

PROJECT MANUAL

PWSD NO. 15, JACKSON COUNTY, MISSOURI

BUCKNER-TARSNEY TRANSMISSION MAIN REPLACEMENT - SOUTH

Project No. 0321049.01

Bid Date: February 3, 2023 at 10:00 AM



1-3-2023

**TRANSMISSION MAIN REPLACEMENT - SOUTH
FOR
PWSD NO. 15, JACKSON COUNTY, MO**

2023

I hereby certify that this plan, specification, or report, was prepared by me or under my direct personal supervision, and that I am a duly registered Professional Engineer under the laws of the State of Missouri and that I am competent to prepare this document.

Chad Harrington
(Engineer's Name)

Date: 1/3/2023

Reg. No. 2012003558

Lamp Rynearson
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Lamp Rynearson Project No. 0321049.01

**BUCKNER-TARSNEY
TRANSMISSION MAIN REPLACEMENT - SOUTH
FOR
PWSD NO. 15, JACKSON COUNTY, MO**

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ADVERTISEMENT FOR BIDS
PWSD NO. 15
JACKSON COUNTY, MO
BUCKNER-TARSNEY
TRANSMISSION MAIN REPLACEMENT - SOUTH

General Notice

PWSD No. 15, Jackson County, MO (Owner) is requesting Bids for the construction of the following Project:

Buckner-Tarsney Transmission Main Replacement - South

Bids for the construction of the Project will be received at the **PWSD No. 15, Jackson County, MO** located at **13213 South Lone Jack-Lee's Summit Road, Lee's Summit, MO** until **Friday, February 3, 2023 at 10:00 am local** time. At that time the Bids received will be **publicly** opened and read.

The Project includes the following Work:

Construction of approximately 4,800 lineal feet of 12" waterlines and related appurtenances.

Obtaining the Bidding Documents

The Issuing Office for the Bidding Documents is:

Drexel Technologies

Prospective bidders desiring copies of plans, specifications, bid documents, and other Contract Documents can purchase these documents (non-refundable) on-line at Drexel Technologies in their eDistribution Plan Room at www.drexeltech.com. Additional assistance is available at distribution@drexeltech.com or 913.371.4430. Information regarding this project can be found under the "Public Jobs" link on the website. Partial sets of bidding documents will not be available from Drexel Technologies or Lamp Ryneearson. Neither Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including addenda, if any, obtained from sources other than the Issuing Office. Any questions regarding the project, plans, specifications, bid documents, or Contract Documents should be directed to Lamp Ryneearson at 816.361.0440.

Bidding Documents also may be examined at the Owner's office, on Mondays through Fridays between the hours of 8:00 AM and 5:00 PM; and the office of the Engineer, Lamp Ryneearson, 9001 State Line Road, Suite 200, Kansas City, Missouri 64114, on Mondays through Fridays between the hours of 8:00 AM-Noon and 1:00 PM-5:00 PM.

Pre-bid Conference

A pre-bid conference will not be held.

Bid Security.

Each Bid shall be accompanied by bid security in the form of a Bid Bond (on the form included with the Bidding Documents) in the amount of 5% and shall be payable without condition to PWSD No. 15, Jackson County, MO as a guarantee that the Bidder, if successful, will execute the Agreement and provide an acceptable Contract Bond from an approved surety in the amount of 100 percent of the Contract Price.

Payment Procedures.

The Owner will issue payment to the Contractor in the amount of 90% of the contracted value of the completed work as of the end of the preceding month, as recommended by the Engineer. Payment for the balanced retained will be issued by the Owner upon completion of the work and approval thereof by the Owner's Engineer, city or other governmental agency approval when necessary, and acceptance by the Owner.

State of Missouri Requirements.

The prevailing wage rates for projects in the State of Missouri shall apply for the county where the work is to be performed on this contract, as do any requirements of the State of Missouri associated with the use of the State Prevailing Wages.

All manufactured goods or commodities used or supplied under this contract must meet the requirements of the Domestic Products Procurement Law RSMo. 34.350-RSMo 34.359. Compliance certification must be submitted with this bid.

For projects in the State of Missouri, the amount retained from monthly payments shall be in accordance with State law.

Instructions to Bidders.

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

This Advertisement is issued by:

Owner: PWSD No. 15, Jackson County, MO
By: Scott Morgan
Title: Superintendent
Date: January 3, 2023

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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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 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.
- 2.04 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Bidding Documents Website or Issuing Office. Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.
- 2.05 *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 Version 10** or later. 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 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within 5 days of Owner's request, Bidder must submit the following information:
 - 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 pre-bid conference will not be conducted for this Project.

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

- 5.01 *Site and Other Areas*
 - A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.
- 5.02 *Existing Site Conditions*
 - A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*
 - 1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:

- a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.
- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5.03 *Other Site-related Documents*

- A. No other Site-related documents are available.

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. Bidders visiting the Site are required to arrange their own transportation to the Site.
- C. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the Owner for visiting the Site. Bidder must conduct the required Site visit during normal working hours.
- D. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- E. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns,

or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.

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

5.05 *Owner's Safety Program*

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

5.06 *Other Work at the Site*

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

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

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

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

ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:

**Chad Harrington
Lamp Rynearson
9001 State Line Rd
Kansas City, MO 64114
Chad.harrington@lamprynearson.com
(816) 823-7203**

- 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 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, and those "or-equal" or substitute materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an "or-equal" or substitute unless written request for approval has been submitted by Bidder and has been

received by Engineer within 10 days of the issuance of the Advertisement for Bids or invitation to Bidders. Each such request must comply with the requirements of Paragraphs 7.05 and 7.06 of the General Conditions, and the review of the request will be governed by the principles in those paragraphs. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all registered Bidders. Bidders cannot rely upon approvals made in any other manner.

- 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 A Bidder must include on the Bid a list of the Subcontractors and Suppliers proposed for the Work:
- 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.
- 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.

13.02 Allowances

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

ARTICLE 14—SUBMITTAL OF BID

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

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

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

ARTICLE 16—OPENING OF BIDS

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

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.
- 18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.
- 18.05 *Evaluation of Bids*
- A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. The award may be made to said Successful Bidder on its base Bid and any combination of its alternate Bids for which Owner determines funds will be available at the time of award.
 - C. For determination of the apparent low Bidder(s) when sectional bids are submitted, Bids will be compared on the basis of the aggregate of the Bids for separate sections and the Bids for combined sections that result in the lowest total amount for all of the Work.
 - D. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- 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 **Missouri** 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—WAGE RATE REQUIREMENTS

- 23.01 The prevailing wage rates of the State of Missouri apply to the County where the work is performed on this contract, as do any requirements of the State of Missouri associated with the use of the State Prevailing Wages. The Public Works Guidebook from the Missouri Department of Labor and Industrial Relations is made part of these contract documents and can be found at https://labor.mo.gov/sites/labor/files/pubs_forms/LS-62-AI.pdf.

BID FORM FOR CONSTRUCTION CONTRACT

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

ARTICLE 1—OWNER AND BIDDER

1.01 This Bid is submitted to:

PWSD No. 15, Jackson County, MO
Buckner-Tarsney Transmission Main Replacement – South
0321049.01

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;
- E. Contractor's license number as evidence of Bidder's State Contractor's License;
- F. Required Certification of Compliance with the requirements of the Domestic Products Procurement Law RSMo. 34.350.RSMo 34.359;
- G. Bid Bond.

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

3.01 *Unit Price Bids*

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

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount
1	12" PVC C-900	LF	4420	\$	\$
2	12" Restrained Joint PVC C-900	LF	180	\$	\$
3	12" Restrained Joint PVC C-900 (Directional Bore)	LF	200	\$	\$
4	Locator Wire	LF	4800	\$	\$
5	12" Gate Valve with box	EA	3	\$	\$
6	Connection 7A	LS	1	\$	\$
7	Connection 7B	LS	1	\$	\$

8	S. Buckner-Tarsney Road Crossing (Bore and Case	LF	80	\$	\$
9	Abandon Existing Waterline	LS	1	\$	\$
Total of All Unit Price Bid Items					\$

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.

3.02 *Total Bid Price (Lump Sum and Unit Prices)*

Total Bid Price (Total of Unit Price Bids)	\$
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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 the following Addenda:

Addendum Number	Addendum Date

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder's Representations*

- A. In submitting this Bid, Bidder represents the following:
1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.

2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.

2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 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.

