction period until directed by Engineer.

1.18 WATER CONTROL

- A. Grade Site to drain. Maintain excavations free of water. Provide, operate, and maintain necessary pumping equipment.
- B. Protect Site from puddles or running water.

1.19 DUST CONTROL

- A. Execute Work by methods that minimize raising dust from construction operations.
- B. Provide positive means to prevent airborne dust from dispersing into atmosphere.

1.20 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction by methods to control surface drainage from cuts and fills from borrow and waste disposal areas. Prevent erosion and sedimentation.
- B. Minimize surface area of bare soil exposed at one time.
- C. Provide temporary measures including berms, dikes, drains, and other devices to prevent water flow.
- D. Construct fill and waste areas by selective placement to avoid erosive surface silts and clays.
- E. Periodically inspect earthwork to detect evidence of erosion and sedimentation. Promptly apply corrective measures.

1.21 NOISE CONTROL

- A. Provide methods, means, and facilities to minimize noise produced by construction operations.

1.22 PEST AND RODENT CONTROL

- A. Provide methods, means, and facilities to prevent pests and insects from damaging the Work.
- B. Provide methods, means, and facilities to prevent rodents from accessing or invading premises.

1.23 POLLUTION CONTROL

- A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances and pollutants produced by construction operations.
- B. Comply with pollution and environmental control requirements of authorities having jurisdiction.

1.24 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, and materials before Substantial Completion inspection.
- B. Remove underground installations to minimum depth of 2 feet. Grade Site as indicated on Drawings.
- C. Clean and repair damage caused by installation or use of temporary Work.
- D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Product delivery requirements.
- C. Product storage and handling requirements.
- D. Product options.

1.2 PRODUCTS

- A. At minimum, comply with specified requirements and reference standards.
- B. Specified products define standard of quality, type, function, dimension, appearance, and performance required.
- C. Furnish products of qualified manufacturers that are suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise. Confirm that manufacturer's production capacity can provide sufficient product, on time, to meet Project requirements.
- D. Do not use materials and equipment removed from existing premises except as specifically permitted by Contract Documents.
- E. Furnish interchangeable components from same manufacturer for components being replaced.

1.3 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products according to manufacturer's instructions.
- B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products; use methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products according to manufacturer's instructions.
- B. Store products with seals and labels intact and legible.

- C. Store sensitive products in weathertight, climate-controlled enclosures in an environment suitable to product.
- D. For exterior storage of fabricated products, place products on sloped supports aboveground.
- E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- F. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.
- G. Provide equipment and personnel to store products; use methods to prevent soiling, disfigurement, or damage.
- H. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.5 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Products complying with specified reference standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of one of manufacturers named and complying with Specifications; no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit Request for Substitution for any manufacturer not named, according to Section 01 25 00 - Substitution Procedures.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Starting of systems.
- C. Project record documents.
- D. Operation and maintenance data.
- E. Manual for equipment and systems.
- F. Product warranties and product bonds.
- G. Examination.
- H. Preparation.
- I. Execution.
- J. Cutting and patching.
- K. Protecting installed construction.
- L. Final cleaning.

1.2 CLOSEOUT PROCEDURES

- A. Prerequisites to Substantial Completion: Complete following items before requesting Certification of Substantial Completion, either for entire Work or for portions of Work:
 - 1. Submit maintenance manuals, Project record documents, digital images of construction photographs, and other similar final record data in compliance with this Section.
 - 2. Complete facility startup, testing, adjusting, balancing of systems and equipment, demonstrations, and instructions to Owner's operating and maintenance personnel as specified in compliance with this Section.
 - 3. Conduct inspection to establish basis for request that Work is substantially complete. Create comprehensive list (initial punch list) indicating items to be completed or corrected, value of incomplete or nonconforming Work, reason for being incomplete, and date of anticipated completion for each item. Include copy of list with request for Certificate of Substantial Completion.

4. Obtain and submit releases enabling Owner's full, unrestricted use of Project and access to services and utilities. Include certificate of occupancy, operating certificates, and similar releases from authorities having jurisdiction and utility companies.
5. Deliver tools, spare parts, extra stocks of material, and similar physical items to Owner.
6. Make final change-over of locks and transmit keys directly to Owner. Advise Owner's personnel of change-over in security provisions.
7. Discontinue or change over and remove temporary facilities and services from Project Site, along with construction tools, mockups, and similar elements.
8. Perform final cleaning according to this Section.

B. Substantial Completion Inspection:

1. When Contractor considers Work to be substantially complete, submit to Engineer:
 - a. Written certificate that Work, or designated portion, is substantially complete.
 - b. List of items to be completed or corrected (initial punch list).
2. Within seven days after receipt of request for Substantial Completion, Engineer and Owner will make inspection to determine whether Work or designated portion is substantially complete.
3. Should Engineer determine that Work is not substantially complete:
 - a. Engineer will promptly notify Contractor in writing, stating reasons for its opinion.
 - b. Contractor shall remedy deficiencies in Work and send second written request for Substantial Completion to Engineer.
 - c. Engineer and Owner will reinspect Work.
 - d. Redo and Inspection of Deficient Work: Repeated until Work passes Engineer's and Owner's inspection.
4. When Engineer and Owner finds that Work is substantially complete, Engineer will:
 - a. Prepare Certificate of Substantial Completion, accompanied by Contractor's list of items to be completed or corrected as verified and amended by Engineer and Owner (final punch list).
 - b. Submit Certificate to Owner and Contractor for their written acceptance of responsibilities assigned to them in Certificate.
5. After Work is substantially complete, Contractor shall:
 - a. Allow Owner occupancy of Project under provisions stated in Certificate of Substantial Completion.
 - b. Complete Work listed for completion or correction within time period stipulated.

- C. Prerequisites for Final Completion: Complete following items before requesting final acceptance and final payment.
1. When Contractor considers Work to be complete, submit written certification that:
 - a. Contract Documents have been reviewed.
 - b. Work has been examined for compliance with Contract Documents.
 - c. Work has been completed according to Contract Documents.
 - d. Work is completed and ready for final inspection.
 2. Submittals: Submit following:
 - a. Final punch list indicating all items have been completed or corrected.
 - b. Final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 - c. Specified warranties, workmanship/maintenance bonds, maintenance agreements, and other similar documents.
 - d. Accounting statement for final changes to Contract Sum.
 - e. Contractor's affidavit of payment of debts and claims.
 - f. Contractor affidavit of release of liens.
 3. Perform final cleaning for Contractor-soiled areas according to this Section.
- D. Final Completion Inspection:
1. Within seven days after receipt of request for final inspection, Engineer and Owner will make inspection to determine whether Work or designated portion is complete.
 2. Should Engineer or Owner consider Work to be incomplete or defective:
 - a. Engineer will promptly notify Contractor in writing, listing incomplete or defective Work.
 - b. Contractor shall remedy stated deficiencies and send second written request to Engineer that Work is complete.
 - c. Engineer and Owner will reinspect Work.
 - d. Redo and Inspection of Deficient Work: Repeated until Work passes Engineer's and Owner's inspection.

1.3 STARTING OF SYSTEMS

- A. Coordinate schedule for startup of various equipment and systems.
- B. Notify Engineer and Owner seven days prior to startup of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.
- D. Verify that tests, meter readings, and electrical characteristics agree with those required by equipment or system manufacturer.

- E. Verify that wiring and support components for equipment are complete and tested.
- F. Execute startup under supervision of manufacturer's representative or Contractors' personnel according to manufacturer's instructions.
- G. When specified in individual Specification Sections, require manufacturer to provide authorized representative who will be present at Site to inspect, check, and approve equipment or system installation prior to startup and will supervise placing equipment or system in operation.
- H. Submit a written report according to Section 01 33 00 - Submittal Procedures that equipment or system has been properly installed and is functioning correctly.

1.4 PROJECT RECORD DOCUMENTS

- A. Maintain on Site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, product data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record, at each product Section, description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates used.
 - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction as follows:
 - 1. Include Contract modifications such as Addenda, supplementary instructions, change directives, field orders, minor changes in the Work, and change orders.
 - 2. Include locations of concealed elements of the Work.

3. Identify depth of buried utility lines and provide dimensions showing distances from permanent facility components that are parallel to utilities.
 4. Dimension ends, corners, and junctions of buried utilities to permanent facility components using triangulation.
 5. Identify and locate existing buried or concealed items encountered during Project.
 6. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 7. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 8. Field changes of dimension and detail.
 9. Details not on original Drawings.
- G. Submit PDF electronic files of marked-up documents to Engineer before Substantial Completion.

1.5 OPERATION AND MAINTENANCE DATA

- A. Submit in PDF composite electronic indexed file.
- B. Submit data bound in 8-1/2 x 11-inch text pages, binders with durable plastic covers.
- C. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS," title of Project, and subject matter of binder when multiple binders are required.
- D. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- E. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- F. Contents: Prepare table of contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:
 1. Part 1: Directory, listing names, addresses, and telephone numbers of Engineer, Contractor, Subcontractors, and major equipment suppliers.
 2. Part 2: Operation and maintenance instructions, arranged by system, process flow, and subdivided by Specification Section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Include the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.

- e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
 - g. Safety precautions to be taken when operating and maintaining or working near equipment.
3. Part 3: Project documents and certificates, including the following:
- a. Shop Drawings and product data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Originals of warranties and bonds.

1.6 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Engineer will review draft and return one copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.
- C. Submit one copy of completed volumes before Substantial Completion. Draft copy will be reviewed and returned after Substantial Completion, with Engineer comments. Revise content of document sets as required prior to final submission.
- D. Submit two sets of revised final volumes within ten days after final inspection.
- E. Submit in PDF composite electronic indexed file of final manual within ten days after final inspection.
- F. Each Item of Equipment and Each System: Include description of unit or system and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.
- G. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed or by label machine.
- H. Include color-coded wiring diagrams as installed.
- I. Operating Procedures: Include startup, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and special operating instructions.
- J. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- K. Include servicing and lubrication schedule and list of lubricants required.
- L. Include manufacturer's printed operation and maintenance instructions.

- M. Include sequence of operation by controls manufacturer.
- N. Include original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- O. Include control diagrams by controls manufacturer as installed.
- P. Include Contractor's coordination drawings with color-coded piping diagrams as installed.
- Q. Include charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- R. Include list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- S. Include test and balancing reports as specified in Section 01 40 00 - Quality Requirements.
- T. Additional Requirements: As specified in individual product Specification Sections.
- U. Include listing in table of contents for design data with tabbed dividers and space for insertion of data.

1.7 PRODUCT WARRANTIES AND PRODUCT BONDS

- A. Obtain warranties and bonds executed in duplicate by responsible Subcontractors, suppliers, and manufacturers within ten days after completion of applicable item of Work.
- B. Execute and assemble transferable warranty documents and bonds from Subcontractors, suppliers, and manufacturers.
- C. Verify documents are in proper form, contain full information, and are notarized.
- D. Co-execute submittals when required.
- E. Include table of contents and assemble in three D side ring binder with durable plastic cover.
- F. Submit prior to final Application for Payment.
- G. Time of Submittals:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten calendar days after acceptance.
 - 2. Make other submittals within ten calendar days after date of Substantial Completion, prior to final Application for Payment.

3. For items of Work for which acceptance is delayed beyond Substantial Completion, submit within ten calendar days after acceptance, listing date of acceptance as beginning of warranty or bond period.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that existing Site conditions are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Examine and verify specific conditions described in individual Specification Sections.
- C. Verify that utility services are available with correct characteristics and in correct locations.

3.2 PREPARATION

- A. Clean surfaces and prepare areas prior to applying next material or installation according to manufacturer's instructions.

3.3 EXECUTION

- A. Comply with manufacturer's installation instructions, performing each step in sequence. Maintain one set of manufacturer's installation instructions at Project Site during installation and until completion of construction.
- B. When manufacturer's installation instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Verify that field measurements are as indicated on approved Shop Drawings or as instructed by manufacturer.
- D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
 1. Secure Work true to line and level and within specified tolerances, or if not specified, industry-recognized tolerances.
 2. Physically separate products in place, provide electrical insulation, or provide protective coatings to prevent galvanic action or corrosion between dissimilar metals.
 3. Exposed Joints: Provide uniform joint width and arrange to obtain best visual effect. Refer questionable visual-effect choices to Engineer for final decision.

- E. Allow for expansion of materials and movement.
- F. Climatic Conditions and Project Status: Install each unit of Work under conditions to ensure best possible results in coordination with entire Project.
 - 1. Isolate each unit of Work from incompatible Work as necessary to prevent deterioration.
 - 2. Coordinate enclosure of Work with required inspections and tests to minimize necessity of uncovering Work for those purposes.
- G. Mounting Heights: Where not indicated, mount individual units of Work at industry recognized standard mounting heights for particular application indicated. Refer questionable mounting heights choices to Engineer for final decision.
- H. Adjust operating products and equipment to ensure smooth and unhindered operation.
- I. Clean and perform maintenance on installed Work as frequently as necessary through remainder of construction period. Lubricate operable components as recommended by manufacturer.

3.4 CUTTING AND PATCHING

- A. Employ skilled and experienced installers to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements affecting:
 - 1. Structural integrity of element.
 - 2. Integrity of weather-exposed or moisture-resistant elements.
 - 3. Efficiency, maintenance, or safety of element.
 - 4. Visual qualities of sight-exposed elements.
 - 5. Work of Owner or separate contractor.
- C. Execute cutting, fitting, and patching to complete Work and to:
 - 1. Fit the several parts together, to integrate with other Work.
 - 2. Uncover Work to install or correct ill-timed Work.
 - 3. Remove and replace defective and nonconforming Work.
 - 4. Remove samples of installed Work for testing.
 - 5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- D. Execute Work by methods to avoid damage to other Work and to provide proper surfaces to receive patching and finishing.

- E. Cut masonry and concrete materials using masonry saw or core drill.
- F. Restore Work with new products according to requirements of Contract Documents.
- G. Fit Work tight to pipes, sleeves, ducts, conduits, and other penetrations through surfaces.
- H. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.
- I. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.
- J. Identify hazardous substances or conditions exposed during the Work to Engineer for decision or remedy.

3.5 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual Specification Sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate Work area to prevent damage.

3.6 FINAL CLEANING

- A. Clean Site; sweep paved areas, rake clean landscaped surfaces.
- B. Remove waste and surplus materials, rubbish, and construction facilities from Site.

END OF SECTION

SECTION 03 10 00

CONCRETE FORMING AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Formwork for cast-in-place concrete.
2. Shoring, bracing, and anchorage.
3. Form accessories.
4. Form stripping.

B. Related Requirements:

1. Section 03 20 00 – Concrete Reinforcing.
2. Section 03 30 00 – Cast-in-Place Concrete.

1.2 REFERENCE STANDARDS

A. American Concrete Institute:

1. ACI 117 - Specification for Tolerances for Concrete Construction and Materials.
2. ACI 301 - Specifications for Structural Concrete.
3. ACI 318 - Building Code Requirements for Structural Concrete.
4. ACI 347 - Guide to Formwork for Concrete.