ARTICLE 7—LIST OF SUBCONTRACTORS AND SUPPLIERS

<u>Name of Subcontractor or Supplier</u>	<u>Item of Work</u>

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

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

Attest:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

Address for giving notices:

Bidder's Contact:

Name:

(typed or printed)

Title:

(typed or printed)

Phone:

Email:

Address:

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

BID BOND (PENAL SUM FORM)

Bidder Name: [Full formal name of Bidder] Address <i>(principal place of business)</i> : [Address of Bidder'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: PWSD No. 15, Jackson County, MO Address <i>(principal place of business)</i> : 12313 Lone Jack-Lee's Summit Rd. Lee's Summit, MO 64086	Bid Project <i>(name and location)</i> : Buckner-Tarsney Transmission Main Replacement - South Bid Due Date: [Enter date bid is due]
Bond Penal Sum: [Amount] Date of Bond: [Date]	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
_____ <i>(Full formal name of Bidder)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i>	

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

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

This Agreement is by and between **PWSD No. 15, Jackson County, MO** ("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:

Construction of approximately 4,800 lineal feet of 12" waterlines and related appurtenances.

ARTICLE 2—THE PROJECT

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

Buckner-Tarsney Transmission Main Replacement - South

ARTICLE 3—ENGINEER

- 3.01 The Owner has retained **Lamp Ryneerson** ("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: Days

- A. The Work will be substantially complete within **75** days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **90** days after the date when the Contract Times commence to run.

4.03 Liquidated Damages

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration

proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. *Substantial Completion*: Contractor shall pay Owner **\$1,000** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
 2. *Completion of Remaining Work*: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner **\$1,000** for each day that expires after such time until the Work is completed and ready for final payment.
 3. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

ARTICLE 5—CONTRACT PRICE

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

- A. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).

Unit Price Work					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Extended Price
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
Total of all Extended Prices for Unit Price Work (subject to final adjustment based on actual quantities)					\$

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

- B. 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 a monthly basis** 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. **90 percent of the value of the Work completed or as required by applicable State law (with the balance being retainage).**

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. If required by applicable State law or funding agency requirements, all amounts not paid when due will bear interest at the rate of **9** percent per annum, or maximum allowed by State statute.

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).

- c. Bid bond.
- 3. General Conditions.
- 4. Supplementary Conditions.
- 5. Specifications as listed in the table of contents of the project manual (copy of list attached).
- 6. Drawings (not attached but incorporated by reference) dated **[date on Drawings]**, consisting of **7** sheets with each sheet bearing the following general title: **Buckner-Tarsney Waterline Replacement – South**.
- 7. Addenda (numbers **[number]** to **[number]**, inclusive).
- 8. Exhibits to this Agreement (enumerated as follows):
 - a. Documentation submitted by Contractor prior to Notice of Award.
 - b. Contractor's Bid (pages 1 to ____, inclusive).
- 9. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
 - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 Contractor's Representations

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 - 1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 - 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.

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

8.02 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner,

(b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 *Standard General Conditions*

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

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

This Agreement will be effective **on the date signed by the Owner** (which is the Effective Date of the Contract).

Owner:

PWSD No. 15, Jackson County, MO

(typed or printed name of organization)

By:

(individual's signature)

Date:

(date signed)

Name:

(typed or printed)

Title:

(typed or printed)

Attest:

(individual's signature)

Title:

(typed or printed)

Address for giving notices:

13213 Lone Jack-Lee's Summit Rd

Lee's Summit, MO 64086

Designated Representative:

Name:

(typed or printed)

Title:

(typed or printed)

Address:

Phone:

Email:

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

Contractor:

(typed or printed name of organization)

By:

(individual's signature)

Date:

(date signed)

Name:

(typed or printed)

Title:

(typed or printed)

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

Attest:

(individual's signature)

Title:

(typed or printed)

Address for giving notices:

Designated Representative:

Name:

(typed or printed)

Title:

(typed or printed)

Address:

Phone:

Email:

License No.:

(where applicable)

State:

NOTICE TO PROCEED

Owner:	PWSD No. 15, Jackson County, MO	Owner's Contract No.:	
Contractor:		Contractor's Project No.:	
Engineer:	Lamp Rynearson	Engineer's Project No.:	0321049.01
Project:	Buckner-Tarsney Transmission Main Replacement - South	Contract Name:	Buckner-Tarsney Transmission Main Replacement - South
		Effective Date of Contract:	

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [REDACTED], 20[REDACTED].

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

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

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

Owner:	PWSD No. 15, Jackson County, MO

	Authorized Signature
By:	Scott Morgan
Title:	Superintendent
Date Issued:	_____

Copy: Engineer

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: PWSD No. 15, Jackson County, MO Mailing address <i>(principal place of business)</i> : 12313 Lone Jack-Lee's Summit Rd. Lee's Summit, MO 64086	Contract Description <i>(name and location)</i> : Buckner-Tarsney Transmission Main Replacement - South 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: None

PAYMENT 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: PWSD No. 15, Jackson County, MO Mailing address <i>(principal place of business)</i> : 12313 Lone Jack-Lee's Summit Rd. Lee's Summit, MO 64086	Contract Description <i>(name and location)</i> : Buckner-Tarsney Transmission Main Replacement – South 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 18	
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.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <div style="text-align: center;"><i>(Signature)</i></div>	By: _____ <div style="text-align: center;"><i>(Signature)(Attach Power of Attorney)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: _____	Title: _____
Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>	Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
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 to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
 - 5.1. Claimants who do not have a direct contract with the Contractor
 - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2. Pay or arrange for payment of any undisputed amounts.
 - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

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

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



			
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE		Application Period:	Application Date:
To (Owner): Project: Owner's Contract No.:	PWSD No. 15, Jackson County, MO Buckner-Tarsney Transmission Main Replacement - South 	From (Contractor): Contract: Contractor's Project No.:	Via (Engineer): Lamp Rynearson Engineer's Project No.: 0321049,01

[illegible]

<p>Contractor's Certification</p> <p>The undersigned Contractor certifies, to the best of its knowledge, the following:</p> <p>(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;</p> <p>(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</p> <p>(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.</p>		
<p>Contractor Signature</p> <p>By: _____</p>		<p>Date: _____</p>

<p>Payment of: \$ _____</p> <p>(Line 8 or other - attach explanation of the other amount)</p>	<p>(Engineer)</p> <p>(Date)</p>
<p>is recommended by: _____</p>	
<p>Payment of: \$ _____</p> <p>(Line 8 or other - attach explanation of the other amount)</p>	<p>(Owner)</p> <p>(Date)</p>
<p>is approved by: _____</p>	
<p>Approved by: _____</p> <p>Funding or Financing Entity (if applicable)</p> <p>(Date)</p>	

BUCKNER-TARSNEY
TRANSMISSION MAIN REPLACEMENT - SOUTH
FOR
PWSD NO. 15 OF JACKSON COUNTY, MO

RE: Performance and Payment Bonds

The undersigned is an authorized representative of _____, Surety for
_____, Contractor, for and during the entire period of construction
of the Buckner-Tarsney Transmission Main Replacement – South project.

Authorization is hereby given by the Surety to PWSD No. 15, Jackson County, MO to insert the
date of the execution of the Contract on the Bonds and Powers of Attorney.

Surety (SEAL)

Authorized Representative

Date

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

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

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

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

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

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

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

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

1.02 Terminology

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

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

ARTICLE 2—PRELIMINARY MATTERS

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

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

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor **up to** four printed copies of the Contract **Documents** (including one fully signed counterpart of the Agreement), and, **if requested**, 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.

C. **See SC-2.02**

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract **and no later than the pre-construction conference** (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. **Engineer shall review the preliminary Schedule submitted in accordance with Paragraph 2.03A within ten (10) days of receipt of said schedule.** 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. **See SC-2.06.**

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.

H. See SC-3.01

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 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 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.
3. **reuse, make or permit to be made any modifications to the Contract Documents or electronic media without the prior written authorization from Engineer. Contractor and any Subcontractor or Supplier acknowledges Engineer's Contract Documents, including all documents on electronic media, as instruments of professional service. Contractor and any Subcontractor or Supplier agrees to waive any claim against Engineer arising for any unauthorized reuse or modification of the 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 day indicated in the Notice to Proceed.

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.

- B. Should Contractor, during the course of construction, damage or destroy any established property corners or reference points, such monuments shall be replaced by Engineer at Contractor's sole and exclusive expense. The costs for replacement of these monuments shall be deducted from Contractor's final payment. For replacement of section corners and other permanent monuments, the actual cost to Owner of replacing such monuments shall be deducted from Contractor's final payment.
- C. The deductions discussed above shall be made regardless of whether the monument had to be replaced for construction of the improvements or not. Contractor shall include the anticipated cost for replacement of monuments in the unit prices for other items.
- D. Lines and grades stakes shall be established by Engineer one (1) time. If Contractor removes or destroys such stakes before the prosecution of the work requires it, the costs for replacement of stakes shall be done at the sole and exclusive expense of Contractor.

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;

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.

E. See SC-5.03.

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 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); (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing) **and (4) continue working in other areas of the Project unless otherwise directed.** 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.
- L. See SC-5.06.