B. American Forest & Paper Association:

1. AF&PA - National Design Specification (NDS) for Wood Construction.

C. APA - The Engineered Wood Association:

1. APA/EWA PS 1 - Voluntary Product Standard - Structural Plywood.

D. ASTM International:

1. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

2. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
- E. West Coast Lumber Inspection Bureau:
1. WCLIB - Standard No. 17 Grading Rules for West Coast Lumber.

1.3 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Coordinate Work of this Section with other Sections of Work in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.

1.4 QUALITY ASSURANCE

- A. Perform Work according to ACI 347 and 301.
- B. For wood products furnished for Work of this Section, comply with AF&PA.
- C. Perform Work according to State and local standards.

PART 2 - PRODUCTS

2.1 PERFORMANCE AND DESIGN CRITERIA

- A. Design, engineer, and construct formwork, shoring, and bracing according to ACI 318 to conform to applicable code requirements to achieve concrete shape, line, and dimension as indicated on Drawings.

2.2 WOOD FORM MATERIALS

- A. Form Materials: At discretion of Contractor.

2.3 PREFABRICATED FORMS

- A. Furnish materials according to State and local standards.
- B. Preformed Steel Forms: Minimum 16 gage matched, tightly fitted, and stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.
- C. FRP Forms: Matched, tightly fitted, and stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished concrete surfaces.
- D. Steel Forms: Sheet steel, suitably reinforced, and designed for particular use indicated on Drawings.
- E. Form Liners: Smooth, durable, grainless, and non-staining hardboard unless otherwise indicated on Drawings.

- F. Framing, Studding, and Bracing: Stud or No. 3 structural light-framing grade.

2.4 FORMWORK ACCESSORIES

- A. Form Ties: Removable or Snap off type, galvanized metal, Fixed length, with waterproofing washer, and free of defects capable of leaving holes larger than 1 inch in concrete surface.
- B. Spreaders: Standard, non-corrosive metal-form clamp assembly, of type acting as spreaders and leaving no metal within 1 inch of concrete face. Wire ties, wood spreaders, or through bolts are not permitted.
- C. Form Release Agent:
 - 1. Description: Colorless mineral oil that will not stain concrete or absorb moisture or impair natural bonding or color characteristics of coating intended for use on concrete.
- D. Corners: Chamfer, rigid plastic or wood strip, 3/4 by 3/4 inches; maximum possible lengths. Chamfer all exposed corners.
- E. Vapor Retarder: Polyethylene sheet 8 mils thick.
- F. Bituminous Joint Filler: Comply with ASTM D1751.
- G. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Size, strength, and character to maintain formwork in place while placing concrete.
- H. Waterstop: Rubber or PVC, minimum 1,750 psi tensile strength, minus 50 to plus 175 degrees F temperature range, 4 inches wide, maximum possible lengths, ribbed profile, preformed corner sections, heat-welded joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify lines, levels, and centers before proceeding with formwork.
- C. Verify that dimensions agree with Drawings.
- D. If formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement, request instructions from Engineer before proceeding.

3.2 INSTALLATION

- A. Earth Forms: Not Permitted

1. Trench earth forms neatly, accurately, and at least 2 inches wider than footing widths indicated on Drawings.
2. Trim sides and bottom of earth forms.
3. Construct wood edge strips at top of each side of trench to secure reinforcing and to prevent trench from sloughing.
4. Form sides of footings where earth sloughs.
5. Tamp earth forms firm and clear them of debris and loose material before depositing concrete.

B. Formwork – General:

1. Provide top form for sloped surfaces steeper than 1.5 horizontal to 1 vertical to hold shape of concrete during placement, unless it can be demonstrated that top forms can be omitted.
2. Construct forms to correct shape and dimensions, mortar-tight, braced, and of sufficient strength to maintain shape and position under imposed loads from construction operations.
3. Camber forms where necessary to produce level finished soffits unless indicated otherwise on Drawings.
4. Carefully verify horizontal and vertical positions of forms. Correct misaligned or misplaced forms before placing concrete.
5. Complete wedging and bracing before placing concrete.
6. Erect formwork, shoring, and bracing to achieve design requirements according to ACI 301.
7. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.
8. Leave forms in place for minimum number of days according to ACI 347.

C. Form Removal:

1. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads, and removal has been approved by Engineer.
2. Loosen forms carefully; do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
3. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged.
4. Discard damaged forms.

5. Form Release Agent:
 - a. Apply according to manufacturer instructions.
 - b. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
 - c. Do not apply form release agent if concrete surfaces are indicated to receive special finishes or applied coverings that may be affected by agent.
 - d. Soak inside surfaces of untreated forms with clean water, and keep surfaces coated prior to placement of concrete.

 6. Form Cleaning:
 - a. Clean forms as erection proceeds to remove foreign matter within forms.
 - b. Clean formed cavities of debris prior to placing concrete.
 - c. Flush with water or use compressed air to remove remaining foreign matter.
 - d. Ensure that water and debris drain to exterior through cleanout ports.
 - e. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure; use compressed air or other dry method to remove foreign matter.

 7. Reuse and Coating of Forms:
 - a. Thoroughly clean forms and reapply form coating before each reuse.
 - b. For exposed Work, do not reuse forms with damaged faces or edges.
 - c. Apply form coating to forms according to manufacturer instructions.
 - d. Do not coat forms for concrete indicated to receive "scored finish."
 - e. Apply form coatings before placing reinforcing steel.
- D. Forms for Smooth Finish Concrete:
1. Use steel, plywood, or lined-board forms.
 2. Use clean and smooth plywood and form liners, uniform in size, and free from surface and edge damage capable of affecting resulting concrete finish.
 3. Install form lining with close-fitting square joints between separate sheets without springing into place.
 4. Use full-sized sheets of form liners and plywood wherever possible.
 5. Tape joints to prevent protrusions in concrete.
 6. Apply forming and strip wood forms in a manner to protect corners and edges.
 7. Level and continue horizontal joints.
 8. Keep wood forms wet until stripped.
- E. Forms for Surfaces to Receive Membrane Waterproofing: Use plywood or steel forms. After erection of forms, tape form joints to prevent protrusions in concrete.

F. Framing, Studding, and Bracing:

1. Maximum Spacing of Studs:
 - a. Boards: Maximum 16 inches o.c.
 - b. Plywood: 12 inches o.c.
2. Size framing, bracing, centering, and supporting members for sufficient strength to maintain shape and position under imposed loads from construction operations.
3. Construct beam soffits of material minimum 2 inches thick.
4. Distribute bracing loads over base area on which bracing is erected.
5. When placed on ground, protect against undermining, settlement, and accidental impact.

G. Form Anchors and Hangers:

1. Do not use anchors and hangers leaving exposed metal at concrete surface.
2. Symmetrically arrange hangers supporting forms from structural-steel members to minimize twisting or rotation of member.
3. Penetration of structural-steel members is not permitted.

H. Inserts, Embedded Parts, and Openings:

1. Install formed openings for items to be embedded in or passing through concrete Work.
2. Locate and set in place items required to be cast directly into concrete.
3. Coordinate with Work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.
4. Install accessories straight, level, and plumb, and ensure that items are not disturbed during concrete placement.
5. Joints: Install waterstops continuous without displacing reinforcement.
6. Openings: Provide temporary ports or openings in formwork as required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.
7. Close temporary openings with tight-fitting panels, flush with inside face of forms, and neatly fitted such that joints will not be apparent in exposed concrete surfaces.

I. Form Ties:

1. Provide sufficient strength and quantity to prevent spreading of forms.
 2. Place ties at least 1 inch away from finished surface of concrete.
 3. Leave inner rods in concrete when forms are stripped.
 4. Space form ties equidistant, symmetrical, and aligned vertically and horizontally unless indicated otherwise on Drawings.
- J. Arrange formwork to allow proper erection sequence and to permit form removal without damage to concrete.
- K. Construction Joints:
1. Install surfaced pouring strip where construction joints intersect on exposed surfaces to provide straight line at joints.
 2. Just prior to subsequent concrete placement, remove strip and tighten forms to conceal shrinkage.
 3. Appearance: Show no overlapping of construction joints. Construct joints to present same appearance as butted plywood joints.
 4. Arrange joints in continuous line straight, true, and sharp.
- L. Embedded Items:
1. Make provisions for pipes, sleeves, anchors, inserts, reglets, anchor slots, nailers, waterstops, and other features.
 2. Do not embed wood or uncoated aluminum in concrete.
 3. Obtain installation and setting information for embedded items furnished under other Sections.
 4. Securely anchor embedded items in correct location and alignment prior to placing concrete.
 5. Verify that conduits and pipes, including those made of coated aluminum, meet requirements of ACI 318 regarding size and location limitations.
- M. Openings for Items Passing through Concrete:
1. Frame openings in concrete where indicated on Drawings.
 2. Establish exact locations, sizes, and other conditions required for openings and attachment of Work specified under other Sections.
 3. Coordinate Work to avoid cutting and patching of concrete after placement.
 4. Perform cutting and repairing of concrete required as result of failure to provide required openings.

- N. Screeds:
1. Set screeds and establish levels for tops of and finish on concrete slabs.
 2. Slope slabs to drain where required or as indicated on Drawings.
 3. Before depositing concrete, remove debris from space to be occupied by concrete and thoroughly wet forms; remove freestanding water.
- O. Screed Supports:
1. For concrete over waterproof membranes and vapor retarder membranes, use cradle-, pad-, or base-type screed supports that will not puncture membrane.
 2. Staking through membrane is not permitted.
- P. Cleanouts and Access Panels:
1. Provide removable cleanout sections or access panels at bottoms of forms to permit inspection and effective cleaning of loose dirt, debris, and waste material.
 2. Clean forms and surfaces against which concrete is to be placed. Remove chips, sawdust, and other debris. Thoroughly blow out forms with compressed air just before concrete is placed.

3.3 TOLERANCES

- A. Tolerances: Construct formwork to produce completed concrete surfaces within construction tolerances according to ACI 117.
- B. Camber: According to ACI 301.

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Inspect erected formwork, shoring, and bracing to ensure that Work complies with formwork design and that supports, fastenings, wedges, ties, and items are secure.
- C. Notify Engineer after placement of reinforcing steel in forms but prior to placing concrete.
- D. Schedule concrete placement to permit formwork inspection before placing concrete.

END OF SECTION

SECTION 03 20 00
CONCRETE REINFORCING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Reinforcing bars.
 2. Welded wire fabric.
 3. Reinforcement accessories.

1.2 REFERENCE STANDARDS

- A. American Concrete Institute:
1. ACI 301 - Specifications for Structural Concrete.
 2. ACI 318 - Building Code Requirements for Structural Concrete.
 3. ACI 530/530.1 - Building Code Requirements and Specification for Masonry Structures.
 4. ACI SP-66 - ACI Detailing Manual.
- B. American Welding Society:
1. AWS D1.4 - Structural Welding Code - Reinforcing Steel.
- C. ASTM International:
1. ASTM A184 - Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement.
 2. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
 3. ASTM A704 - Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.
 4. ASTM A706 - Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement.
 5. ASTM A767 - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement.

6. ASTM A775 - Standard Specification for Epoxy-Coated Steel Reinforcing Bars.
 7. ASTM A884 - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement.
 8. ASTM A934 - Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars.
 9. ASTM A996 - Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.
- D. Concrete Reinforcing Steel Institute:
1. CRSI 10-MSP - Manual of Standard Practice.
 2. CRSI 10PLACE - Placing Reinforcing Bars.
- 1.3 COORDINATION
- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
 - B. Coordinate Work of this Section with placement of formwork, formed openings, and other Work.
- 1.4 SUBMITTALS
- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
 - B. Shop Drawings: Indicate bar sizes, spacings, locations, splice locations, quantities of reinforcing steel, bending and cutting schedules, and supporting and spacing devices.
 - C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
 - D. Certificates: Submit AWS qualification certificate for welders employed on Work.
- 1.5 QUALITY ASSURANCE
- A. Perform Work according to ACI 301.
 - B. Prepare Shop Drawings according to ACI SP-66.
 - C. Perform Work according to State and local standards.
- 1.6 QUALIFICATIONS
- A. Welders: AWS qualified within previous 12 months for employed weld types.
- 1.7 DELIVERY, STORAGE, AND HANDLING
- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Store materials according to manufacturer instructions.
- D. Protect materials from moisture by storing in clean, dry location remote from construction operations areas. Provide additional protection according to manufacturer instructions.

1.8 EXISTING CONDITIONS

- A. Field Measurements: Verify field measurements prior to fabrication. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

PART 3 - UCTS

3.1 REINFORCEMENT

- A. Reinforcing Steel: Comply with ASTM A615, 60 ksi yield grade, Deformed billet bars, Uncoated finish.

3.2 FABRICATION

- A. Fabricate concrete reinforcement according to CRSI 10-MSP.
- B. Form standard hooks for 180-degree bends, 90-degree bends, stirrups, and tie hooks as indicated on Drawings.
- C. Form reinforcement bends with minimum diameters according to ACI 318.
- D. Fabricate column reinforcement with offset bends at reinforcement splices.
- E. Form ties and stirrups from following:
 - 1. Bars No. 10 and Smaller: No. 3 deformed bars.
 - 2. Bars No. 11 and Larger: No. 4 deformed bars.
- F. Weld reinforcement according to AWS D1.4.
- G. If not indicated on Drawings, locate reinforcement splices at point of minimum stress.

3.3 ACCESSORY MATERIALS

- A. Tie Wire: Minimum 16 gage, annealed type.
- B. Chairs, Bolsters, Bar Supports, and Spacers: Size and shape to strengthen and support reinforcement during concrete placement conditions.

C. All exposed metal shall be galvanized.

3.4 SOURCE QUALITY CONTROL

A. Section 01 40 00 - Quality Requirements: Requirements for testing, inspection, and analysis.

PART 4 - EXECUTION

4.1 INSTALLATION

- A. Place, support, and secure reinforcement against displacement.
- B. Do not deviate from required position beyond specified tolerance.
- C. Do not weld crossing reinforcement bars for assembly.
- D. Do not displace or damage vapor retarder.
- E. Accommodate placement of formed openings.
- F. Space reinforcement bars with minimum clear spacing according to ACI 318 of one bar diameter but not less than 1 inch. If bars are indicated in multiple layers, place upper bars directly above lower bars.
- G. Maintain minimum concrete cover around reinforcement according to ACI 318 as follows:

Reinforcement Location		Minimum Concrete Cover
Footings and Concrete Formed Against Earth		3 inches
Concrete exposed to earth or weather	No. 6 bars and larger	2 inches
	No. 5 bars and smaller	1-1/2 inches
Supported Slabs, Walls, and Joists	No. 14 bars and larger	1-1/2 inches
	No. 11 bars and smaller	3/4 inches

4.2 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Requirements for tolerances.
- B. Install reinforcement within following tolerances for flexural members, walls, and compression members:

Reinforcement Depth	Depth Tolerance	Concrete Cover Tolerance
Greater than 8 inches	plus or minus 3/8 inch	minus 3/8 inch
Less than 8 inches	plus or minus 1/2 inch	minus 1/2 inch

- C. Install reinforcement within tolerances according to ACI 530.1 for foundation walls.