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. **It shall be the duty of Contractor to notify Engineer, in writing, within thirty (30) days prior to the expiration of the guarantee period to allow inspection of the Work. Unless Contractor shall furnish such notice, the obligation to maintain and repair**

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the Work in proper condition shall continue in force until thirty (30) days after such notice is sent by Contractor to Engineer or Owner.

- 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.
- F. Failure of Owner to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner 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 **30** days prior written notice (**10 days prior written notice for non-payment**) 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 (**See SC-6.03**).
- 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, 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) **or shall assume the risks associated with damages or losses that would be covered by such insurance**. The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions **(See SC-6.04)**.
- 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.

D. See SC-7.03.

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 a **reviewed** 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. **(See SC-7.07.)**
- 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). **Unless otherwise provided in the Contract Documents**, 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.
- B. See SC-7.10**

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 **reviewed** 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 **reviewed** 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.
 - 1. **It is understood and agreed that Engineer has no constructive use of the project Site; has no control or authority over the means, methods and sequences of construction; and, therefore has no ongoing responsibility whatsoever for construction site safety, a responsibility that has been wholly vested in Contractor and all Subcontractors and Suppliers. Notwithstanding the above, Engineer has a duty to preserve and protect public health, safety and welfare. Accordingly, it is Engineer's professional responsibility to take what Engineer believes are prudent measures should Engineer encounter situations that Engineer believes create a danger to public health, safety or welfare. Contractor understands this situation and agrees to defend Engineer and hold Engineer harmless from claims arising from Engineer's exercise of professional responsibility in this regard.**
- 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, **including from damage due to weather or other causes until Engineer accepts the work in writing and including any time that the Work is suspended;** 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. **See SC-7.13.**
- 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 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 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 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 will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
3. Engineer's review of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review 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 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 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, or acceptance 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 **reviewed** 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. 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 **review** 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 **reviewed** 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.*

1. 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 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 design professional **licensed in the state in which Project is located**, 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, 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.

See SC-9.13.

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 (**See SC-10.03**).

- 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 unit price and estimated quantity (subject to the provisions of Paragraph 13.03);**
 - 3. 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
 - 4. 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. **See SC-13.01.**

- 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. **See SC-13.01.**
 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. **See SC-13.03.**

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.

1. The costs of inspections and tests not meeting the requirements of the Contract Documents shall be paid for by the Owner, but such costs shall be deducted from Contractor's final payment.

- 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:* **Within 30 days** 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 **and stipulated penalties** 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, **other than that identified in Section 14.05 B.**, 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 **30 days** 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 written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction and pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall 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.

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. **See SC-15.03.**
- 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. **See SC-15.05.**

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;
 - 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 **within thirty (30) days after receiving notice and** 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 comply with the terms of Owner's written instructions **within thirty (30) days after receiving notice**, 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.

G. See SC-15.08.

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 **may** 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) 7 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 **if any**. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 Methods and Procedures

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

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

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

18.02 *Computation of Times*

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

18.03 *Cumulative Remedies*

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

18.04 *Limitation of Damages*

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

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

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

18.09 *Successors and Assigns*

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

18.10 *Headings*

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

SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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

SC-1.01.A.3 Add the following language to the end of Paragraph 1.01.A.3.

The Application for Payment form to be used on this Project is EJCDC No. C-620.

SC-1.01.A.9 Add the following language to the end of Paragraph 1.01.A.8.

The Change Order form to be used on this Project is EJCDC No. C-941.

ARTICLE 2—PRELIMINARY MATTERS

2.02 *Copies of Documents*

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

Owner shall furnish to Contractor **2** printed copies of the Contract Documents (including one fully signed counterpart of the Agreement), and **one copy** in electronic portable document format (PDF).

2.06 *Electronic Transmittals*

SC-2.06 Delete Paragraphs 2.06.B and 2.06.C in their entirety and insert the following in their place:

B. *Electronic Documents Protocol*: The parties shall conform to the following provisions in Paragraphs 2.06.B and 2.06.C, together referred to as the Electronic Documents Protocol ("EDP" or "Protocol") for exchange of electronic transmittals.

1. *Basic Requirements*

- a. To the fullest extent practical, the parties agree to and will transmit and accept Electronic Documents in an electronic or digital format using the procedures described in this Protocol. Use of the Electronic Documents and any information contained therein is subject to the requirements of this Protocol and other provisions of the Contract.
- b. The contents of the information in any Electronic Document will be the responsibility of the transmitting party.
- c. Electronic Documents as exchanged by this Protocol may be used in the same manner as the printed versions of the same documents that are exchanged using

non-electronic format and methods, subject to the same governing requirements, limitations, and restrictions, set forth in the Contract Documents.

- d. Except as otherwise explicitly stated herein, the terms of this Protocol will be incorporated into any other agreement or subcontract between a party and any third party for any portion of the Work on the Project, or any Project-related services, where that third party is, either directly or indirectly, required to exchange Electronic Documents with a party or with Engineer. Nothing herein will modify the requirements of the Contract regarding communications between and among the parties and their subcontractors and consultants.
- e. When transmitting Electronic Documents, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the receiving party's use of software application packages, operating systems, or computer hardware differing from those established in this Protocol.
- f. Nothing herein negates any obligation 1) in the Contract to create, provide, or maintain an original printed record version of Drawings and Specifications, signed and sealed according to applicable Laws and Regulations; 2) to comply with any applicable Law or Regulation governing the signing and sealing of design documents or the signing and electronic transmission of any other documents; or 3) to comply with the notice requirements of Paragraph 18.01 of the General Conditions.

2. System Infrastructure for Electronic Document Exchange

- a. Each party will provide hardware, operating system(s) software, internet, e-mail, and large file transfer functions ("System Infrastructure") at its own cost and sufficient for complying with the EDP requirements. With the exception of minimum standards set forth in this EDP, and any explicit system requirements specified by attachment to this EDP, it is the obligation of each party to determine, for itself, its own System Infrastructure.
 - 1) The maximum size of an email attachment for exchange of Electronic Documents under this EDP is **10 MB**. Attachments larger than that may be exchanged using large file transfer functions or physical media.
 - 2) Each Party assumes full and complete responsibility for any and all of its own costs, delays, deficiencies, and errors associated with converting, translating, updating, verifying, licensing, or otherwise enabling its System Infrastructure, including operating systems and software, for use with respect to this EDP.
- b. Each party is responsible for its own system operations, security, back-up, archiving, audits, printing resources, and other Information Technology ("IT") for maintaining operations of its System Infrastructure during the Project, including coordination with the party's individual(s) or entity responsible for managing its System Infrastructure and capable of addressing routine communications and other IT issues affecting the exchange of Electronic Documents.
- c. Each party will operate and maintain industry-standard, industry-accepted, ISO-standard, commercial-grade security software and systems that are intended to protect the other party from: software viruses and other malicious software like worms, trojans, adware; data breaches; loss of confidentiality; and other threats in

the transmission to or storage of information from the other parties, including transmission of Electronic Documents by physical media such as CD/DVD/flash drive/hard drive. To the extent that a party maintains and operates such security software and systems, it shall not be liable to the other party for any breach of system security.

- d. In the case of disputes, conflicts, or modifications to the EDP required to address issues affecting System Infrastructure, the parties shall cooperatively resolve the issues; but, failing resolution, the Owner is authorized to make and require reasonable and necessary changes to the EDP to effectuate its original intent. If the changes cause additional cost or time to Contractor, not reasonably anticipated under the original EDP, Contractor may seek an adjustment in price or time under the appropriate process in the Contract.
- e. Each party is responsible for its own back-up and archive of documents sent and received during the term of the contract under this EDP, unless this EDP establishes a Project document archive, either as part of a mandatory Project website or other communications protocol, upon which the parties may rely for document archiving during the specified term of operation of such Project document archive. Further, each party remains solely responsible for its own post-Project back-up and archive of Project documents after the term of the Contract, or after termination of the Project document archive, if one is established, for as long as required by the Contract and as each party deems necessary for its own purposes.
- f. If a receiving party receives an obviously corrupted, damaged, or unreadable Electronic Document, the receiving party will advise the sending party of the incomplete transmission.
- g. The parties will bring any non-conforming Electronic Documents into compliance with the EDP. The parties will attempt to complete a successful transmission of the Electronic Document or use an alternative delivery method to complete the communication.

C. *Software Requirements for Electronic Document Exchange; Limitations*

- 1. Each party will acquire the software and software licenses necessary to create and transmit Electronic Documents and to read and to use any Electronic Documents received from the other party (and if relevant from third parties), using the software formats required in this section of the EDP.
 - a. Prior to using any updated version of the software required in this section for sending Electronic Documents to the other party, the originating party will first notify and receive concurrence from the other party for use of the updated version or adjust its transmission to comply with this EDP.
- 2. The parties agree not to intentionally edit, reverse engineer, decrypt, remove security or encryption features, or convert to another format for modification purposes any Electronic Document or information contained therein that was transmitted in a software data format, including Portable Document Format (PDF), intended by sender not to be modified, unless the receiving party obtains the permission of the sending party or is citing or quoting excerpts of the Electronic Document for Project purposes.

3. Software and data formats for exchange of Electronic Documents will conform to the requirements set forth in Exhibit A to this EDP, including software versions, if listed.

SC-2.06 Supplement Paragraph 2.06 of the General Conditions by adding the following paragraph:

D. *Requests by Contractor for Electronic Documents in Other Formats*

1. Release of any Electronic Document versions of the Project documents in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be at the sole discretion of the Owner.
2. To extent determined by Owner, in its sole discretion, to be prudent and necessary, release of Electronic Documents versions of Project documents and other Project information requested by Contractor ("Request") in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be subject to the provisions of the Owner's response to the Request, and to the following conditions to which Contractor agrees:
 - a. The content included in the Electronic Documents created by Engineer and covered by the Request was prepared by Engineer as an internal working document for Engineer's purposes solely and is being provided to Contractor on an "AS IS" basis without any warranties of any kind, including, but not limited to any implied warranties of fitness for any purpose. As such, Contractor is advised and acknowledges that the content may not be suitable for Contractor's application or may require substantial modification and independent verification by Contractor. The content may include limited resolution of models, not-to-scale schematic representations and symbols, use of notes to convey design concepts in lieu of accurate graphics, approximations, graphical simplifications, undocumented intermediate revisions, and other devices that may affect subsequent reuse.
 - b. Electronic Documents containing text, graphics, metadata, or other types of data that are provided by Engineer to Contractor under the request are only for convenience of Contractor. Any conclusion or information obtained or derived from such data will be at the Contractor's sole risk and the Contractor waives any claims against Engineer or Owner arising from use of data in Electronic Documents covered by the Request.
 - c. Contractor shall indemnify and hold harmless Owner and Engineer and their subconsultants from all claims, damages, losses, and expenses, including attorneys' fees and defense costs arising out of or resulting from Contractor's use, adaptation, or distribution of any Electronic Documents provided under the Request.
 - d. Contractor agrees not to sell, copy, transfer, forward, give away or otherwise distribute this information (in source or modified file format) to any third party without the direct written authorization of Engineer, unless such distribution is specifically identified in the Request and is limited to Contractor's subcontractors. Contractor warrants that subsequent use by Contractor's subcontractors complies with all terms of the Contract Documents and Owner's response to Request.
3. In the event that Owner elects to provide or directs the Engineer to provide to Contractor any Contractor-requested Electronic Document versions of Project information that is not explicitly identified in the Contract Documents as being available to Contractor, the Owner shall be reimbursed by Contractor on **an hourly rate basis in**

EJCDC® C-800, Supplementary Conditions of the Construction Contract.

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accordance with the Engineer's current hourly charge rate schedule for any engineering costs necessary to create or otherwise prepare the data in a manner deemed appropriate by Engineer.

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: **[If there are no such reports, so indicate in the table.]**

Report Title & Author	Date of Report	Technical Data
No reports available		

- 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: **[If there are no such drawings, so indicate in the table.]**

Drawings Title	Date of Drawings	Technical Data
No drawings available		[Identify Technical Data]

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

5.06 *Hazardous Environmental Conditions*

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

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely: **[If there are no such reports, so indicate in the table]**

Report Title & Author	Date of Report	Technical Data
No reports available		

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: **[If there are no such drawings, so indicate in the table]**

Drawings Title	Date of Drawings	Technical Data
No drawings available		[Identify Technical Data]

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

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

1. *Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC® C-610, Performance Bond (2010, 2013, or 2018 edition).
2. *Required Payment Bond Form:* The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2010, 2013, or 2018 edition).

6.02 *Insurance—General Provisions*

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: **[Here list by legal name (not category, role, or classification) other persons or entities to be included as additional insureds. See GC-6.03.C. Include Owner, Engineer, Geotechnical Engineer (if applicable), City or County (if required).]**
- 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	\$2,700,000
Each employee	\$2,700,000
Policy limit	\$2,700,000

- 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	\$2,700,000
Products—Completed Operations Aggregate	\$2,700,000
Personal and Advertising Injury	\$2,700,000
Bodily Injury and Property Damage—Each Occurrence	\$2,700,000

- 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:
Bodily Injury	
Each Person	\$2,700,000
Each Accident	\$2,700,000
Property Damage	
Each Accident	\$2,700,000

- 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	\$3,000,000
General Aggregate	\$3,000,000

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

Contractor's Pollution Liability	Policy limits of not less than:
Each Occurrence/Claim	\$1,000,000
General Aggregate	\$1,000,000

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

Contractor's Professional Liability	Policy limits of not less than:
Each Claim	\$2,250,000
Annual Aggregate	\$2,250,000

6.04 *Builder's Risk and Other Property Insurance*

SC-6.04 Supplement Paragraph 6.04 of the General Conditions with the following provisions:

- A. *Builder's Risk Requirements:* The builder's risk insurance must:
1. be written on a builder's risk "all risk" policy form that at a minimum includes insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment stored and in transit, and must not exclude the coverage of the following risks: fire; windstorm; hail; flood; earthquake, volcanic activity, and other earth

movement; lightning; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; and water damage (other than that caused by flood).

- a. Such policy will include an exception that results in coverage for ensuing losses from physical damage or loss with respect to any defective workmanship, methods, design, or materials exclusions.
 - b. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake, volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance will be provided through other insurance policies acceptable to Owner and Contractor.
2. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 3. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of contractors, engineers, and architects).
 4. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier). If this coverage is subject to a sublimit, such sublimit will be a minimum of 20 percent of the Contract Price.
 5. extend to cover damage or loss to insured property while in transit. If this coverage is subject to a sublimit, such sublimit will be a minimum of 20 percent of the Contract Price.
 6. allow for the waiver of the insurer's subrogation rights, as set forth in this Contract.
 7. allow for partial occupancy or use by Owner by endorsement, and without cancellation or lapse of coverage.
 8. include performance/hot testing and start-up, if applicable.
 9. be maintained in effect until the Work is complete, as set forth in Paragraph 15.06.D of the General Conditions, or until written confirmation of Owner's procurement of property insurance following Substantial Completion, whichever occurs first.
 10. include as named insureds the Owner, Contractor, Subcontractors (of every tier), and any other individuals or entities required by this Contract to be insured under such builder's risk policy. For purposes of Paragraphs 6.04, 6.05, and 6.06 of the General

Conditions, and this and all other corresponding Supplementary Conditions, the parties required to be insured will be referred to collectively as “insureds.”

11. If debris removal in connection with repair or replacement of insured property is subject to a coverage sublimit, such sublimit will be a minimum of 25 percent of the Contract Price.
12. Owner’s protective liability in the name of the Owner and Engineer in the amount of \$2,250,000.00.

ARTICLE 7—CONTRACTOR’S RESPONSIBILITIES

7.03 *Labor; Working Hours*

SC-7.03 Add the following new subparagraphs immediately after Paragraph 7.03.C:

1. Regular working hours will be as stated in the Jackson County Annual Wage Order.
2. Owner's legal holidays are as stated in the Jackson County Annual Wage Order.
3. **Requests to work outside regular working hours shall be submitted a minimum of 14 days prior to performing any work outside of regular working hours.**

7.04 *Services, Materials, and Equipment*

SC-7.04 Add the following new subparagraph immediately after Paragraph 7.04.C:

- D. The Missouri Domestic Products Procurement Act (Sections 34.350 – 34.359, RSMo) requires that for all bids with a value of \$25,000 or more, the goods or commodities purchased by any public agency or used or supplied in the construction, alteration, repair, or maintenance of any public works must be manufactured or produced in the United States.

7.07 *Concerning Subcontractors and Suppliers*

SC-7.07 Add a new sub-paragraph immediately after Paragraph 7.07.A:

1. Contractor shall self-perform with its own workforce a minimum of **60** percent of the total cost of the Contract. Purchasing of materials does not qualify as self-performing the Work.

7.10 *Taxes*

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

- B. Owner is exempt from payment of sales and compensating use taxes of the State of **Missouri** 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.
 3. A Missouri Sales Tax Exemption is provided for by Missouri State Statute 144.062, effective August 28, 1994, which allows for a sales tax exemption to contractors constructing, repairing or remodeling facilities or purchasing personal property and materials to be incorporated into and consumed in the construction of projects for a tax

exemption entity. The tax-exempt entity shall furnish a signed exemption certification, authorizing such purchases for the construction, repair or remodeling project, to each contractor and/or subcontractor. For further information please contact the Missouri Department of Revenue, P.O. Box 840, Jefferson City, MO 65105, telephone 573/751-2836.