4.3 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Perform field inspection and testing according to ACI 318.
- C. Provide unrestricted access to Work and cooperate with appointed firm.
- D. Reinforcement Inspection:
 - 1. Placement Acceptance: Inspect specified and ACI 318 material requirements and specified placement tolerances.
 - 2. Welding: Inspect welds according to AWS D1.1.
 - 3. Periodic Placement Inspection: Inspect for correct materials, fabrication, sizes, locations, spacing, concrete cover, and splicing.
 - 4. Weldability Inspection: Inspect for reinforcement weldability if formed from steel other than ASTM A706.
 - 5. Continuous Weld Inspection: Inspect reinforcement according to ACI 318.
 - 6. Periodic Weld Inspection: Inspect other welded connections.

END OF SECTION

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SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes Cast-in-Place Concrete for Following Items:

1. Diversion Structure.
2. Foundation walls.
3. Structure walls.
4. Footings.
5. Slabs on grade.
6. Concrete Boxes.

1.2 REFERENCE STANDARDS

A. American Concrete Institute:

1. ACI 301 - Specifications for Structural Concrete.
2. ACI 305R - Guide to Hot Weather Concreting.
3. ACI 306.1 - Standard Specification for Cold Weather Concreting.
4. ACI 308.1 - Specification for Curing Concrete.
5. ACI 318 - Building Code Requirements for Structural Concrete.

B. ASTM International:

1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
2. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
3. ASTM C33 - Standard Specification for Concrete Aggregates.
4. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

5. ASTM C42 - Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
6. ASTM C94 - Standard Specification for Ready-Mixed Concrete.
7. ASTM C143 - Standard Test Method for Slump of Hydraulic-Cement Concrete.
8. ASTM C150 - Standard Specification for Portland Cement.
9. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.
10. ASTM C173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
11. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
12. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
13. ASTM C330 - Standard Specification for Lightweight Aggregates for Structural Concrete.
14. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.
15. ASTM C595 - Standard Specification for Blended Hydraulic Cements.
16. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
17. ASTM C685 - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing.
18. ASTM C845 - Standard Specification for Expansive Hydraulic Cement.
19. ASTM C989 - Standard Specification for Slag Cement for Use in Concrete and Mortars.
20. ASTM C1017 - Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
21. ASTM C1064 - Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
22. ASTM C1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
23. ASTM C1116 - Standard Specification for Fiber-Reinforced Concrete.
24. ASTM C1157 - Standard Performance Specification for Hydraulic Cement.

25. ASTM C1218 - Standard Test Method for Water-Soluble Chloride in Mortar and Concrete.
 26. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures.
 27. ASTM D994 - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
 28. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
 29. ASTM D1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction.
 30. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.
 31. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
 32. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
 33. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
 34. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
- C. California Department of Health Care Services:
1. CA/DHS/EHLB/R-174 - Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers (includes Addendum 2004).
- D. South Coast Air Quality Management District:
1. SCAQMD Rule 1168 - Adhesive and Sealant Applications.

1.3 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Coordinate placement of joint devices with erection of concrete formwork and placement of form accessories.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

- B. Product Data: Submit data on joint devices, attachment accessories, and admixtures.
- C. Design Data:
 - 1. Submit concrete mix design for each concrete strength.
 - 2. Submit separate mix designs if admixtures are required for following:
 - a. Hot and cold weather concrete Work.
 - b. Air entrained concrete Work.
 - 3. Identify mix ingredients and proportions, including admixtures.
 - 4. Identify chloride content of admixtures and whether or not chlorides were added during manufacture.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Manufacturer Instructions: Submit installation procedures and interfacing required with adjacent Work.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of embedded utilities and components concealed from view in finished construction.

1.6 QUALITY ASSURANCE

- A. Perform Work according to ACI 301.
- B. Comply with ACI 305R when pouring concrete during hot weather.
- C. Comply with ACI 306.1 when pouring concrete during cold weather.
- D. Acquire cement and aggregate from one source for Work.
- E. Perform Work according to State and local standards.

1.7 AMBIENT CONDITIONS

- A. Section 01 50 00 - Temporary Facilities and Controls: Requirements for ambient condition control facilities for product storage and installation.
- B. Maintain concrete temperature after installation at minimum 50 degrees F for minimum seven days.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Concrete:

1. Cement: Comply with ASTM C150, Type IIIA - Air Entraining, Portland type.
2. Normal Weight Aggregates: Comply with ASTM C33, coarse aggregate maximum size according to ACI 318.
3. Water: Comply with ACI 318, potable

B. Admixtures:

1. Furnish materials according to State and local standards.
2. Consult Engineer prior to adding any admixtures to the concrete mix.
3. Air Entrainment: Comply with ASTM C260.
4. Chemical: Comply with ASTM C494.
5. Fly Ash: Comply with ASTM C618, Class F.
6. Silica Fume: Comply with ASTM C1240.
7. Slag:
 - a. Description: Ground-granulated blast-furnace slag.
 - b. Comply with ASTM C989.
8. Plasticizing: Comply with ASTM C1017.

2.2 CONCRETE MIX

- A. Select proportions for concrete according to ACI 318 without trial mixtures or field test data if approved by Engineer.
- B. Performance and Design Criteria:

Material and Property	Measurement
Compressive Strength (7 day)	2,250 psi
Compressive Strength (28 day)	4,500 psi
Cement Type	Portland Cement Type IIIA – Air Entraining
Aggregate Type	Normal weight
Water-Cement Ratio (maximum)	0.42 by weight
Aggregate Size (maximum)	3/4 inch
Aggregate Size (minimum)	No. 4
Air Content	6% plus or minus 1.5%
Slump	5 inches

C. Admixtures:

1. Include admixture types and quantities indicated in concrete mix designs only if approved by Engineer.
2. Cold Weather: Use accelerating admixtures in cold weather. Use of admixtures will not relax cold-weather placement requirements.
3. Hot Weather: Use set-retarding admixtures.
4. Do not use calcium chloride or admixtures containing calcium chloride.
5. Add air entrainment admixture to concrete mix for Work exposed to freezing and thawing or deicing chemicals.
6. For concrete exposed to deicing chemicals, limit fly ash, pozzolans, silica fumes, and slag content as required by applicable code.

D. Average Compressive Strength Reduction: Not permitted.

E. Ready-Mixed Concrete: Mix and deliver concrete according to ASTM C94.

F. Site-Mixed Concrete: Mix concrete according to ACI 318.

2.3 ACCESSORIES

A. Bonding Agent: Polymer resin emulsion.

B. Non-shrink Grout:

1. Description: Premixed compound consisting of non-metallic aggregate, cement, and water-reducing and plasticizing agents.
2. Comply with ASTM C1107.

3. Minimum Compressive Strength: 2,400 psi in 48 hours and 7,000 psi in 28 days.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify requirements for concrete cover over reinforcement.
- C. Verify that anchors, seats, plates, reinforcement, and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with placing concrete.

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent. Remove laitance, coatings, and unsound materials.
- C. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels, and pack solid with non-shrink grout.
- D. Remove debris and ice from formwork, reinforcement, and concrete substrates.
- E. Remove water from areas receiving concrete before concrete is placed.

3.3 INSTALLATION

- A. Placing Concrete:
 1. Place concrete according to ACI 301.
 2. Notify testing laboratory and Engineer minimum 24 hours prior to commencement of operations.
 3. Ensure that reinforcement, inserts, embedded parts, and formed expansion and contraction joints are not disturbed during concrete placement.
 4. Deposit concrete at final position, preventing segregation of mix.
 5. Place concrete in continuous operation for each panel or section as determined by predetermined joints.
 6. Consolidate concrete.
 7. Place concrete continuously between predetermined expansion, control, and construction joints.

8. Do not interrupt successive placement and do not permit cold joints to occur.
 9. Screeding: Scream floors and slabs on grade level, maintaining surface flatness of maximum 1/4 inch in 10 feet.
- B. Concrete Finishing:
1. Finish concrete floor surfaces according to ACI 301.
 2. Steel trowel surfaces indicated to be exposed.
- C. Curing and Protection:
1. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
 2. Protect concrete footings from freezing for minimum of seven days.
 3. Maintain concrete with minimal moisture loss at relatively constant temperature for period as necessary for hydration of cement and hardening of concrete.
 4. Cure concrete according to ACI 308.1.

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Perform inspection and testing according to ACI 318.
- C. Provide unrestricted access to Work and cooperate with appointed firm.
- D. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of Work.
- E. Concrete Inspections:
1. Continuous Placement Inspection: Inspect for proper installation procedures.
 2. Periodic Curing Inspection: Inspect for specified curing temperature and procedures.
- F. Strength Test Samples:
1. Sampling Procedures: Comply with ASTM C172.
 2. Cylinder Molding and Curing Procedures: Comply with ASTM C31, standard cured.
 3. Sample concrete and make one set of three cylinders for every 50 cu. yd. or less of each class of concrete placed each day, and for every 5,000 sq. ft. of surface area for slabs and walls.

4. If volume of concrete for a class of concrete would provide less than five sets of cylinders, take samples from five randomly selected batches, or from every batch if less than five batches are used.
 5. Make one additional cylinder during cold weather concreting and field cure.
- G. Field Testing:
1. Slump Test Method: Comply with ASTM C143.
 2. Air Content Test Method: Comply with ASTM C231.
 3. Temperature Test Method: Comply with ASTM C1064.
 4. Compressive Strength Concrete:
 - a. Measure slump and temperature for each sample.
 - b. Measure air content in air-entrained concrete for each sample.
- H. Cylinder Compressive Strength Testing:
1. Test Method: Comply with ASTM C39.
 2. Test Acceptance: According to ACI 318.
 3. Test one cylinder at 7 days.
 4. Test two cylinders at 28 days.
 5. Dispose of remaining cylinders if testing is not required.
- I. Core Compressive Strength Testing:
1. Sampling and Testing Procedures: Comply with ASTM C42.
 2. Test Acceptance: According to ACI 318.
 3. Drill three cores for each failed strength test from failed concrete.
- J. Patching:
1. Allow Engineer to inspect concrete surfaces immediately upon removal of forms.
 2. Honeycombing or Embedded Debris in Concrete: Not acceptable. Notify Engineer upon discovery.
 3. Patch imperfections according to ACI 301.
- K. Defective Concrete:
1. Description: Concrete not conforming to required lines, details, dimensions, tolerances, or specified requirements.

2. Repair or replacement of defective concrete will be determined by Engineer.
3. Do not patch, fill, touch up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

3.5 ATTACHMENTS

A. Schedule - Concrete Types and Finishes:

1. Foundation Walls: 4,000 psi, 28-day concrete; form finish with honeycomb-filled surface.
2. Underside of Supported Floors and Structure Exposed to View: 4,000 psi, 28-day concrete; sack-rubbed finish.
3. Exposed Portico Structure: 4,000 psi, 28-day concrete; air entrained; smooth stone rubbed finish.

B. Schedule - Joint Fillers:

1. Basement Floor Slab Perimeter Joint Filler: Type A; set 1/8 inch below floor slab elevation.
2. Exterior Retaining Wall at Loading Dock Joint Filler: Type F; recessed 3/8 inch; provide sealant cover.

END OF SECTION

SECTION 05 50 00
METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Debris Deflection Bar
 2. Railings
 3. Grating
 4. Nuts, bolts, washers, angle iron

1.2 REFERENCE STANDARDS

- A. Aluminum Association:
1. AA DAF-45 - Designation System for Aluminum Finishes.
- B. American Architectural Manufacturers Association:
1. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.
 2. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
 3. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
 4. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- C. American National Standards Institute:
1. ANSI A14.3 - American National Standard (ASC) for Ladders - Fixed - Safety Requirements.
- D. American Welding Society:
1. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination.

2. AWS D1.1 - Structural Welding Code - Steel.
3. AWS D1.6 - Structural Welding Code - Stainless Steel.

E. ASTM International:

1. ASTM A36 - Standard Specification for Carbon Structural Steel.
2. ASTM A53- Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
3. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
4. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
5. ASTM A193 - Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications.
6. ASTM A240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
7. ASTM A269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
8. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes.
9. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
10. ASTM A312 - Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.
11. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
12. ASTM A354 - Standard Specification for Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners.
13. ASTM A500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
14. ASTM A501 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
15. ASTM A554 - Standard Specification for Welded Stainless Steel Mechanical Tubing.
16. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts.

17. ASTM A572 - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
18. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
19. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
20. ASTM A780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
21. ASTM A992 - Standard Specification for Structural Steel Shapes.
22. ASTM B26 - Standard Specification for Aluminum-Alloy Sand Castings.
23. ASTM B85 - Standard Specification for Aluminum-Alloy Die Castings.
24. ASTM B177 - Standard Guide for Engineering Chromium Electroplating.
25. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
26. ASTM B210 - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes.
27. ASTM B211 - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire.
28. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
29. ASTM B695 - Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel.
30. ASTM F436 - Standard Specification for Hardened Steel Washers.
31. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105 ksi Yield Strength.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within previous 12 months.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

- B. Inspection: Accept metal fabrications on-Site in labeled shipments. Inspect for damage.
- C. Protect metal fabrications from damage by exposure to weather or by ground contact.

1.5 EXISTING CONDITIONS

- A. Field Measurements: Verify all field measurements are as indicated on Drawings.

PART 2 - PRODUCTS

2.1 DEBRIS DEFLECTION BAR

- 1. Steel-welded construction
- 2. Dimensions and materials provided in Drawings

2.2 RAILINGS

- A. Handrails
 - 1. ASTM A123
 - 2. Steel-welded construction.
 - 3. Finish: Galvanized
 - a. Hot-Dip-Galvanize after fabrication: ASTM 123
 - 4. Materials and construction as provided in the Drawings

2.3 GRATING

- A. Grating for diversion structure
 - 1. Steel-welded construction.
 - 2. Finish: Galvanized
 - a. Hot-Dip-Galvanize after fabrication: ASTM 123
 - 3. Minimum bar spacing requirements: 19-W-4.
 - 4. Grating shall meet Engineer's loading requirement of 100 psi.
 - 5. Dimensions as provided on Drawings.

2.4 MATERIAL SPECIFICATIONS

- A. Steel:
 - 1. Steel Plate: ASTM A36.
 - 2. Steel Pipe:

- a. Debris Deflection Bar: ASTM A53, Grade B, Schedule 160.
 - b. Handrails: ASTM A53, Grade B, Schedule 40
- 3. Bolts: ASTM A307; Grade A or B.
- 4. Nuts: ASTM A563; heavy-hex type.
- 5. Washers: ASTM F436; Type 1.
- 6. Welding Materials: AWS D1.1; type required for materials being welded.
- B. Bolts, Nuts, and Washers for Equipment and Piping:
 - 1. Carbon Steel:
 - a. Structural Connections: ASTM A307, Grade A, hot-dip galvanized.
 - b. Anchor Bolts: ASTM A307, Grade A.
 - c. Pipe and Equipment Flange Bolts: ASTM A193, Grade B-7.