ARTICLE 8—OTHER WORK AT THE SITE

No Supplementary Conditions in this article.

ARTICLE 9—OWNER’S RESPONSIBILITIES

9.13 *Owner’s Site Representative*

SC-9.13 Add the following new paragraph immediately after Paragraph 9.12 of the General Conditions:

9.13 *Owner’s Site Representative*

- A. Owner will furnish an “Owner’s Site Representative” to represent Owner at the Site and assist Owner in observing the progress and quality of the Work. The Owner’s Site Representative is not Engineer’s consultant, agent, or employee.

ARTICLE 10—ENGINEER’S STATUS DURING CONSTRUCTION

10.03 *Resident Project Representative*

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

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

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 **ten (10) 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 **twenty-five (25) percent** from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

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

No Supplementary Conditions in this Article.

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

15.03 Substantial Completion

SC-15.03 Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

SC-15.05 Add the following new subparagraph to Paragraph 15.05.B:

1. If some or all of the Work has been determined not to be at a point of Final Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

15.08 Correction Period

SC-15.08 Add the following new Paragraph 15.08.G:

- G. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be the number of years set forth in SC-6.01.B.1; or if no such revision has been made in SC-6.01.B, then the correction period is hereby specified to be **[number]** years after Substantial Completion.

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.

EXHIBIT A—SOFTWARE REQUIREMENTS FOR ELECTRONIC DOCUMENT EXCHANGE

Item	Electronic Documents	Transmittal Means	Data Format	Note (1)
a.1	General communications, transmittal covers, meeting notices and responses to general information requests for which there is no specific prescribed form.	Email	Email	
a.2	Meeting agendas, meeting minutes, RFI's and responses to RFI's, and Contract forms.	Email w/ Attachment	PDF	(2)
a.3	Contractors Submittals (Shop Drawings, "or equal" requests, substitution requests, documentation accompanying Sample submittals and other submittals) to Owner and Engineer, and Owner's and Engineer's responses to Contractor's Submittals, Shop Drawings, correspondence, and Applications for Payment.	Email w/ Attachment	PDF	
a.4	Correspondence; milestone and final version Submittals of reports, layouts, Drawings, maps, calculations and spreadsheets, Specifications, Drawings and other Submittals from Contractor to Owner or Engineer and for responses from Engineer and Owner to Contractor regarding Submittals.	Email w/ Attachment or LFE	PDF	
a.5	Layouts and drawings to be submitted to Owner for future use and modification.	Email w/ Attachment or LFE	DWG	
a.6	Correspondence, reports and Specifications to be submitted to Owner for future word processing use and modification.	Email w/ Attachment or LFE	DOC	
a.7	Spreadsheets and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	EXC	
a.8	Database files and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	DB	
Notes				
(1)	All exchanges and uses of transmitted data are subject to the appropriate provisions of Contract Documents.			
(2)	Transmittal of written notices is governed by Paragraph 18.01 of the General Conditions.			
Key				
Email	Standard Email formats (.htm, .rtf, or .txt). Do not use stationery formatting or other features that impair legibility of content on screen or in printed copies			
LFE	Agreed upon Large File Exchange method (FTP, CD, DVD, hard drive)			
PDF	Portable Document Format readable by Adobe® Acrobat Reader Version 10 or later			
DWG	Autodesk® AutoCAD .dwg format Version 13			
DOC	Microsoft® Word .docx format Version 2016 or later			
EXC	Microsoft® Excel .xls or .xml format Version 2016 or later			
DB	Microsoft® Access .mdb format Version 2016 or later			

Work Change Directive No.

Date of Issuance: _____ Effective Date: _____
Owner: PWSD No. 15, Jackson County, MO Owner's Contract No.: _____
Contractor: _____ Contractor's Project No.: _____
Engineer: Lamp Rynearson Engineer's Project No.: 0321049.01
Project: Buckner-Tarsney Transmission Main Contract Name: Buckner-Tarsney Transmission Main
Replacement - South Replacement - South

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

Description:

Attachments: *[List documents supporting change]*

Purpose for Work Change Directive:

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

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

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

Contract Price \$ _____ [increase] [decrease].
Contract Time _____ days [increase] [decrease].

Basis of estimated change in Contract Price:

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

RECOMMENDED:

AUTHORIZED BY:

RECEIVED:

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

Approved by Funding Agency (if applicable)

By: _____
Title: _____

Date: _____

Change Order No. _____

Date of Issuance:	Effective Date:
Owner: PWSD No. 15, Jackson County, MO	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer: Lamp Rynearson	Engineer's Project No.: 0321049.01
Project: Buckner-Tarsney Transmission Main Replacement – South	Contract Name: Buckner-Tarsney Transmission Main Replacement - South

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

Description:

Attachments: *[List documents supporting change]*

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

RECOMMENDED:

ACCEPTED:

ACCEPTED:

By: _____ Engineer (if required)	By: _____ Owner (Authorized)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

Approved by Funding Agency (if applicable)

By: _____ Date: _____
Title: _____

Field Order No. _____

Date of Issuance:	Effective Date:
Owner: PWSD No. 15, Jackson County, MO	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer: Lamp Rynearson	Engineer's Project No.: 0321049.01
Project: Buckner-Tarsney Transmission Main Replacement – South	Contract Name: Buckner-Tarsney Transmission Main Replacement - South

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

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

Description:

Attachments:

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

Copy to: Owner

ANTI-DISCRIMINATION AGAINST ISRAEL ACT CERTIFICATION

Pursuant to RSMo. §34.600, a public entity shall not enter into a contract to acquire or dispose of services, supplies, information technology, or construction valued at \$100,000, or with a contractor having ten or more employees, unless the contract includes a written certification that the person or company is not currently engaged in, and shall not, for the duration of the contract, engage in a boycott of:

Goods or services from the State of Israel;

Companies doing business in, or with, Israel

Companies authorized by, licensed by, or organized under, the laws of the State of Israel; or

Persons or entities doing business in the State of Israel.

For a definition of the term “boycott”, please refer to RSMo. §34.600.3. A copy of the statute is attached.

By signing below, the entity agrees and certifies that it does not currently, and will not for the duration of this contract, engage in any of the types of boycotts listed above.

_____:

By: _____

Name: _____

Title: _____

34.600. Citation of law — public entity contracts, no boycott of goods or services from Israel — definitions — violation, voiding of contract — rulemaking authority.

1. This section shall be known as the "Anti-Discrimination Against Israel Act".

2. A public entity shall not enter into a contract with a company to acquire or dispose of services, supplies, information technology, or construction unless the contract includes a written certification that the company is not currently engaged in and shall not, for the duration of the contract, engage in a boycott of goods or services from the State of Israel; companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel; or persons or entities doing business in the State of Israel. This section shall not apply to contracts with a total potential value of less than one hundred thousand dollars or to contractors with fewer than ten employees.

3. As used in this section, the following terms and phrases shall mean:

(1) **"Boycott Israel"** and **"boycott of the State of Israel"**, engaging in refusals to deal, terminating business activities, or other actions to discriminate against, inflict economic harm, or otherwise limit commercial relations specifically with the State of Israel; companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel; or persons or entities doing business in the State of Israel, that are all intended to support a boycott of the State of Israel. A company's statement that it is participating in boycotts of the State of Israel; companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel; or persons or entities doing business in the State of Israel, or that it has taken the boycott action at the request, in compliance with, or in furtherance of calls for a boycott of the State of Israel; companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel; or persons or entities doing business in the State of Israel shall be considered to be conclusive evidence that a company is participating in a boycott of the State of Israel; companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel; or persons or entities doing business in the State of Israel; provided, however that a company that has made no such statement may still be considered to be participating in a boycott of the State of Israel; companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel; or persons or entities doing business in the State of Israel if other factors warrant such a conclusion;

(2) **"Company"**, any for-profit or not-for-profit organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, limited liability company, or other entity or business association, including all wholly owned subsidiaries, majority-owned subsidiaries, parent companies, or affiliates of those entities or business associations;

(3) **"Public entity"**, the state of Missouri or any political subdivision thereof, including all boards, commissions, agencies, institutions, authorities, and bodies politic and corporate of the state created by or in accordance with state law or regulations.

4. Any contract that fails to comply with the provisions of this section shall be void against public policy.

5. The commissioner of administration or his or her designee may promulgate regulations to implement the provisions of this section* so long as they are consistent with this section and do not create any exceptions. Any rule or portion of a rule, as that term is defined in section 536.010, that is created under the authority of this section shall become effective only if it complies with and is subject to all of the provisions of chapter 536 and, if applicable, section 536.028. This section and chapter 536 are nonseverable and if any of the powers vested with the general assembly pursuant to chapter 536 to review, to delay the effective date, or to disapprove and annul a rule are subsequently held unconstitutional, then the grant of rulemaking authority and any rule proposed or adopted after August 28, 2020, shall be invalid and void.