2.5 FABRICATION

- A. Fit and shop-assemble items in largest practical sections for delivery to Site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.6 FINISHES

- A. Steel:
 - 1. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
 - 2. Do not prime surfaces in direct contact with concrete or where field welding is required.
 - 3. Galvanizing: ASTM A123; hot-dip galvanize after fabrication.
 - 4. Galvanizing for Fasteners, Connectors, and Anchors:
 - a. Hot-Dip Galvanizing: ASTM A153.
 - b. Mechanical Galvanizing: ASTM B695; Class 50 minimum.
 - 5. Bolts: Unfinished.
 - 6. Nuts: Unfinished.
 - 7. Washers: Unfinished.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for installation examination.
- B. Verify that field conditions are acceptable and are ready to receive Work.

3.2 INSTALLATION

- A. Install items plumb and level, accurately fitted, and free from distortion or defects.
- B. Make provisions for erection stresses. Install temporary bracing to maintain alignment until permanent bracing and attachments are installed.
- C. Field-weld components indicated on Drawings.
- D. Perform field welding according to AWS D1.1.
- E. Obtain approval of Engineer prior to Site cutting or making adjustments not scheduled.
- F. After erection, touch up welds, abrasions, and damaged finishes with prime paint or galvanizing repair paint to match shop or factory finishes.

3.3 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Requirements for tolerances.
- B. Verify all fabricated items are squared, plum, and true to form to ensure a proper fit.
- C. Finish all welds and joints in a smooth and professional manner to ensure no sharp or rough edges prior to applying galvanizing or finish.

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Welding: Inspect welds according to AWS D1.1.

END OF SECTION

SECTION 31 05 13

SOILS AND AGGREGATES FOR EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Subsoil material.
2. Topsoil material.
3. Untreated Base Course (Roadbase) material.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO M147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses.
2. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
4. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
5. ASTM D4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Samples: Submit, in air-tight containers, 10 lb sample of each type of fill to testing laboratory.

- C. Materials Source: Submit name of imported materials source.
- D. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

- A. Furnish each imported material from single source throughout the Work.
- B. Perform Work in accordance with State and local standards.

PART 2 - PRODUCTS

2.1 SUBSOIL MATERIALS

- A. Subsoil Type S1 (3/4-inch Minus):
 - 1. Excavated and re-used material or imported borrow.
 - 2. Well graded.
 - 3. Free of lumps larger than 3/4 inches, frozen material, and debris.
- B. Subsoil Type S2 (6-inch minus):
 - 1. Excavated and re-used material or imported borrow.
 - 2. Well graded.
 - 3. Free of lumps and rocks larger than 6 inches, frozen material, and debris.
- C. Structural Fill Type S3 (Granular Backfill Borrow):
 - 1. Conforming to APWA standards for Common Fill, section 31 05 13.
 - 2. Classification A-1, ASTM D3282.
 - 3. Well graded.
 - 4. Particle size, two (2) inch maximum.

2.2 TOPSOIL MATERIALS

- A. Topsoil Type T1:
 - 1. Excavated and reused material.
 - 2. Well graded.
 - 3. Free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds and foreign matter.

4. Keep topsoil separated from other materials.

2.3 ROADBASE MATERIALS

A. Roadbase Type R1 (Untreated Base Course):

1. Roadbase-type gravel or crushed rock free of organic matter and debris, conforming to APWA standards for untreated base course, Section 32 11 23.
2. Sieve analysis: Graded in accordance with APWA standards for untreated base course Grade 3/4, Section 32 11 23, Table 4, as follows:

SOIL TYPE R1 (ROADBASE)		
Sieve Size	Percent Passing (by Weight)	
	Min	Max
3/4-inch	100	
3/8-inch	78	92
No. 4	55	67
No. 16	28	38
No. 200	7	11

3. Material is for surface of unpaved roads where they are disturbed by construction activities.
4. Material to be compacted as indicated on Drawings.

2.4 SOURCE QUALITY CONTROL

- A. Section 014000 - Quality Requirements: Testing and Inspection Services Testing and analysis of soil material.
- B. Testing and Analysis of Subsoil and Topsoil Material: Perform in accordance with ASTM D698.
- C. Testing and Analysis of Coarse Aggregate Material: Perform in accordance with ASTM C136.
- D. When tests indicate materials do not meet specified requirements, change material and retest.
- E. Furnish materials of each type from same source throughout the Work. If the source changes or the conditions at the source change, provide all testing of the new material as documented in A through D.

PART 3 - EXECUTION

3.1 EXCAVATION

- A. Excavate subsoil, roadbase, and topsoil from areas designated. Strip topsoil to full depth of topsoil in designated areas.
- B. Stockpile excavated material meeting requirements for subsoil, roadbase, and topsoil materials.
- C. Remove excess excavated materials not intended for reuse, from site.
- D. Remove excavated materials not meeting requirements for subsoil materials, roadbase materials, and topsoil materials from site.

3.2 STOCKPILING

- A. Stockpile materials on site at locations designated by Engineer and Owner.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Stockpile topsoil 8 feet high maximum.
- E. Prevent intermixing of soil types or contamination.
- F. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.
- G. Stockpile unsuitable and/or hazardous materials on impervious material and cover to prevent erosion and leaching until disposed of.

3.3 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.
- B. When borrow area is indicated, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

SECTION 31 10 00

SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Removing surface debris.
 - 2. Removing designated trees, shrubs, and other plant life.
 - 3. Removing abandoned utilities.

1.2 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit data for herbicide. Indicate compliance with applicable codes for environmental protection.
- C. Copy of Storm Water Pollution Prevention Plan (SWPPP) approved by Logan City Public Works and Cache County Public Works.
- D. Copy of Notice of Intent from Utah Division of Water Quality after approval of SWPPP.

1.3 QUALITY ASSURANCE

- A. Conform to applicable code for environmental requirements, disposal of debris, and use of herbicides.
- B. Perform Work in accordance with State and local standards

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Field locate boundary of wetlands and protected areas not to be disturbed. Delineate these areas in the field to protect them.

- C. Verify existing plant life designated to remain is tagged or identified.
- D. Identify waste area for placing removed materials.

3.2 PREPARATION

- A. Call Blue Stakes of Utah service at 811 or 800-662-4111 not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.

3.3 PROTECTION

- A. Locate, identify, and protect utilities indicated to remain, from damage.
- B. Provide protection for delineated wetlands and other sensitive areas identified in the plans. Inspect and enforce protection.
- C. Protect trees, plant growth, and features designated to remain as final landscaping, as shown on Plans.
- D. Protect benchmarks, survey control points, and existing structures from damage or displacement.
- E. Install all required stormwater best management practices as required in SWPPP prior to any removal activities.

3.4 CLEARING

- A. Remove trees and shrubs as required for construction. Remove stumps, main root ball, root system to depth of 12 inches, surface rock, and any other unwanted material.
- B. Clear undergrowth and deadwood, without disturbing subsoil.
- C. Apply glyphosate herbicide to remaining stumps to inhibit growth.

3.5 REMOVAL

- A. Remove debris, rock, and extracted plant life from site.
- B. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.
- C. Do not burn or bury materials on site. Leave site in clean condition.

END OF SECTION

SECTION 31 22 13
ROUGH GRADING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Excavating topsoil.
2. Excavating subsoil.
3. Cutting, grading, filling, rough contouring, and compacting site for structures.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
3. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
4. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
5. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
6. ASTM D2419 - Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
7. ASTM D2434 - Standard Test Method for Permeability of Granular Soils (Constant Head).
8. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

9. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Materials Source: Submit name of imported materials suppliers.
- C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with ASTM C136.
- B. Perform Work in accordance with State and local standards.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. As specified in Section 31 05 13 - Soils and Aggregates for Earthwork.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify survey benchmark and intended elevations for the Work are as indicated on Drawings.

3.2 PREPARATION

- A. Call Blue Stakes of Utah service at 811 or 800-662-4111 not less than three working days before performing Work.
 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum.

- C. Notify the affected utility company that utilities will be removed or relocated, or coordinate with the utility company to remove or relocate utilities.
- D. Protect utilities indicated to remain from damage.
- E. Protect plant life, lawns, and other features remaining as portion of final landscaping.
- F. Protect benchmarks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

3.3 TOPSOIL EXCAVATION

- A. Excavate topsoil from areas to be further excavated, relandscaped, or regraded, without mixing with foreign materials for use in finish grading.
- B. Do not excavate wet topsoil.
- C. Stockpile in area designated on site to depth not exceeding 8 feet and protect from erosion. Stockpile material on and cover over with same material, until disposal.
- D. Remove excess topsoil not intended for reuse, from site.

3.4 SUBSOIL EXCAVATION

- A. Excavate subsoil from areas to be further excavated, relandscaped, or regraded.
- B. When excavating through roots, perform Work by hand and cut roots with sharp axe.
- C. Remove excess subsoil not intended for reuse, from site.
- D. Stability: Replace damaged or displaced subsoil as specified for fill.

3.5 FILLING

- A. Fill areas to contours and elevations with unfrozen materials free of organic debris including roots, wood, and other deleterious materials.
- B. Place fill material in continuous layers and compact as specified on Drawings.
- C. Maintain optimum moisture content of fill materials to attain required compaction density.
- D. Make grade changes gradual. Blend slope into level areas.
- E. Install Work in accordance with State and local standards.

3.6 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Top Surface of Subgrade: Plus or minus 1/10 foot from required elevation.

3.7 FIELD QUALITY CONTROL

- A. Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Perform laboratory material tests in accordance with ASTM D698.
- C. Perform in place compaction tests in accordance with the following:
 - 1. Density Tests: ASTM D2922.
 - 2. Moisture Tests: ASTM D3017.
- D. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- E. Frequency of Tests:
 - 1. Every 200 feet of pipe installed.
 - 2. Every 100 feet of roadway lane, every other lift.

END OF SECTION

SECTION 31 23 16

EXCAVATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Excavating for site structures.

1.2 REFERENCES

- A. Local utility standards when working within 24 inches of utility lines.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Excavation Protection Plan: Provide protection plan which describes sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with State and local standards.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Call Blue Stakes of Utah service at 811 or 800-662-4111 not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum.
- C. Protect utilities indicated to remain from damage.
- D. Protect plant life, trees, and other features remaining as portion of final landscaping.

- E. Protect benchmarks, survey control points, existing structures, fences, and paving from excavating equipment and vehicular traffic.

3.2 EXCAVATION

- A. Underpin adjacent structures which may be damaged by excavation work.
- B. Excavate subsoil to accommodate site structures.
- C. Compact disturbed load bearing soil in direct contact with foundations to original bearing capacity; perform compaction in accordance with Section 31 23 23.
- D. Slope banks with machine to angle of repose or less until shored.
- E. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- F. Trim excavation. Remove loose matter.
- G. Notify Engineer of unexpected subsurface conditions.
- H. Correct areas over-excavated with structural fill or as directed by Engineer.
- I. Stockpile excavated material in area designated on site in accordance with Section 31 05 13.
- J. Repair or replace items indicated to remain damaged by excavation.

3.3 PROTECTION

- A. Prevent displacement or loose soil from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.
- C. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.

END OF SECTION

SECTION 31 23 16.13

TRENCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Topsoil Excavation
 2. Excavating trenches for utilities
 3. Backfilling and compaction
 4. Pipe

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. ASTM International:
1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³).
 2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³).
 4. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
 5. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 6. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
 7. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
 8. ASTM F405 - Standard Specification for Corrugated Polyethylene (PE) Pipe and Fittings.

9. ASTM F2306 - Standard Specification for 12 to 60 in [300 to 1500 mm] Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity -Flow Storm Sewer and Subsurface Drainage Applications.
10. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
11. ASTM D3212 - Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
12. ASTM D3350 - Standard Specification for Polyethylene Plastic Pipe and Fitting Materials.
13. ASTM A760 - Standard Specification for Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains.
14. ASTM C361 - Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.

1.3 DEFINITIONS

- A. Utility: Any buried pipe, duct, conduit, or cable.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Copy of approved Logan City and Cache County Permits if required.
- C. Materials Source: Submit name of imported fill materials suppliers.
- D. Product Data: Submit manufacturer information regarding pipe materials, pipe fittings, and accessories.
- E. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.
- F. Submit compaction results according to ASTM D6938.
- G. Preconstruction Photographs: Submit digital files of color photographs of Work areas and material storage areas, as specified in Section 01 70 00 - Execution and Closeout Requirements.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of installed pipe
- C. and invert elevations.
- D. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with State and local standards.

1.7 QUALIFICATIONS

- A. Prepare excavation protection plan under direct supervision of Professional Engineer experienced in design of this Work and licensed in the State of Utah.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Storage:
 - 1. Store materials according to manufacturer instructions.
 - 2. Block individual and stockpiled pipe lengths to prevent moving.
 - 3. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.
- D. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Provide additional protection according to manufacturer instructions.

1.9 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.
- B. Indicate field measurements on Shop Drawings.

1.10 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 - PRODUCTS

2.1 FILL MATERIALS

- A. Topsoil: Type T1 as specified in Section 31 05 13

- B. Subsoil Fill: Type S1 and S2 as specified in Section 31 05 13.
- C. Roadbase Fill: Type R1 as specified in Section 31 05 13.

2.2 PIPE

- A. Dual Wall Corrugated HDPE Pipe
 - 1. Diameter: As indicated on Drawings
 - 2. Joints: Pressure rated for 10.8 psi
- B. Reinforced Concrete Pipe (RCP)
 - 1. Diameter: As indicated on Drawings
 - 2. Schedule: Class III
 - 3. Joints: Water-tight
- C. Corrugated Metal Pipe
 - 1. Size: As indicated on Drawings
 - 2. Joints: Water-tight
- D. Elliptical Corrugated Metal Pipe
 - 1. Size: As indicated on Drawings
 - 2. Joints: Water-tight

2.3 UNDERGROUND PIPE MARKERS

- A. Metallic Warning Tape:
 - 1. Detectable underground, brightly colored **purple**, continuously printed with the following wording: “CAUTION: BURIED IRRIGATION LINE BELOW” or “CAUTION: BURIED RECLAIMED WATERLINE BELOW”
 - 2. Minimum 6 inches wide by 5 mil thick.
 - 3. Manufactured for direct burial service.
 - 4. Tape shall be installed 12 inches above the pipe.
- B. Tracer Wire:
 - 1. Electronic detection materials for nonconductive piping products.
 - 2. Unshielded, 12 AWG, THWN-insulated copper wire.