(L. 2020 S.B. 739)



MISSOURI DEPARTMENT OF

REVENUE**Project Exemption Certificate**

This form is to be completed and given to your contractor.

Exempt Entity and Project Information	Name of Exempt Entity Issuing the Certificate		Missouri Tax Exemption Number	
	Address		City	State ZIP Code
	E-mail Address			
	Project Number	Project Begin Date (MM/DD/YYYY) ____/____/____	Estimated Project End Date (MM/DD/YYYY) ____/____/____	
	Description of Project			
	Project Location		Certificate Expiration Date (MM/DD/YYYY) ____/____/____	
Provide a signed copy of this certificate, along with a copy of the exempt entity's Missouri Sales and Use Tax Exemption Letter to each contractor or subcontractor who will be purchasing tangible personal property for use in this project. It is the responsibility of the exempt entity to ensure the validity of the information on the certificate. The exempt entity must issue a new certificate if any of the information changes.				
Signature of Authorized Exempt Entity		Printed Name of Authorized Exempt Entity	Date (MM/DD/YYYY) ____/____/____	

Contractor	The Missouri exempt entity named above hereby authorizes the purchase, without sales tax, of tangible personal property to be incorporated or consumed in the construction project identified herein and no other, pursuant to Section 144.062, RSMo . Under penalties of perjury, I declare that the above information and any attached supplement is true, complete, and correct.			
	Name of Purchasing Contractor		Signature of Contractor	Date (MM/DD/YYYY) ____/____/____
	Address		City	State ZIP Code

Subcontractor	Contractors - Present this to your supplier in order to purchase the necessary materials tax exempt. Complete the Subcontractor portion if extending the certificate to your subcontractor. The contractor must sign the form in the space provided below.			
	Name of Purchasing Subcontractor			
	Address		City	State ZIP Code
	Signature of Contractor		Contractor's Printed Name	Date (MM/DD/YYYY) ____/____/____

Form 5060 (Revised 11-2019)

Taxation Division
P.O. Box 358
Jefferson City, MO 65105-0358

Phone: (573) 751-2836
Fax: (573) 522-1666
E-mail: salestaxexemptions@dor.mo.gov

Visit <http://dor.mo.gov/business/sales/sales-use-exemptions.php> for additional information.

AFFIDAVIT of COMPLIANCE

(Section 285.530.2, Revised Statutes of Missouri)

State of Missouri)
) ss:
County of _____)

Now this ____ day of _____, 20____, the undersigned, being first duly sworn, deposes and says:

1. I am more than 18 years of age.
2. I make this affidavit from my personal knowledge of the facts stated herein or upon information and facts available to me as a duly authorized owner, partner, corporate, or LLC officer or Human Relations Director of _____("Contractor").
3. I am authorized to make this affidavit on behalf of Contractor.
4. I state and affirm that Contractor is enrolled and is currently participating in E-Verify, a federal work authorization program or another equivalent electronic verification of work authorization program operated by the United States Department of Homeland Security under the Immigration Reform and Control Act of 1986.
5. Further, Contractor does not knowingly employ any person who is an unauthorized alien.
6. Further, Contractor has performed an electronic verification check as described above on all workers hired since January 1, 2009 or obtained documents required for completion of a Federal I-9 form before it began participating in E-Verify.
7. Attached to this affidavit is a true and accurate copy of Contractor's Memorandum of Understanding with the United States concerning the use of E-Verify.

I certify under penalty of perjury that the statements above are complete, true and accurate to the best of my knowledge and belief.

Authorized Agent, Partner, Owner or Officer

Printed Name

Title

If Contractor has a Human Relations Director or equivalent that person must sign as an affiant as well.

I certify under penalty of perjury that the statements above are complete, true and accurate to the best of my knowledge and belief.

Human Relations Director

Printed Name

Title

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

Notary Public

My commission expires:

This form is promulgated pursuant to 15CSR 60-15.020. Use of this form is not required but the Attorney General has deemed this affidavit sufficient in form to satisfy the requirements of section 285.540 RSMo., Supp. 2008.



**DIVISION OF
LABOR
STANDARDS**

MISSOURI DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS

AFFIDAVIT

COMPLIANCE WITH THE PREVAILING WAGE LAW

I, _____, upon being duly sworn upon my oath state that: (1) I am the
(Name)

_____ of _____; (2) all requirements of
(Title) (Name of Company)

§§ 290.210 to 290.340, RSMo, pertaining to the payment of wages to workers employed on public works projects
have been fully satisfied with regard to this company's work on _____;
(Name of Project)

(3) I have reviewed and am familiar with the prevailing wage rules in 8 CSR 30-3.010 to 8 CSR 30-3.060; (4) based upon my knowledge of these rules, including the occupational titles set out in 8 CSR 30-3.060, I have completed full and accurate records clearly indicating (a) the names, occupations, and crafts of every worker employed by this company in connection with this project together with an accurate record of the number of hours worked by each worker and the actual wages paid for each class or type of work performed, (b) the payroll deductions that have been made for each worker, and (c) the amounts paid to provide fringe benefits, if any, for each worker; (5) the amounts paid to provide fringe benefits, if any, were irrevocably made to a fund, plan, or program on behalf of the workers; (6) these payroll records are kept and have been provided for inspection to the authorized representative of the contracting public body and will be available, as often as may be necessary, to such body and the Missouri Department of Labor and Industrial Relations; (7) such records shall not be destroyed or removed from the state for one year following the completion of this company's work on this project; and (8) there has been no exception to the full and complete compliance with the provisions and requirements of Annual Wage Order No. _____ Section _____ issued by the Missouri Division of Labor Standards and applicable to this project located in _____ County, Missouri, and completed on the _____ day of _____, _____.

The matters stated herein are true to the best of my information, knowledge, and belief. I acknowledge that the falsification of any information set out above may subject me to criminal prosecution pursuant to §§290.340, 570.090, 575.040, 575.050, or 575.060, RSMo.

Signature

Subscribed and sworn to me this _____ day of _____, _____.

My commission expires _____, _____.

Notary Public

Receipt by Authorized Public Representative

Missouri

Division of Labor Standards

WAGE AND HOUR SECTION



MICHAEL L. PARSON, Governor

Annual Wage Order No. 29

Section 048
JACKSON COUNTY

In accordance with Section 290.262 RSMo 2000, within thirty (30) days after a certified copy of this Annual Wage Order has been filed with the Secretary of State as indicated below, any person who may be affected by this Annual Wage Order may object by filing an objection in triplicate with the Labor and Industrial Relations Commission, P.O. Box 599, Jefferson City, MO 65102-0599. Such objections must set forth in writing the specific grounds of objection. Each objection shall certify that a copy has been furnished to the Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102-0449 pursuant to 8 CSR 20-5.010(1). A certified copy of the Annual Wage Order has been filed with the Secretary of State of Missouri.

Original Signed by

Todd Smith, Director
Division of Labor Standards

Filed With Secretary of State: March 10, 2022

Last Date Objections May Be Filed: April 11, 2022

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Asbestos Worker	\$67.05
Boilermaker	\$37.33*
Bricklayer	\$59.20
Carpenter	\$60.21
Lather	
Linoleum Layer	
Millwright	
Pile Driver	
Cement Mason	\$54.35
Plasterer	
Communications Technician	\$58.66
Electrician (Inside Wireman)	\$66.21
Electrician Outside Lineman	\$64.01
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Elevator Constructor	\$37.33*
Glazier	\$56.84
Ironworker	\$66.35
Laborer	\$49.04
General Laborer	
First Semi-Skilled	
Second Semi-Skilled	
Mason	\$54.39
Marble Mason	
Marble Finisher	
Terrazzo Worker	
Terrazzo Finisher	
Tile Setter	
Tile Finisher	
Operating Engineer	\$60.71
Group I	
Group II	
Group III	
Group III-A	
Group IV	
Group V	
Painter	\$50.15
Plumber	\$74.12
Pipe Fitter	
Roofer	\$57.93
Sheet Metal Worker	\$71.70
Sprinkler Fitter	\$61.32
Truck Driver	\$47.50
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

*The Division of Labor Standards received fewer than 1,000 reportable hours for this occupational title. The public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title as defined in Section 290.210 RSMo.