3. Conductive tape.

PART 3 - EXECUTION

3.1 PIPE INSTALLATION

- A. Handle and assemble pipe according to manufacturer instructions.
- B. Lay pipes to lines and grades indicated on Drawings.
 1. Engineer reserves right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.
- C. Use laser-beam instrument with qualified operator to establish lines and grades or contract with a professional surveyor for construction staking to verify grade matches design Drawings.
- D. Do not lay pipe in wet or frozen trench.
- E. Route pipe in straight line; re-lay pipe that is out of alignment or grade.
- F. Prevent foreign material from entering pipe during placement.
- G. Allow for expansion and contraction without stressing pipe or joints. Do not over-stab or under-stab joints.
- H. Close pipe openings during Work stoppages.
- I. Cover”
 1. Establish elevations of buried piping with not less than 30 inches of cover.
 2. Measure depth of cover from final surface grade to top of pipe barrel,

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Call Blue Stakes of Utah service at 811 or 800-662-4111 not less than three working days before performing Work.
 1. Request underground utilities to be located and marked within and surrounding construction areas.
 2. Manually excavate or locate crossing utilities to verify there will be not conflicts with the project.
- C. Identify required lines, levels, contours, and datum locations.
- D. Protect sensitive areas identified in the plans including wetlands and other critical areas.

- E. Protect plant life, lawns, and other features remaining as portion of final landscaping.
- F. Protect benchmarks, survey monuments, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- G. Maintain and protect above and below grade utilities indicated to remain.
- H. Establish temporary traffic control and detours when trenching is performed in public right-of-way. Relocate controls and reroute traffic as required during progress of Work.
- I. Pipe Cutting:
 - 1. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, and remove burrs.
 - 2. Use only equipment specifically designed for pipe cutting; use of chisels or hand saws is not permitted.
 - 3. Grind edges smooth with beveled end for push-on connections.
- J. Remove scale and dirt on inside and outside before assembly.
- K. Prepare pipe connections to equipment with flanges or unions.

3.3 TOPSOIL EXCAVATION

- A. Excavate topsoil from areas to be further excavated, relandscaped, or regraded, without mixing with foreign materials for use in finish grading.
- B. Do not excavate wet topsoil.
- C. Stockpile in area designated on site to depth not exceeding 8 feet and protect from erosion. Stockpile material on and cover over with same material, until disposal.
- D. Remove excess topsoil not intended for reuse, from site.

3.4 TRENCHING

- A. Excavate subsoil required for utilities.
- B. Perform excavation within 24 inches of existing utility service in accordance with utility's requirements.
- C. Do not advance open trench more than 200 feet ahead of installed pipe.
- D. Cut trenches to width indicated on Drawings. Remove water or materials that interfere with Work.
- E. Excavate bottom of trenches maximum 2 feet wider than outside diameter of pipe.
- F. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and pipe.

- G. Do not interfere with 45 degree bearing splay of structure foundations.
- H. When Project conditions permit, slope side walls of excavation starting 2 feet above top of pipe. When side walls cannot be sloped, provide sheeting and shoring to protect excavation as specified in this section.
- I. When subsurface materials at bottom of trench are loose or soft, notify Engineer.
- J. Cut out soft areas of subgrade not capable of compaction in place. Backfill with material specified on Drawings and compact to density equal to or greater than requirements for subsequent backfill material.
- K. Trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- L. Correct over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Engineer.
- M. Remove excess subsoil not intended for reuse, from site.

3.5 SHEETING AND SHORING

- A. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.
- B. Support trenches more than 5 feet deep excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation.
- C. Design sheeting and shoring to be removed at completion of excavation work.
- D. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.
- E. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

3.6 BACKFILLING

- A. Backfill trenches to contours and elevations with unfrozen fill materials free of roots, organic debris, or other deleterious materials.
- B. Outside of public right of ways, systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- C. Inside the public right of way, place all materials systematically in layers not to exceed the in-place depths in Item 3.6.D.
- D. Place material in continuous layers as follows:
 1. Subsoil Fill: Maximum 12 inches compacted depth.
 2. Roadbase Fill: Maximum 6 inches compacted depth.

- E. Employ placement method that does not disturb or damage foundation perimeter drainage, utilities in trench, other structures, and private property.
- F. Maintain optimum moisture content of fill materials to attain required compaction density.
- G. Do not leave more than 50 feet of trench open at end of working day.
- H. Protect open trench to prevent danger to the public.

3.7 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Install pipe to indicated elevation within tolerance of 1 inch.

3.8 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Perform laboratory material tests in accordance with ASTM D698.
- C. Perform in place compaction tests in accordance with the following:
 - 1. Density Tests: or ASTM D2922.
 - a. In public right of way, all tests must be 95% of standard proctor or higher.
 - b. Outside of public right of way, bedding and pipe zone to the pipe centerline must be 95% or higher of standard proctor. Above the centerline of the pipe, compaction must be 85% or higher of standard proctor.
 - 2. Moisture Tests: ASTM D3017.
- D. When tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.
- E. Frequency of Tests: Every 200 feet of pipe installed.
- F. Visual inspections of joints.
 - 1. Allow Engineer to visually inspect the pipe joints before backfilling.
 - 2. Provide mandrel test and camera inspection of all non-rigid pipes 24 inches in diameter or larger after final backfill and compaction and prior to final punchlist inspection.

3.9 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Protecting finished work.

- B. Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION

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SECTION 31 23 19

DEWATERING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Dewatering system.
 - 2. Surface water control system.
 - 3. System operation and maintenance.
 - 4. Water disposal.

1.2 DEFINITIONS

- A. Dewatering includes the following:
 - 1. Lowering of ground water table and intercepting horizontal water seepage to prevent ground water from entering excavations and trenches.
 - 2. Reducing piezometric pressure within strata to prevent failure or heaving of excavations and trenches.
 - 3. Disposing of removed water.
- B. Surface Water Control: Removal of surface water within open excavations.

1.3 SYSTEM DESCRIPTION

- A. Schedule work in the Lower Logan River at the project site to bypass the continuous flows of the river.
- B. Provide dewatering and surface water control systems to permit Work to be completed on dry and stable subgrade.
 - 1. Install pumps to dewater and relieve hydrostatic pressure within strata.

1.4 PERFORMANCE REQUIREMENTS

- A. Design dewatering systems to:
 - 1. Collect and remove surface water and seepage entering excavation.
 - 2. Lower water table within areas of excavation to permit Work to be completed on stable subgrade.

3. Relieve hydrostatic pressures in confined water bearing strata below excavation to eliminate risk of uplift or other instability of excavation.
 4. Prevent damage to adjacent properties, buildings, structures, utilities, and facilities from construction operations.
 5. Prevent loss of fines, quick condition, or softening of foundation subgrade.
 6. Maintain stability of sides and bottoms of excavations and trenches.
- B. Design surface water control systems to:
1. Collect and bypass surface water and seepage entering excavation.
 2. Collect and bypass surface water and seepage during concrete placement.
 3. Collect and bypass surface water and seepage during installation and testing of radial gates and appurtenances.

1.5 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Dewatering Plan:
1. Include detailed description of dewatering system installation procedures and maintenance of equipment.
- C. Surface Water Control System Plan:
1. Written description of approach and methods of controlling surface water through the Work area.
 2. Schedule of Work and sequencing of surface water control.
- D. Include description of emergency procedures to follow when problems arise.
- E. Copy of approved Storm Water Pollution Prevention Plan
1. approved by Cache County and Logan City,
 2. notice of intent (NOI) from the Utah Division of Water Quality,
 3. and regularly scheduled inspection reports.
- F. Copy of approved and executed dewatering permit from the Utah Division of Water Quality for trench and groundwater dewatering discharge.

1.6 QUALITY ASSURANCE

- A. Comply with authorities having jurisdiction for the following:

1. Water discharge and disposal from pumping operations.
- B. Obtain permit Construction Dewatering Permit from Utah Division of Water Quality under Utah Pollutant Discharge Elimination System (UPDES), for storm water discharge from construction sites.
- C. Perform Work in accordance with State and local standards.

1.7 PRE-INSTALLATION MEETINGS

- A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.
- B. Convene minimum one week prior to commencing work of this section.

1.8 SEQUENCING

- A. Section 01 10 00 - Summary: Requirements for sequencing.
- B. Sequence work to obtain required permits before start of dewatering and surface water control operations.
- C. Sequence work to install and test dewatering and surface water control systems minimum five days before starting excavation and trenching.

1.9 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Coordinate work to permit the following construction operations to be completed on dry stable substrate.
 1. Trenching for utilities specified in Section 31 23 17.

PART 2 - PRODUCTS

2.1 DEWATERING AND SURFACE WATER CONTROL EQUIPMENT

- A. Select equipment and/or materials to meet specified performance requirements.
- B. Materials to be determined by Contractor according to schedule and sequencing.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

3.2 PREPARATION

- A. Protect existing adjacent buildings, structures, and improvements from damage caused by dewatering operations.

3.3 DEWATERING SYSTEM

- A. Locate system components to allow continuous dewatering operations without interfering with installation of permanent Work and existing public rights-of-way, sidewalks, and adjacent buildings, structures, and improvements.
- B. Install pumps in accordance with manufacturer's instructions.
- C. Connect pumps to discharge header. Install valves to permit pump isolation.

3.4 SURFACE WATER CONTROL SYSTEM

- A. Install surface water control system in accordance with schedule, sequencing, and approach.
- B. Locate system components to allow surface water control operations without interfering with installation of permanent Work. This will include sequencing of components.
- C. Provide ditches, berms, and other devices to divert and drain surface water from Work area according to sequencing schedule.
- D. Divert surface water and seepage water within excavation areas into channel in accordance with requirements of agencies having jurisdiction.
- E. Control and remove unanticipated water seepage into excavation.

3.5 SYSTEM OPERATION AND MAINTENANCE

- A. Operate dewatering and surface water control systems continuously until backfilling is complete.
- B. Provide constant supervision of dewatering and surface water control systems by personnel skilled in operation, maintenance, and replacement of system components.
- C. Conduct daily observation of dewatering and surface water control systems. Make required repairs and perform scheduled maintenance.
- D. When dewatering and surface water control systems cannot control water within excavation, notify Engineer and stop work.
 - 1. Supplement or modify dewatering and surface water control systems, and provide other remedial measures to control water within excavation.
 - 2. Demonstrate dewatering and surface water control system operation complies with performance requirements before resuming excavation operations.

- E. Modify dewatering and surface water control systems when operation causes or threatens to cause damage to new construction, existing site improvements, adjacent property, or adjacent water wells.
- F. Correct unanticipated pressure conditions affecting dewatering and surface water control system performance.
- G. Do not discontinue dewatering and surface water control operations without Engineer's approval.

3.6 WATER DISPOSAL

- A. Discharge water into existing river channel.

3.7 SYSTEM REMOVAL

- A. Remove dewatering and surface water control systems after these operations are discontinued.
- B. Repair damage caused by dewatering and surface water control systems or resulting from failure of systems to protect property.

3.8 FIELD QUALITY CONTROL

- A. Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. After dewatering system is installed, perform pumping test to determine when selected pumping rate lowers water level. Adjust pump speed, discharge volume, or both to ensure proper operation of each pump.
- C. Survey existing adjacent buildings, structures, and improvements to detect movement in comparison to original elevations during dewatering operations.
 - 1. Notify Engineer immediately of measured movement.
- D. Submit initial installation reports including the following:
 - 1. Initial dewatering flow rates.
- E. Monitor and record the following, daily at the same time, +/- one hour.
 - 1. Estimated flow in the Lower Logan River.
- F. Monitor and record the estimated Peak daily flow in Lower Logan River.
- G. Submit weekly monitoring reports including the following:
 - 1. Flow rates of the Lower Logan River.
 - 2. Dewatering flow rates.

3. Maintenance records for dewatering and surface water control systems.

END OF SECTION

SECTION 31 23 23

FILL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Backfilling site structures to subgrade elevations.
2. Fill under paving.
3. Fill for over-excavation.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³).
2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³).
4. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
5. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
6. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with State and local standards.

PART 2 - PRODUCTS

2.1 FILL MATERIALS

- A. Structural Fill: Type S3 as specified in Section 31 05 13.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify structural ability of unsupported walls to support loads imposed by fill.

3.2 PREPARATION

- A. Compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with structural fill and compact to density equal to or greater than requirements for subsequent fill material.
- C. Scarify subgrade surface to depth of 2 inches.
- D. Proof roll to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

3.3 BACKFILLING

- A. Backfill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Place material in continuous layers as follows:
 - 1. Structural Fill: Maximum 6 inches compacted depth.
- D. Employ placement method that does not disturb or damage other work.
- E. Maintain optimum moisture content of backfill materials to attain required compaction density.
- F. Backfill against supported foundation walls including concrete box walls, and diversion structure walls. Do not backfill against unsupported foundation walls.
- G. Backfill simultaneously on each side of unsupported foundation walls until supports are in place.
- H. Slope grade away from structure minimum 2:1 slope until minimum cover depth is achieved.

- I. Make gradual grade changes. Blend slope into level areas.
- J. Remove surplus backfill materials from site.
- K. Leave fill material stockpile areas free of excess fill materials.

3.4 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Top Surface of Backfilling adjacent to structure: Plus or minus 1 inch from required elevations.
- C. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

3.5 FIELD QUALITY CONTROL

- A. Section 014000 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Perform laboratory material tests in accordance with ASTM D698.
- C. Perform in place compaction tests in accordance with the following:
 - 1. Density Tests: ASTM D2922.
 - 2. Moisture Tests: ASTM D3017.
- D. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- E. Frequency of Tests: 1 test per lift of fill.
- F. Proof roll compacted fill surfaces under all structures.

3.6 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Protecting finished work.
- B. Reshape and re-compact fills subjected to vehicular traffic.

END OF SECTION

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SECTION 31 37 00

RIPRAP

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Riprap placed loose.

1.2 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit name of imported materials source.
- C. Sample location to allow engineer to inspect source prior to delivery to verify gradation.

1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with Engineer and State and local standards.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Riprap:
 - 1. Description:
 - a. Angular cobbles and boulders.
 - b. Solid and nonfriable.
 - 2. Size: As provided in the table below or as directed or approved by Engineer.

Percent of Riprap Smaller Than	Rock Size (ft)	Rock Weight (lb)
100	1.22 – 1.40	156 – 238
85	1.09 – 1.25	111 – 168
50	0.78 – 0.89	40 – 61
30	0.59 – 0.68	18 – 27
15	0.47 – 0.54	9 – 13

PART 3 - EXECUTION

3.1 PLACEMENT

- A. Place riprap where indicated on Drawings.
- B. The minimum thickness of the riprap shall be the greater of the D_{100} or twice the D_{50} of the material.
- C. Interlock all rock to the maximum extent possible to ensure stability. Place and bed the stones, one against the other, and key together.
- D. All concrete structures are to be protected while placing riprap. Riprap that is placed on or against concrete structures is to be carefully placed. Dropping riprap on or around concrete structures is not allowed. Any damage to the concrete structures must be mitigated at the Contractor's expense. All mitigation procedures must be reviewed and approved by the Engineer.

3.2 STOCKPILING

- A. Stockpile materials on Site.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

3.3 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade Site surface to prevent free standing surface water.
- B. When borrow area is indicated, leave area in clean and neat condition. Grade Site surface to prevent free standing surface water.

END OF SECTION

SECTION 32 12 16
ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Asphalt materials.
2. Asphalt paving base course, binder course, and wearing course.

1.2 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO M17 - Standard Specification for Mineral Filler for Bituminous Paving Mixtures.
2. AASHTO M29 - Standard Specification for Fine Aggregate for Bituminous Paving Mixtures.
3. AASHTO M140 - Standard Specification for Emulsified Asphalt.
4. AASHTO M208 - Standard Specification for Cationic Emulsified Asphalt.
5. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.
6. AASHTO M320 - Standard Specification for Performance-Graded Asphalt Binder.
7. AASHTO M324 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.
8. AASHTO MP1a - Standard Specification for Performance-Graded Asphalt Binder.

B. Asphalt Institute:

1. AI MS-2 - Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types.
2. AI MS-19 - Basic Asphalt Emulsion Manual.
3. AI SP-2 - Superpave Mix Design.

C. ASTM International:

1. ASTM C1371[-2004a] - Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers.
2. ASTM C1549[-2004] - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer.
3. ASTM D242 - Standard Specification for Mineral Filler For Bituminous Paving Mixtures.
4. ASTM D692 - Standard Specification for Coarse Aggregate for Bituminous Paving Mixtures.
5. ASTM D946 - Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction.
6. ASTM D977 - Standard Specification for Emulsified Asphalt.
7. ASTM D1073 - Standard Specification for Fine Aggregate for Bituminous Paving Mixtures.
8. ASTM D1188 - Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Coated Samples
9. ASTM D2027 - Standard Specification for Cutback Asphalt (Medium-Curing Type).
10. ASTM D2397 - Standard Specification for Cationic Emulsified Asphalt.
11. ASTM D2726 - Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures.
12. ASTM D2950 - Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods.
13. ASTM D3381 - Standard Specification for Viscosity-Graded Asphalt Cement for Use in Pavement Construction.
14. ASTM D3515 - Standard Specification for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.
15. ASTM D3549 - Standard Test Method for Thickness or Height of Compacted Bituminous Paving Mixture Specimens.
16. ASTM D3910 - Standard Practices for Design, Testing, and Construction of Slurry Seal.
17. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.
18. ASTM E408[-1971(1996)e1] - Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques.

19. ASTM E903[-1996] - Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres.
20. ASTM E1918[-1997] - Standard Test Method for Measuring Solar Reflectance of Horizontal and Low-Sloped Surfaces in the Field.
21. ASTM E1980[-2001] - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data:
 1. Submit product information for asphalt and aggregate materials.
 2. Submit mix design with laboratory test results supporting design.
- C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

- A. Mixing Plant: Conform to State and local standards and have all proper certifications.
- B. Obtain materials from same source throughout.
- C. Perform Work in accordance with State and local standards.

1.5 AMBIENT CONDITIONS

- A. Do not place asphalt mixture between November 1 and March 1.
- B. Do not place asphalt mixture when ambient air or base surface temperature is less than 50 degrees F and rising, or surface is wet or frozen.

PART 2 - PRODUCTS

2.1 HOT MIX ASPHALT (HMA/BITUMINOUS CONCRETE)

- A. Asphalt Materials:
 1. Bituminous Concrete: APWA 32 12 05
 - a. PG 58-28
 - b. Grade SP-3/4 or Grade SP 1/2 are approved.
 2. Primer:
 - a. APWA Section 32 12 03: Primer shall be Slow or Medium Cure Cut-Back Asphalt per sections 2.4 or 2.5
 - b. APWA 32 12 13.19 for specifications on sand.

3. Tack Coat: APWA Section 32 12 13.13
 - a. Contractor must use emulsified asphalt.
 4. Reclaimed Asphalt Pavement (RAP): per APWA 32 12 05, Section 2.3
- B. Base Course Material: Roadbase in accordance with Section 31 05 13.

2.2 MIXES

- A. Use dry material to avoid foaming. Mix uniformly.
- B. Paving Surfaces: Minimum solar reflectance index (SRI) of 29, calculated in accordance with ASTM E1980.
 1. Reflectance: Measured in accordance with ASTM E903, ASTM E1918, or ASTM C1549.
 2. Emittance: Measured in accordance with ASTM E408 or ASTM C1371.

2.3 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Testing, inspection and analysis requirements.
- B. Submit proposed mix design of each class of mix for review prior to beginning of Work.
- C. Test samples in accordance with AI MS-2.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify utilities indicated under paving are installed with excavations and trenches backfilled and compacted.
- C. Verify compacted subgrade subbase is dry and ready to support paving and imposed loads.
- D. Verify gradients and elevations of base are correct.

3.2 PREPARATION

- A. Prepare subbase in accordance with State and local standards.

3.3 INSTALLATION

- A. Roadbase:
 1. Install as specified in Section 31 23 16.13.

- B. Primer:
 - 1. Apply primer in accordance with APWA 31 12 13.19.
 - 2. Use clean sand to blot excess primer.
- C. Tack Coat:
 - 1. Apply tackcoat per APWA 32 12 13.13
 - 2. Apply tack coat to contact surfaces of asphalt cuts.
 - 3. Coat surfaces of manhole frames with oil to prevent bond with asphalt paving. Do not tack coat these surfaces.
- D. Single Course Asphalt Paving (not to exceed 4 inches in place):
 - 1. Install Work in accordance with State and local standards.
 - 2. Place asphalt within 24 hours of applying primer or tack coat.
 - 3. Place asphalt wearing course to thickness indicated on Drawings.
 - 4. Compact paving by rolling to specified density. Do not displace or extrude paving from position. Hand compact in areas inaccessible to rolling equipment.
 - 5. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks.

3.4 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Flatness: Maximum variation of 1/4 inch measured with 10-foot straight edge.
- C. Scheduled Compacted Thickness: Within 1/4 inch.
- D. Variation from Indicated Elevation: Within 1/2 inch.
- E. Density: 92 to 96 percent relative to ATM D2041 using non-destructive testing per APWA 32 12 16.13. 1.8.E.2.

3.5 FIELD QUALITY CONTROL

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for testing, adjusting, and balancing.
- B. Asphalt Paving Mix Temperature: Measure temperature at time of placement.
 - 1. Provide continuous monitoring of temperature on site of HMA, surface temperature, and ambient temperatures during placement and working of pavement and through the control of the surface until removing traffic control

and allowing free vehicle passage. Maintain documentation of times and all temperatures, including the name of the individual providing the monitoring in a clear and legible log.

- C. Asphalt Paving Thickness: Measurement by survey of pre-placement and post compaction for non-destructive sample of small lots.

3.6 PROTECTION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting finished Work.
- B. Immediately after placement, protect paving from mechanical injury for 24 hours or until surface temperature is less than 140 degrees F.

END OF SECTION

SECTION 32 92 19

SEEDING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Seeding.

1.2 REFERENCES

A. ASTM International:

1. ASTM C602 - Standard Specification for Agricultural Liming Materials.

1.3 DEFINITIONS

A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit data for seed mix and other accessories.

C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

D. Noxious Weed Management Plan as required by Cache County.

1.5 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.

1.6 QUALITY ASSURANCE

A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.

B. Perform Work according to State and local standards.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.
- B. Deliver seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

PART 2 - PRODUCTS

2.1 SEED MIXTURE

- A. Furnish materials according to State and local standards.
- B. Contact individual landowners to determine best seed mixture for intended use and climate conditions. Submit seed mix to Engineer.

2.2 SOURCE QUALITY CONTROL

- A. Coordinate with landowners.

2.3 NOXIOUS WEED MANAGEMENT PLAN

- A. Provide noxious weed management plan acceptable to Cache County which addresses in part:
 - 1. Area of potential weed infestation related to construction.
 - 2. Methods to prevent infestation with noxious weeds including best management practices.
 - 3. Inspection frequency during construction to check for infestation.
 - 4. Methods for removal and treatment of any noxious weeds which appear in the work zone or project area.
 - 5. Methods of documentation.
 - 6. Methods of transferring responsibility of noxious weed control at the end of the project and documenting the transfer.
- B. Provide Copy of the approved plan to Cache County, Project owner, Engineer, and project superintendent digitally (.pdf) format unless requested otherwise.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify prepared soil base is ready to receive the Work of this section.

3.2 SEEDING

- A. Apply seed to all disturbed areas.
- B. Apply seed at rate recommended for selected seed mixes in two intersecting directions. Rake in lightly.
- C. Do not sow immediately following rain, when ground is too dry, or when winds are over 12 mph.

3.3 NOXIOUS WEED MANAGEMENT

- A. Implement noxious weed management plan for duration of project through project closeout.
- B. Maintain restoration areas free and clear of noxious weeds.
- C. Transition responsibility of noxious weed management to owners of project upon completion of punch list items.

END OF SECTION

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SECTION 33 05 61

PRECAST CONCRETE MANHOLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Modular precast concrete manholes and structures with tongue-and-groove joints, covers, anchorage, and accessories.
2. Bedding and cover materials.

1.2 REFERENCE STANDARDS

A. American Association of State Highway Transportation Officials:

1. AASHTO M91 - Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale).
2. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.
3. AASHTO M306 - Standard Specification for Drainage, Sewer, Utility, and Related Castings.

B. American Concrete Institute:

1. ACI 530/530.1 - Building Code Requirements and Specification for Masonry Structures.

C. ASTM International:

1. ASTM A48 - Standard Specification for Gray Iron Castings.
2. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM C32 - Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale).
4. ASTM C55 - Standard Specification for Concrete Building Brick.
5. ASTM C361 - Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.
6. ASTM C478 - Standard Specification for Circular Precast Reinforced Concrete Manhole Sections.

7. ASTM C497 - Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile.
8. ASTM C877 - Standard Specification for External Sealing Bands for Concrete Pipe, Manholes, and Precast Box Sections.
9. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures.
10. ASTM C923 - Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes, and Laterals.
11. ASTM C990 - Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
12. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
13. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit manufacturer information for manhole covers, component construction, features, configuration, and dimensions.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.
- E. Source Quality-Control Submittals: Indicate results of factory tests and inspections.

1.4 QUALITY ASSURANCE

- A. Obtain precast concrete manhole sections from single source.
- B. Perform structural design according to ACI 318.
- C. Perform Work according to NPCA Quality Control Manual for Precast and Prestressed Concrete Plants.
- D. Welding:
 1. Structural Steel: Comply with AWS D1.1/D1.1M.
 2. Reinforcing Steel: Comply with AWS D1.4/D1.4M.
- E. Perform Work according to state and local standards.

1.5 QUALIFICATIONS

- A. Manufacturer: Certified by NPCA Plant Certification Program prior to, and during Work of, this Section.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Concrete Products: Do not deliver products until concrete has cured five days or has attained minimum 75 percent of specified 28-day compressive strength.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Handling:
 - 1. Comply with manufacturer instructions for unloading and moving the precast manhole sections.
 - 2. Lift precast manhole sections from designated lifting points.
- D. Storage:
 - 1. Store materials according to manufacturer instructions.
 - 2. Store precast concrete manhole sections to prevent damage to Owner's property or other public or private property.
 - 3. Repair property damaged from materials storage.
- E. Protection:
 - 1. Protect materials in clean location remote from construction operations areas.
 - 2. Provide additional protection according to manufacturer instructions.

1.7 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.

PART 2 - PRODUCTS

2.1 PRECAST CONCRETE MANHOLES

- A. Furnish materials according to state and local standards.
- B. Manhole Sections:
 - 1. Materials:

- a. Reinforced Precast Concrete: Comply with ASTM C478.
 - b. Gaskets: Comply with ASTM C923.
- 2. Joints:
 - a. Comply with ASTM C913.
 - b. Maximum Leakage: 0.025 gal. per hour per foot of joint at 3 feet of head.
- C. Grout:
 - 1. Grout: Non-shrink grout.
- D. Concrete Reinforcement:
 - 1. Formed steel wire.
 - 2. Finish: Unfinished.
- E. Shaft and Eccentric Cone Top Sections:
 - 1. Pipe Sections: Reinforced precast concrete.
 - 2. Joints:
 - a. Lipped male/female.
- F. Shape: Cylindrical.
- G. Clear Inside Dimensions:
 - 1. As indicated on Drawings.
- H. Design Depth:
 - 1. As indicated on Drawings.
- I. Clear Cover Opening:
 - 1. As indicated on Drawings.
- J. Pipe Entry: Furnish openings as indicated on Drawings.
- K. Structure Joint Gaskets:
 - 1. Comply with ASTM C361.
 - 2. Material: Rubber.

2.2 FRAMES AND COVERS

- A. Furnish materials according to state and local standards.

B. Description:

1. Material:
 - a. Cast iron.
 - b. Comply with ASTM A48/A48M, Class 30B.
2. Lid:
 - a. Bearing Surface: Machined flat.
 - b. Configuration: Removable.
 - c. Security: None.
3. Cover Design: Closed.
4. Live-Load Rating: 100 psf.
5. Furnish sealing gasket.
6. Nominal Lid Size: 36 inches.

2.3 RISER RINGS

A. Furnish materials according to state and local standards.

B. Riser Rings:

1. Thickness of 2 to 12 Inches:
 - a. Precast concrete.
 - b. Comply with ASTM C478.
2. Thickness Less Than 2 Inches:
 - a. Cast iron.
 - b. Comply with AASHTO M306.
3. Rubber Seal Wraps:
 - a. Wraps and Band Widths: Comply with ASTM C877, Type III.
 - b. Cone/Riser Ring Joint: Minimum 3-inch overlap.
 - c. Frame/Riser Ring Joint: 2-inch overlap.
 - d. Additional Bands: Overlap upper band by 2 inches.

2.4 MATERIALS

A. Cover and Bedding:

1. Bedding: Fill Type R1 and S3 as per the Drawings, and as specified in Section 31 05 13 – Soils and Aggregates for Earthwork.

2. Cover: Fill Type S3, as specified in Section 31 05 13 – Soils and Aggregates for Earthwork.

2.5 ACCESSORIES

A. Steps:

1. Rungs: Formed PP or PE.
2. Diameter: 3/4 inch.
3. Width:
 - a. 12 inches.
4. Spacing:
 - a. 16 inches o.c. vertically, set into structure wall.

B. Joint Sealant: Comply with ASTM C990.

C. Soil Backfill from Above Pipe to Finish Grade:

1. Soil Type S3, as specified in Section 31 05 13 - Soils and Aggregates for Earthwork.
2. Subsoil: No frozen earth, or foreign matter, or rocks more than 6 inches in diameter.

2.6 SOURCE QUALITY CONTROL

A. Testing:

1. Perform following tests for each 150 cu. yd. of concrete placed with minimum one set of tests each week:
 - a. Slump: Comply with ASTM C143.
 - b. Compressive Strength: ASTM C31 and ASTM C39.
 - c. Air Content: Comply with ASTM C231.
 - d. Unit Weight: Comply with ASTM C138.
2. Make test results available to Owner upon request.