Heavy Construction Rates for
JACKSON County

Section 048

OCCUPATIONAL TITLE	**Prevailing Hourly Rate
Carpenter	\$60.95
Millwright	
Pile Driver	
Electrician (Outside Lineman)	\$84.43
Lineman Operator	
Lineman - Tree Trimmer	
Groundman	
Groundman - Tree Trimmer	
Laborer	\$49.28
General Laborer	
Skilled Laborer	
Operating Engineer	\$58.78
Group I	
Group II	
Group III	
Group IV	
Truck Driver	\$50.64
Truck Control Service Driver	
Group I	
Group II	
Group III	
Group IV	

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

If a worker is performing work on a heavy construction project within an occupational title that is not listed on the Heavy Construction Rate Sheet, use the rate for that occupational title as shown on the Building Construction Rate Sheet.

*The Division of Labor Standards received fewer than 1,000 reportable hours for this occupational title. The public works contracting minimum wage is established for this occupational title using data provided by Missouri Economic Research and Information Center.

**The Prevailing Hourly Rate includes any applicable fringe benefit amounts for each occupational title as defined in Section 290.210 RSMo.

OVERTIME and HOLIDAYS

OVERTIME

For all work performed on a Sunday or a holiday, not less than twice (2x) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work.

For all overtime work performed, not less than one and one-half (1½) the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed or the public works contracting minimum wage, whichever is applicable, shall be paid to all workers employed by or on behalf of any public body engaged in the construction of public works, exclusive of maintenance work or contractual obligation. For purposes of this subdivision, **"overtime work"** shall include work that exceeds ten hours in one day and work in excess of forty hours in one calendar week; and

A thirty-minute lunch period on each calendar day shall be allowed for each worker on a public works project, provided that such time shall not be considered as time worked.

HOLIDAYS

January first;
The last Monday in May;
July fourth;
The first Monday in September;
November eleventh;
The fourth Thursday in November; and
December twenty-fifth;

If any holiday falls on a Sunday, the following Monday shall be considered a holiday.



STATE OF MISSOURI
OFFICE OF ADMINISTRATION

DOMESTIC PRODUCTS PROCUREMENT ACT (BUY AMERICAN) PREFERENCE

In accordance with sections 34.350-34.359, RSMo, the bidder is instructed to provide information regarding the point of manufacture for each of the products being bid so that the product's eligibility for the Domestic Products Procurement Act (Buy American) Preference can be determined. This information is requested for the **finished product** only, not for components of the finished product. The bidder may be required to provide supporting documentation indicating proof of compliance.

QUALIFYING FOR THE DOMESTIC PRODUCTS PREFERENCE

A product qualifies for the preference if one of the following circumstances exist:

- if manufactured or produced in the U.S.; or
- if the product is imported into the U.S. but is covered by an existing international trade treaty that affords the specific product the same status as a product manufactured or produced in the U.S.; or
- if only one line of products is manufactured or produced in the U.S.

NON-DOMESTIC PRODUCT

If the product is not manufactured or produced in the U.S. and does not otherwise qualify as domestic, then it will be considered non-domestic and not eligible for the preference.

THE BIDDER MUST COMPLETE THE FOLLOWING APPLICABLE TABLES TO CERTIFY WHETHER:

(Table 1) **ALL** products bid are manufactured or produced **in the U.S.** and qualify for the Domestic Products Procurement Act Preference; OR

(Table 2) **ALL** products bid are manufactured or produced **outside the U.S.** and do not otherwise qualify for the Domestic Products Procurement Act Preference; OR

(Tables 3-6) Not all products bid fall into the prior two categories so an **item-by-item certification** is necessary.

The bidder is responsible for certifying the information provided on the exhibit is accurate by signing where indicated at the end of the exhibit.

TABLE 1 - ALL PRODUCTS MANUFACTURED OR PRODUCED IN U.S. (eligible for preference)

Check the box to the right if ALL products bid are MANUFACTURED OR PRODUCED IN THE U.S.:

☐

TABLE 2 - ALL PRODUCTS MANUFACTURED OR PRODUCED OUTSIDE U.S. AND DON'T QUALIFY FOR PREFERENCE (ineligible for preference)

Check the box to the right if ALL products bid are MANUFACTURED OR PRODUCED OUTSIDE THE U.S. and DO NOT OTHERWISE QUALIFY for the Domestic Products Procurement Act Preference:

☐

TABLES 3 THROUGH 6 - ITEM BY ITEM CERTIFICATION (NOT ALL PRODUCTS BID FALL INTO PRIOR TWO TABLES)

- For those line items for which a U.S.-manufactured or produced product is bid, complete **Table 3**.
- For those line items which are manufactured or produced outside the U.S. that do not qualify for the Domestic Products Procurement Act Preference, complete **Table 4**.
- For those line items which are not manufactured or produced in the U.S., but for which there is a U.S. trade treaty, law, agreement, or regulation in compliance with section 34.359, RSMo, complete **Table 5**.
- For those line items which are not manufactured or produced in the U.S., but for which there is only one U.S. Manufacturer of that product or line of products, complete **Table 6**.

TABLE 3 - U.S.-MANUFACTURED OR PRODUCED PRODUCTS (Eligible for Preference)

- List item numbers of products bid that are U.S.-manufactured or produced and therefore qualify for the Domestic Products Procurement Act Preference.
- List U.S. city and state where products bid are manufactured or produced.

ITEM #	U.S. CITY/STATE WHERE MANUFACTURED/PRODUCED	ITEM #	U.S. CITY/STATE WHERE MANUFACTURED/PRODUCED

TABLE 4 - FOREIGN-MANUFACTURED OR PRODUCED PRODUCTS (Not Eligible for Preference)

- List item numbers of products bid that are foreign manufactured or produced and do not otherwise qualify for the Domestic Products Procurement Act Preference.
- List country where product bid is manufactured or produced.

ITEM #	COUNTRY WHERE MANUFACTURED/PRODUCED	ITEM #	COUNTRY WHERE MANUFACTURED/PRODUCED

TABLE 5 - FOREIGN-MANUFACTURED OR PRODUCED PRODUCTS BUT U.S. TRADE TREATY, LAW, AGREEMENT, OR REGULATION APPLIES (Eligible for Preference)

- List item numbers of products bid that are foreign manufactured or produced but qualify for the Domestic Products Procurement Act Preference because a U.S. Trade Treaty, Law, Agreement, or Regulation applies.
- Identify country where proposed foreign-made product is manufactured or produced.
- Identify name of applicable U.S. Trade Treaty, Law, Agreement, or Regulation that allows product to be brought into the U.S. duty/tariff-free.
- Identify website URL for the U.S. Trade Treaty, Law, Agreement, or Regulation.
- NOTE: As an imported product, if an import tariff is applied to the item, it does not qualify for the preference. In addition, "Most Favored Nation" status does not allow application of the preference unless the product enters the U.S. duty/tariff-free.

ITEM #	COUNTRY WHERE PROPOSED FOREIGN-MADE PRODUCT IS MANUFACTURED/PRODUCED	NAME OF APPLICABLE U.S. TRADE TREATY, LAW, AGREEMENT, OR REGULATION	OFFICIAL WEBSITE URL FOR THE U.S. TREATY, LAW, AGREEMENT, OR REGULATION

TABLE 6 - FOREIGN-MANUFACTURED OR PRODUCED PRODUCTS BUT ONLY ONE U.S. MANUFACTURER PRODUCES PRODUCT OR LINE OF PARTICULAR GOOD (Eligible for Preference)

- List item numbers of products bid that are foreign manufactured or produced but qualify for the Domestic Products Procurement Act Preference because only one U.S. Manufacturer produces the product or line of a particular good.
- Identify country where proposed foreign-made product is manufactured or produced.
- Identify sole U.S. manufacturer name.
- Identify name of sole U.S. manufactured product/line of particular good.

ITEM #	COUNTRY WHERE PROPOSED FOREIGN-MADE PRODUCT IS MANUFACTURED/PRODUCED	SOLE U.S. MANUFACTURER NAME	NAME OF SOLE U.S. MANUFACTURED PRODUCT OR LINE OF PARTICULAR GOOD

The bidder is responsible for certifying the information provided on this exhibit is accurate by signing below:

I hereby certify that the information provided herein is true and correct, and complies with all provisions of sections 34.350 to 34.359, RSMo. I understand that any misrepresentation herein constitutes the commission of a class A misdemeanor.