B. Inspection:

1. Visually inspect completed precast boxes for defects.
2. Repair defects on surfaces exposed to view to achieve uniform appearance.
3. Repair honeycomb by removing loose material and applying grout to produce smooth surface flush with adjacent surface.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that items provided by other Sections of Work are properly sized and located.
- C. Verify correct size and elevation of excavation.
- D. Verify that subgrade is properly prepared, compacted, and ready to receive Work of this Section.

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Mark each precast structure by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers shown on Drawings to indicate its intended use.
- C. Coordinate placement of inlet and outlet pipe required by other Sections.
- D. Do not install manholes where Site conditions induce loads exceeding structural capacity of the manholes.
- E. Inspect precast concrete manholes immediately prior to placement in excavation to verify that they are internally clean and free from damage; remove and replace damaged units.

3.3 INSTALLATION

- A. Conduct operations not to interfere with, interrupt, damage, destroy, or endanger integrity of surface structures or utilities in immediate or adjacent areas.
- B. Correct over-excavation as indicated in Section 31 23 16.
- C. Remove large stones or other hard matter impeding consistent backfilling or compaction.
- D. Protect manhole from damage or displacement while backfilling operation is in progress.
- E. Excavating:
 - 1. As specified in Section 31 23 16 – Excavation, and in indicated locations and depths.
 - 2. Provide clearance around sidewalls of manhole for construction operations and granular backfill.
- F. Precast Concrete Manholes:

1. Lift precast components at lifting points designated by manufacturer.
 2. When lowering manholes into excavations and joining pipe to units, take precautions to ensure that interior of pipeline and structure remains clean.
 3. Assembly:
 - a. Assemble multi-section manholes and structures by lowering each section into excavation.
 - b. Install rubber gasket joints between precast sections according to manufacturer recommendations.
 - c. Lower, set level, and firmly position base section before placing additional sections.
 4. Remove foreign materials from joint surfaces and verify that sealing materials are placed properly.
 5. Maintain alignment between sections by using guide devices affixed to lower section.
 6. Joint sealing materials may be installed on Site or at manufacturer's plant.
 7. Verify that installed manholes meet required alignment and grade.
 8. Cut structure to receive piping without creating openings larger than required to receive pipe; fill annular spaces with mortar.
 9. Cut pipe flush with interior of structure.
 10. Install precast concrete manholes to elevation and alignment as indicated on Drawings.
- G. Installation shall be done according to state and local standards.

END OF SECTION

SECTION 33 05 63

PRECAST CONCRETE BOXES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Precast concrete boxes.
 2. Frames and covers.

1.2 REFERENCE STANDARDS

- A. American Association of State Highway and Transportation Officials:
1. AASHTO M 306 - Standard Specification for Drainage, Sewer, Utility, and Related Castings.
- B. American Concrete Institute:
1. ACI 318 - Building Code Requirements for Structural Concrete.
- C. ASTM International:
1. ASTM A36 - Standard Specification for Carbon Structural Steel.
 2. ASTM A48 - Standard Specification for Gray Iron Castings.
 3. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 4. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
 5. ASTM A706 - Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement.
 6. ASTM A780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
 7. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
 8. ASTM C33 - Standard Specification for Concrete Aggregates.
 9. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 10. ASTM C138 - Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.
 11. ASTM C143 - Standard Test Method for Slump of Hydraulic-Cement Concrete.
 12. ASTM C150 - Standard Specification for Portland Cement.
 13. ASTM C173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.

14. ASTM C192 - Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory.
 15. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
 16. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
 17. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.
 18. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
 19. ASTM C857 - Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures.
 20. ASTM C890 - Standard Practice for Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete Water and Wastewater Structures.
 21. ASTM C891 - Standard Practice for Installation of Underground Precast Concrete Utility Structures.
 22. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures.
 23. ASTM C989 - Standard Specification for Slag Cement for Use in Concrete and Mortars.
 24. ASTM C1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
- D. National Precast Concrete Association:
1. NPCA Plant Certification Program.
 2. NPCA Quality Control Manual for Precast and Prestressed Concrete Plants.
- E. The Society for Protective Coatings:
1. SSPC Paint 20 - Zinc-Rich Primers (Type I - Inorganic and Type II - Organic).

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer information regarding frames and covers, component construction, features, configuration, and dimensions.

1.4 QUALITY ASSURANCE

- A. Obtain precast concrete boxes from single source.
- B. Perform structural design according to ACI 318.
- C. Perform Work according to NPCA Quality Control Manual for Precast and Prestressed Concrete Plants.
- D. Welding:
1. Structural Steel: Comply with AWS D1.1/D1.1M.
 2. Reinforcing Steel: Comply with AWS D1.4/D1.4M.
- E. Perform Work according to state and local standards.

1.5 QUALIFICATIONS

- A. Manufacturer: Certified by NPCA Plant Certification Program prior to, and during Work of, this Section.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Concrete Products: Do not deliver products until concrete has cured five days or has attained minimum 75 percent of specified 28-day compressive strength.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Handling:
 - 1. Comply with manufacturer instructions for unloading, storing, and moving the precast boxes.
 - 2. Lift precast boxes from designated lifting points.
- D. Storage:
 - 1. Store materials according to manufacturer instructions.
 - 2. Store precast boxes to prevent damage to Owner's property or other public or private property.
 - 3. Repair property damaged from materials storage.
- E. Protection:
 - 1. Protect materials in clean location remote from construction operations areas.
 - 2. Provide additional protection according to manufacturer instructions.

1.7 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.

PART 2 - PRODUCTS

2.1 PRECAST CONCRETE BOXES

- A. Furnish materials according to state and local standards.
- B. Material of Construction: Reinforced precast concrete.
- C. Foundation Slab:
 - 1. Precast concrete.
 - 2. Top Surface: Leveled.

2.2 FRAMES AND COVERS

- A. Furnish materials according to state and local standards.
- B. Description:
 - 1. Grate:

- a. Configuration: Standard, premanufactured, galvanized.
- b. Design:
 - 1) Will support uniform load of 100psf.
 - 2) 2-inch max bar spacing.

2.3 MATERIALS

A. Concrete:

- 1. Portland Cement:
 - a. Comply with ASTM C150.
 - b. Type: II – Moderate or V - Sulfate Resistant.
- 2. Fine and Coarse Aggregates: Comply with ASTM C33, except that gradation requirements do not apply.
- 3. Water: Clean and not detrimental to concrete.

B. Admixtures:

- 1. Furnish materials according to state and local standards.
- 2. Air Entrainment: Comply with ASTM C260.
- 3. Fly Ash: Comply with ASTM C618, Class C.
- 4. Blast Furnace Slag: Comply with ASTM C989.

C. Concrete Reinforcement:

- 1. Reinforcing Steel:
 - a. Comply with ASTM A615.
 - b. Yield Grade: 60 ksi.
 - c. Billet Bars: Deformed.
 - d. Finish: Uncoated.
- 2. Reinforcing Wire:
 - a. Plain Wire:
 - 1) Comply with ASTM A1064.
 - 2) Finish: Unfinished.
 - b. Deformed Wire:
 - 1) Comply with ASTM A1064.
 - 2) Finish: Unfinished.
- 3. Welded Steel Wire Fabric:
 - a. Plain Wire:
 - 1) Comply with ASTM A1064.
 - 2) Finish: Unfinished.
 - b. Deformed Wire:

- 1) Comply with ASTM A1064.
- 2) Finish: Unfinished.

2.4 FABRICATION

- A. Comply with ACI 318 and NPCA Quality Control Manual for Precast and Prestressed Concrete Plants.
- B. Fabricate boxes and openings to size and configuration as indicated on Drawings.
- C. Forms:
 1. Fabricate to provide uniform precast concrete units with consistent dimensions.
 2. Clean after each use.
- D. Reinforcing:
 1. Install reinforcement by tying or welding to make rigid assemblies.
 2. Secure reinforcement to prevent displacement while placing concrete.
- E. Position and secure embedded items to prevent displacement while placing concrete.
- F. Deposit concrete in forms and consolidate concrete without segregating aggregate.
- G. Provide initial curing by retaining moisture using one of following methods:
 1. Cover with PE sheets.
 2. Cover with burlap or other absorptive material and keep continually moist.
 3. Apply curing compound according to manufacturer instructions.
- H. Provide final curing according to manufacturer's standard.
- I. Remove forms without damaging concrete.

2.5 MIXES

- A. Concrete:
 1. Normal Weight: Select proportions according to ACI 2111.1 and 318.
 2. Concrete Criteria:
 - a. Compressive Strength: 4,000 psi at 28 days.
 - b. Water-Cement Ratio:
 - 1) Concrete Exposed to Freezing and Thawing: Maximum 0.45 percent by mass.
 - c. Maximum Aggregate Size of 3/4 inch
 - d. Air Content:
 - 1) Severe Exposure: 4.5 to 7.5 percent.
 3. Admixtures:
 - a. Include admixture types and quantities indicated in concrete mix designs approved through submittal process.
 - b. Do not use calcium chloride.

2.6 FINISHES

A. Concrete:

1. Formed Surfaces Not Exposed to View: As formed.
2. Unformed Surfaces:
 - a. Finish with vibrating screed or hand float.
 - b. Items Permitted: Color variations, minor indentations, chips, and spalls.
 - c. Items Not Permitted: Major imperfections, honeycomb, or other such defects.

B. Steel Grate:

1. Galvanizing:
 - a. Comply with ASTM A123.
 - b. Hot-dip galvanize after fabrication.

2.7 ACCESSORIES

A. Grout:

1. Cement Type: Portland cement, sand, and water mixture with stiff consistency to suit intended purpose.
2. Nonshrink Type:
 - a. Description: Premixed compound consisting of nonmetallic aggregate, cement, and water-reducing and plasticizing agents.
 - b. Comply with ASTM C1107.
 - c. Minimum Compressive Strength: 2,400 psi in 48 hours, and 7,000 psi in 28 days.

B. Touch-Up Primer for Galvanized Surfaces:

1. SSPC Paint 20, Type I Inorganic.
2. Comply with ASTM A780.

2.8 SOURCE QUALITY CONTROL

A. Testing:

1. Perform following tests for each 150 cu. yd. of concrete placed with minimum one set of tests each week:
 - a. Slump: Comply with ASTM C143.
 - b. Compressive Strength: ASTM C31 and ASTM C39.
 - c. Air Content: Comply with ASTM C231.
 - d. Unit Weight: Comply with ASTM C138.
2. Make test results available to Owner upon request.

B. Inspection:

1. Visually inspect completed precast boxes for defects.

2. Repair defects on surfaces exposed to view to achieve uniform appearance.
3. Repair honeycomb by removing loose material and applying grout to produce smooth surface flush with adjacent surface.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that items provided by other Sections of Work are properly sized and located.
- B. Verify correct size and elevation of excavation.
- C. Verify that subgrade is properly prepared, compacted, and ready to receive Work of this Section.

3.2 PREPARATION

- A. Mark each vault or chamber by indentation or using waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers shown on Drawings to indicate its intended use.
- B. Coordinate placement of inlet and outlet pipe required by other Sections.
- C. Do not install vault or chamber if Site conditions induce loads exceeding weight capacity of vault or chamber.
- D. Inspect precast boxes immediately prior to placement in excavation to verify that they are internally clean and free from damage; remove and replace damaged units.

3.3 INSTALLATION

- A. According to ASTM C891.
- B. Conduct operations not to interfere with, interrupt, damage, destroy, or endanger integrity of surface structures or utilities in immediate or adjacent areas.
- C. While lowering the precast concrete boxes into excavations and joining pipe to units, take precautions to ensure that interiors of pipeline and structure remain clean.
- D. Install precast boxes to elevation and alignment as indicated on Drawings.
- E. Excavating:
 1. Provide clearance around sidewalls of concrete box for construction operations and backfill.
 2. If ground water is encountered, prevent accumulation of water in excavations, place precast boxes in dry trench.
 3. Remove large stones or other hard matter impeding consistent backfilling or compaction.
 4. Correct over-excavation as per Section 31 23 16.
- F. Connections:
 1. Connect pipe to structure and grout watertight.
 2. Place pipe flush with interior of structure.

G. Installation Standards: Install Work according to state and local standards.

END OF SECTION

SECTION 40 05 59.23

STAINLESS STEEL SLIDE GATES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Stainless steel slide gates.

1.2 DEFINITIONS

- A. FRP: Fiberglass-reinforced plastic.
- B. Operating Head: Distance from centerline of gate to maximum water level of channel.
- C. UHMW: Ultra-high molecular weight.

1.3 REFERENCE STANDARDS

- A. American Water Works Association:
 - 1. AWWA C541 - Hydraulic and Pneumatic Cylinder and Vane-Type Actuators for Valves and Slide Gates.
 - 2. AWWA C542 - Electric Motor Actuators for Valves and Slide Gates.
 - 3. AWWA C561 – Fabricated Stainless Steel Slide Gates.
- B. National Sanitation Foundation:
 - 1. NSF Standard 61 - Drinking Water System Components - Health Effects.
 - 2. NSF Standard 372 - Drinking Water System Components - Lead Content.

1.4 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Coordinate Work of this Section with Work of other Sections.

1.5 PREINSTALLATION MEETINGS

- A. Section 01 30 00 - Administrative Requirements: Requirements for preinstallation meeting.
- B. Convene minimum one week prior to commencing Work of this Section.

1.6 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit manufacturer's product information for system materials and component equipment.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
 - 1. Certify that installation is completed according to manufacturer's instructions.
- D. Manufacturer's Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.

1.7 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for closeout procedures.
- B. Project Record Documents: Record actual locations of installed slide gates and components.

1.8 MAINTENANCE MATERIAL SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for maintenance materials.

1.9 QUALITY ASSURANCE

- A. Materials in Contact with Potable Water: Certified to NSF Standard 61 and NSF Standard 372.
- B. Perform Work according to State and local standards.

1.10 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' experience.

1.11 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site and inspect for damage.
- C. Store materials according to manufacturer's instructions.
- D. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from areas involved in construction operations.

2. Provide additional protection according to manufacturer's instructions.

1.12 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

1.13 WARRANTY

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for warranties.
- B. Furnish three-year manufacturer's warranty for slide gates.

PART 2 - PRODUCTS

2.1 PERFORMANCE AND DESIGN CRITERIA

A. Seating Pressure:

1. 5 feet of water.
2. Measurement: From maximum water surface to centerline of gate.

B. Minimum Vertical Loading: 50 percent of force on the gate from operating head acting on horizontal centerline of gate, multiplied by effective gate area, plus weight of slide and stem.

C. Gate Reinforcement: As required for deflection not greater than 1/360 of span.

2.2 STAINLESS STEEL SLIDE GATES

A. Manufacturers:

1. Waterman Industries.
2. Fresno.
3. Substitutions: Engineer-Approved Equivalent.

B. Description:

1. Comply with AWWA C561.
2. Self-contained stainless steel slide gate, with extended frame, yoke, lifting stem attached to yoke, lift and lift support, stem, stem guide, and stem block.
3. Size: As indicated on Drawings.

4. Operating Head: As indicated on Drawings.
 5. Closure: Conventional.
 6. Opening: Upward.
- C. Gates:
1. Configuration:
 - a. Removable.
 2. Material: Type 304 or 316 Stainless Steel.
- D. Yokes:
1. Material: 304 or 316 stainless steel.
 2. Mounting: Bolted to gate frame.
- E. Seats:
1. Material: Ultra high molecular weight polyethylene, ASTM D4020
 2. Impacted into dovetail slots and held in position without use of screws or other fasteners.
 3. Maximum Clearance between Seating Faces: 0.004 inch when gate is fully closed.
- F. Wedges:
1. Description: Machined brass blocks with angled faces and secured with a stud bolt to prevent slippage during operation.
 2. Provide side, top, and bottom wedges.
- G. Frames:
1. Configuration: One piece.
 2. Material: Type 304 or 316 Stainless Steel .
 3. Minimum Thickness: 1/4 inch.
 4. Mounting:
 - a. As indicated on Drawings, and per manufacturer instructions.
 5. Bottom Flush Closure: Resilient seal securely attached to frame along invert.
- H. Lifting Devices:

1. Description: Stem, lifting nut, supports, stem cover, position indicator, and gear-assisted crank.
 2. Mounting: Locate center of handwheel 36 inches above operating floor.
- I. Lifting Nut:
1. Material: Brass.
 2. Furnish grease fitting.
 3. Furnish polymer bearing pads above and below lifting nut.
- J. Lifting Stem:
1. Material: Type 304 or 316 stainless steel.
 2. Configuration:
 - a. Rising.
 - b. Removable.
 3. Thread:
 - a. Acme, double lead.
 - b. Cut threads are not acceptable.
 4. Diameter: 1-1/8 inch (29 mm).
 5. Fully lubricated.
 6. Stem covers:
 - a. Configuration: Capped and vented.
 - b. Length: as required to allow full travel of gate.

2.3 FINISHES

- A. Stainless Steel Surfaces: Mill finish.

2.4 ACCESSORIES

- A. Hardware: Type 304 or 316 stainless steel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that facilities are ready to receive slide gates.

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Clean adjacent surfaces according to manufacturer's instructions.

3.3 INSTALLATION

- A. Install slide gates according to manufacturer's instructions.
- B. Ensure that products are installed plumb, true, and free of warp or twist.
- C. Locate operators to avoid interference with handrails and other Work.
- D. Guides:
 - 1. Surface- and Flange-Mounted:
 - a. Install guides with expansion anchors.
 - b. Position guides at elevation as indicated on Drawings.
 - 2. Recess Mounting
 - a. Cut slot in concrete to receive guides
 - b. Position guides at elevation as indicated on Drawings.
 - c. Grout guides in place according to manufacturer instructions.
- E. Sealant:
 - 1. Apply 1/8-inch-thick layer of elastomeric sealant to back of frame.
 - 2. Tighten nuts snug until sealant begins to flow beyond frame.
 - 3. Remove excess sealant.
 - 4. Cure sealant for minimum seven days.
 - 5. Tighten nuts to their final positions.
- F. Lubrication:
 - 1. Furnish oil and grease as required for initial operation.
- G. Installation Standards: Install Work according to State and local standards.

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Inspection:
 - 1. Verify alignment of gate and components.

2. Verify that gate operates smoothly and does not bind or scrape.
- C. Testing:
1. Comply with AWWA C561.
 2. Leakage: Not exceeding 0.1 gpm/ft. of seating perimeter under 20 feet of seating head and not exceeding 0.21 gpm/ft. under 20 feet of unseating head.
- D. Manufacturer Services: Furnish services of manufacturer's representative experienced in installation of products furnished under this Section on Site for installation, inspection, field testing, and instructing Owner's personnel in maintenance of equipment.
- E. Equipment Acceptance:
1. Adjust, repair, modify, or replace components failing to perform as specified and re-inspect.
 2. Make final adjustments to equipment under direction of manufacturer's representative.
- F. Furnish installation certificate from equipment manufacturer's representative attesting equipment has been properly installed and is ready for startup and testing.

3.5 ADJUSTING

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for starting and adjusting.
- B. Adjust slide gates to provide smooth operation.

3.6 DEMONSTRATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for demonstration and training.
- B. Demonstrate equipment operation, routine maintenance, and emergency repair procedures to Owner's personnel.

END OF SECTION

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SECTION 40 05 59.33
CAST IRON SLIDE GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Cast-iron slide gates.

1.2 DEFINITIONS

A. FRP: Fiberglass-reinforced plastic.

B. Operating Head: Distance from centerline of gate to maximum water level of channel.

1.3 REFERENCE STANDARDS

A. American Water Works Association:

1. AWWA C541 - Hydraulic and Pneumatic Cylinder and Vane-Type Actuators for Valves and Slide Gates.
2. AWWA C542 - Electric Motor Actuators for Valves and Slide Gates.
3. AWWA C560 - Cast Iron Slide Gates.

B. National Sanitation Foundation:

1. NSF Standard 61 - Drinking Water System Components - Health Effects.
2. NSF Standard 372 - Drinking Water System Components - Lead Content.

1.4 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with Work of other Sections.

1.5 PREINSTALLATION MEETINGS

A. Section 01 30 00 - Administrative Requirements: Requirements for preinstallation meeting.

B. Convene minimum one week prior to commencing Work of this Section.

1.6 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

- B. Product Data: Submit manufacturer's product information for system materials and component equipment.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
 - 1. Certify that installation is completed according to manufacturer's instructions.
- D. Manufacturer's Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.

1.7 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for closeout procedures.
- B. Project Record Documents: Record actual locations of installed slide gates and components.

1.8 MAINTENANCE MATERIAL SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for maintenance materials.

1.9 QUALITY ASSURANCE

- A. Materials in Contact with Potable Water: Certified to NSF Standard 61 and NSF Standard 372.
- B. Perform Work according to State and local standards.

1.10 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' experience.

1.11 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site and inspect for damage.
- C. Store materials according to manufacturer's instructions.
- D. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from areas involved in construction operations.
 - 2. Provide additional protection according to manufacturer's instructions.

1.12 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.
 - 2. Indicate field measurements on Shop Drawings.

1.13 WARRANTY

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for warranties.
- B. Furnish three-year manufacturer's warranty for slide gates.

PART 2 - PRODUCTS

2.1 PERFORMANCE AND DESIGN CRITERIA

- A. Seating Pressure:
 - 1. 5 feet of water.
 - 2. Measurement: From maximum water surface to centerline of gate.
- B. Minimum Vertical Loading: 50 percent of force on the gate from operating head acting on horizontal centerline of gate, multiplied by effective gate area, plus weight of slide and stem.
- C. Gate Reinforcement: As required for deflection not greater than 1/360 of span.

2.2 CAST-IRON SLIDE GATES

- A. Manufacturers:
 - 1. Waterman Industries.
 - 2. Fresno.
 - 3. Substitutions: Engineer-Approved Equivalent.
- B. Description:
 - 1. Comply with AWWA C561.
 - 2. Self-contained cast-iron slide gate, with extended frame, yoke, lifting stem attached to yoke, lift and lift support, stem, stem guide, and stem block.
 - 3. Size: As indicated on Drawings.
 - 4. Operating Head: As indicated on Drawings.

5. Closure: Conventional.
 6. Opening: Upward.
- C. Gates:
1. Configuration:
 - a. One piece.
 - b. Removable.
 2. Material: Cast iron.
 3. Minimum Thickness: 3/4 inch.
 4. Ribs:
 - a. As required based on operating head.
 - b. Molded into gate; bolted or bonded ribs are not acceptable.
 - c. Provide reinforcing rib around gate perimeter.
- D. Yokes:
1. Material: Cast iron or Structural steel.
 2. Mounting: Bolted to gate frame.
- E. Seats:
1. Impacted into dovetail slots and held in position without use of screws or other fasteners.
 2. Maximum Clearance between Seating Faces: 0.004 inch when gate is fully closed.
- F. Wedges:
1. Description: Machined brass blocks with angled faces and secured with a stud bolt to prevent slippage during operation.
 2. Provide side, top, and bottom wedges.
- G. Frames:
1. Configuration: One piece.
 2. Material: Cast iron.
 3. Slide Clearance: Not greater than 1/8 inch.
 4. Guide Slot Length: Minimum 50 percent of slide length when in full open position.
 5. Mounting:

- a. As indicated on Drawings.
 - b. Round Gates: Provide flange.
- 6. Bottom Flush Closure: Resilient seal securely attached to frame along invert.
- H. Handwheel:
 - 1. Configuration: Removable.
 - 2. Fully lubricated.
 - 3. Mounting: Locate center of handwheel 36 inches above operating floor.
- I. Lifting Nut:
 - 1. Material: Brass.
 - 2. Furnish grease fitting.
 - 3. Furnish polymer bearing pads above and below lifting nut.
- J. Lifting Stem:
 - 1. Material: Type 304 or 316 stainless steel.
 - 2. Configuration:
 - a. Rising.
 - b. Removable.
 - 3. Thread:
 - a. Acme, double lead.
 - b. Cut threads are not acceptable.
- K. Powered Lifting Devices:
 - 1. Specified Gate: 48-in Waterman C-10 canal gate at the diversion structure, or approved equivalent.
 - a. As specified in Section 400557 “Actuators for Process Valves and Gates.”
 - b. Comply with AWWA C541 and AWWA C542
 - 2. Mounting: Locate center of handwheel 36 inches above operating floor.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that facilities are ready to receive slide gates.

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Clean surfaces according to manufacturer's instructions.

3.3 INSTALLATION

- A. Install slide gates according to manufacturer's instructions.
- B. Ensure that products are installed plumb, true, and free of warp or twist.
- C. Locate operators to avoid interference with handrails and other Work.
- D. Guides:
 - 1. Surface- and Flange-Mounted:
 - a. Install guides with expansion anchors.
 - b. Position guides at elevation as indicated on Drawings.
- E. Sealant:
 - 1. Apply 1/8-inch-thick layer of elastomeric sealant to back of frame.
 - 2. Tighten nuts snug until sealant begins to flow beyond frame.
 - 3. Remove excess sealant.
 - 4. Cure sealant for minimum seven days.
 - 5. Tighten nuts to their final positions.
- F. Lubrication:
 - 1. Furnish oil and grease as required for initial operation.
- G. Installation Standards: Install Work according to State and local standards.

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Inspection:
 - 1. Verify alignment of gate and components.
 - 2. Verify that gate operates smoothly and does not bind or scrape.
- C. Testing:
 - 1. Comply with AWWA C560.

2. Leakage: Not exceeding 0.1 gpm/ft. of seating perimeter under 20 feet of seating head and not exceeding 0.21 gpm/ft. under 20 feet of unseating head.
- D. Manufacturer Services: Furnish services of manufacturer's representative experienced in installation of products furnished under this Section on Site for installation, inspection, field testing, and instructing Owner's personnel in maintenance of equipment.
 - E. Equipment Acceptance:
 1. Adjust, repair, modify, or replace components failing to perform as specified and re-inspect.
 2. Make final adjustments to equipment under direction of manufacturer's representative.
 - F. Furnish installation certificate from equipment manufacturer's representative attesting equipment has been properly installed and is ready for startup and testing.

3.5 ADJUSTING

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for starting and adjusting.
- B. Adjust slide gates to provide smooth operation.

3.6 DEMONSTRATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for demonstration and training.
- B. Demonstrate equipment operation, routine maintenance, and emergency repair procedures to Owner's personnel.

END OF SECTION

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SECTION 40 10 05
TRAVELING SCREEN

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Requirements for traveling screen.

1.2 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures specifies requirements for submittals.
- B. Product Data: Submit manufacturer shop drawings with all dimensions and product data sheets documenting screen compliance with Drawings.
- C. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- D. Electric Load Sheet
 - 1. Voltage.
 - 2. Amperage.
 - 3. KW/HP.
- E. Operations and Maintenance Manual
 - 1. One hard copy.
 - 2. Digital copy in .pdf format.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Approved Vendor:
 - 1. International Water Screens (IWS)
Representative: Chris Gargan
Phone: 661-979-7206
 - 2. Scope of Supply:
 - a. One (1) Traveling Water Screen per provided screen specifications

- b. One (1) pump per screen
- c. One (1) filter per screen
- d. One (1) screen trough
- e. One (1) control panel

3. No approved alternate.

2.2 SCREEN SPECIFICATIONS

- A. The Traveling Screen will be 7'10" wide and 26' long. The screen will be made of 12" channel iron with 6" square tubing and 2½" angle iron, as cross member supports. All frame material will be mild steel coated with a two-part epoxy. All wear surfaces will be 2½" angle iron, covered by ultra high molecular weight polyethylene (UHMW).
- B. The screening media will be 24-20-14, 24 openings per foot vertical, 20 openings per foot horizontal, made of 14-gauge 304 stainless steel wire. The screening media rides on 5/16" rods, on 6" centers, which are driven by a C2060 chain. All chains, rods and belting are stainless steel 304.
- C. The underwater bearings are made of extremely high quality, STOODY brand, satellite material. These are non-lubricated sleeve and bushing bearings which can be expected to last for as much as 10-15 years with no maintenance required.
- D. IWS will provide a centrifugal pump for the internal spray wash for each screen. The conditions of service required for this screen will be 54 GPM @ 60 psi. The spray bar is a 1¼" galvanized pipe, with two (2) gallon per minute nozzles, spaced on 4" centers.
- E. A screen debris trough will be installed behind the traveling screen. The trough will be made from 18-inch PVC half-pipe. The trough will have metal supports under it to the structure. The screen will have a spray wash system for cleaning that will drop water and screened material into the trough. The debris and wash water will flow from the trough onto a concrete pad.
- F. IWS will provide a standard control panel for this project. The IWS panel is assembled by a qualified electrician using U/L rated components, enclosed in a NEMA 4 enclosure. This panel is not assembled in a U/L licensed panel shop. The control panel will be equipped with starters, timers and breakers. The panel will be designed to allow the customer to set the screen and pump to run and to be off for a pre-determined amount of time.
- G. The screen shall be capable of passing a minimum of 35 cfs with a maximum water depth of 6 feet and a minimum of 4 cfs with a minimum water depth of 6 feet with less than one inch of headloss across the screen.
- H. The screen will fit in a channel that is 8 feet wide and shall be sloped at a 45-degree angle. The screen will fit in a dip in the structure provided for the screen as shown on the drawings. The length of the screen will be sufficient to allow the trough to take the debris back to the edge of the diversion structure.
- I. A hood will be provided to protect the pumps and electrical equipment from the spray wash system.

2.3 POWER SUPPLY

1. 120 Volt/Single Phase.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Installation shall be as per the Drawings, manufacturer's instructions and oversight.
- B. Start up and calibration shall be by manufacturer certified technician. Certified technician shall be on-Site for start-up and operator training. No exceptions will be granted to this requirement. Contractor to notify Owner and Engineer 7 days prior to screen start-up.

END OF SECTION

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