SIGNATURE (IF SUBMITTING BID ELECTRONICALLY, SCANNED OR TYPED SIGNATURE IS ACCEPTABLE)

COMPANY NAME

Statement of Compliance

(To be submitted with weekly payroll if not using form WH-347)

I hereby certify the following:

- 1) The payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;
- 2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;
- 3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

Signature of Contractor or Subcontractor

Date

DETAILED SPECIFICATIONS

SECTION 01 10 00 - SUMMARY OF WORK - GENERAL

PART 1 - GENERAL

1.01 SECTION INCLUDES:

- A. Work covers construction of PWSD No. 15, Jackson County, MO Buckner-Tarsney Transmission Main Replacement - South, located in Jackson County, Missouri.
- B. Related requirements specified elsewhere:
 - 1. Section 01 50 00 - Temporary Facilities and Controls
 - 2. Section 01 25 00 - Substitutions and Product Options
- C. Contractor's duties:
 - 1. Except as specifically noted, provide and pay for:
 - a. Labor, materials, and equipment.
 - b. Tools, construction equipment, and machinery.
 - c. Water, heat, and utilities required for construction.
 - d. Other facilities and services necessary for proper execution and completion of work.
 - 2. Pay legally required taxes.
 - a. Owner will furnish Contractor a state sales tax number for use by the Contractor.
 - b. Other use taxes shall be paid by the Contractor.
 - 3. Secure and pay for, as necessary, for proper execution and completion of work and as applicable at time of receipt of bids:
 - a. Permits
 - b. Government fees
 - c. Licenses
 - 4. Give required notices.
 - 5. Comply with codes, ordinances, rules, regulations, orders, and other legal requirements of public authorities which bear on performance of work.
 - 6. Promptly submit written notice to Engineer of observed variance of Contract Documents from legal requirements.

It is the Contractor's responsibility to make certain that drawings and specifications comply with codes and regulations.

 - a. Appropriate modifications to Contract Documents will adjust necessary changes.
 - b. Assume responsibility for work known to be contrary to such requirements, without notice.
 - 7. Enforce strict discipline and good order among employees. Do not employ on work:
 - a. Unfit persons.
 - b. Persons not skilled in assigned task.
 - 8. Pay minimum wages and comply with prevailing wage law requirements.
 - 9. Comply with nondiscrimination requirements.

10. Perform all supervision and work necessary to provide safe working conditions for completion of all required excavation and construction work.
11. Verify dimensions indicated on drawings with field dimensions before fabrication or ordering of materials. Do not scale drawings.
12. Notify Owner of existing conditions differing from those indicated on the Drawings. Do not remove or alter structural components without prior written approval.
13. Contractor to obtain all required permits.

1.02 CONTRACTOR USE OF SITE AND PREMISES

A. Confine Operations at site to areas permitted by:

1. Law.
2. Ordinances.
3. Permits.
4. Contract Documents.
5. Owner.

B. Do not unreasonably encumber site with materials or equipment.

C. Do not load structure with weight that will endanger structure.

D. Assume full responsibility for protection and safekeeping of products stored on premises.

E. Move any stored products which interfere with operations of Owner.

F. Obtain and pay for use of additional storage or work areas needed for operations.

G. Use of site.

Exclusive and complete for execution of work, except:

1. Contractor shall maintain access to existing facilities.
2. Owner shall have access to existing facilities.

H. Operation of the existing facilities:

1. It is essential that the existing facilities be kept in operation during the construction period. Short periods of shutdown will be possible to permit modifications or connections to or tie in with existing facilities. The time period will vary with Owner usage at different times of the day.
2. In some instances, it will be necessary to complete and put new facilities into operation prior to commencing work on existing facilities which would require their removal from service.
3. Where interruption of existing facilities is necessary, the Contractor is to plan their work in cooperation with facility operating personnel for the least possible disruption of service. Night or weekend work may be necessary. When facility operation must be suspended because of the Contractor's work, the Contractor shall have all necessary materials and equipment on hand and have ample work force available prior to beginning the work.

1.03 POSITION, GRADIENT, AND ALIGNMENT

- A. All construction work shall be done to the lines and grades shown on the Plans. Detailed survey and staking for location and grade of individual structures or other construction, as well as measurements and elevations within structures, shall be performed by the Contractor.
- B. Any work done without being properly located and established by base lines, offset stakes, benchmarks, or other basic reference points, may be ordered removed and replaced at the Contractor's expense.

1.04 PROTECTION AND MAINTENANCE OF PUBLIC AND PRIVATE PROPERTY

- A. Protect, shore, brace, support, and maintain all underground pipes, conduits, drains, and other underground construction uncovered or otherwise affected by the construction work performed. All pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, and other surface structures affected by construction operations in connection with the performance of the Contract shall be restored to the original condition thereof as determined and approved by the Engineer. All replacements of such underground construction and surface structures or parts thereof shall be made with new materials conforming to the requirements of these Specifications or, if not specified, as approved by the Engineer.
- B. The Contractor shall be responsible for all damage to streets, roads, highways, railroads, shoulders, ditches, embankments, culverts, bridges, power transmission lines, oil lines, gas lines, or other public or private property or facility, regardless of location or character, which may be caused by moving, hauling, or otherwise transporting equipment, materials, or workers to or from the work or any part or site thereof, whether by the Contractor, or their subcontractor(s). The Contractor shall make satisfactory and acceptable arrangements with the owner of, or the agency or authority having jurisdiction over, the damaged property or facility concerning its repair or replacement, or payment of costs incurred in connection, with said damage.

1.05 INSPECTION BY PUBLIC AGENCIES

- A. Authorized representatives of the Engineers, MDNR, and Owner shall have access to the work wherever it is in preparation or progress. The Contractor shall provide proper facilities for such access and inspection.

1.06 CONTRACTOR'S RESPONSIBILITY FOR MATERIALS

- A. The Contractor shall be responsible for the condition of all materials furnished by them, and the Contractor shall replace at their own cost and expense, any and all such material found to be defective in design or manufacture, or which has been damaged after delivery. This includes the furnishing of all materials and labor required for replacement of any installed material which are found to be defective at any time prior to the expiration of one (1) year from the date of final payment.

1.07 EXPLANATION OF PROPOSAL

- A. The Owner reserves the right to select any or all alternates. The best and lowest bid will be determined by bidder's qualifications and the low total price for the base bid and the alternate bid items selected by the Owner.
- B. Base bid: the base bid includes complete construction of the project, ready for use, except for items specifically listed as alternate bid items.

1.08 "OR EQUAL" STATEMENT

- A. When a manufacturer's name is used in these Specifications it is used to establish a standard and the words "or equal", if not stated, are implied.

PART 2 - PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01 20 00 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Method of measurement.
- B. Basis of payment.

1.02 RELATED SECTIONS

- A. Section EJCDC C-410 - Bid Form
- B. Section 01 10 00 - Summary of Work - General
- C. Section 01 77 00 - Project Closeout

1.03 UNIT PRICES

- A. Additions to unit quantities can only be made with an approved Change Order.
- B. Various items of work are bid on a unit price basis to provide flexibility for change in quantities during construction. Final payment will be based on the installed quantities provided those quantities do not exceed the approved contract quantities as bid, or as adjusted by an approved change order. Some items that also have unit prices are listed as part of lump sum items for connections. Items listed as part of a lump sum item shall not be used to adjust quantities for items with unit prices.
- C. If changes are made in the indicated limits during construction, payment for the item will be adjusted upward or downward, in accordance with the actual change in plan quantity, using the unit price for the item listed in the Proposal.
- D. The Contract unit prices bid in the Proposal shall be full compensation for furnishing, preparing, transporting, delivering, and placing all materials, and for all labor, equipment, tools, and incidentals, as well as all subsidiary items, necessary to complete the Work.
- E. All items shown on the Plans or covered by these Specifications but for which there are no unit or Lump Sum prices, will not be paid for directly but will be considered as subsidiary items in connection with items for payment. The Contractor shall include allowance for all such items in their unit prices bid.
- F. Quantities of unit price items can be adjusted upward or downward by the Owner to the extent that the final Contract amount for that section is between 80 and 120 percent of the original bid Contract price. Amounts of individual items may be varied to any extent and individual items may be omitted entirely as long as the above limits are met.

PART 2 - PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

3.01 GENERAL

- A. The method of measurement and basis of payment for each item as listed in the Bid Form shall be as stipulated in each of the following items.

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Measurement and Payment

3.02 WATER LINES

A. Non-payment items:

1. Bond, insurance, and mobilization:

No direct payment will be made for these items.

2. Subsidiary items:

Certain items of work required for completion of the project are not listed in the Proposal as pay items. Such items will be considered subsidiary to the Work and no direct payment will be made for them. The bidder shall include in the bid price of other items all cost of the subsidiary items.

B. Measurement:

If the pipeline route has not been measured by surveying, the pipe installed shall be measured for payment along the road parallel and adjacent to water lines. Direct measurements shall be multiplied by 1.005 to determine lengths for payment. Segments which cannot be measured in this manner will be chained along the trench. Calibration of measuring equipment shall be made immediately prior to each day's measurements. Calibration and measurement shall be done by the Owner's representative and the Contractor or their representatives. If Contractor elects not to be present during measurement, Contractor shall not contest results thereof.

C. Pipe and related items:

The pipe installed will be paid for based on a measured pipeline length as measured by the Owner's representative. The Contract unit price shall include all materials, excavation and trenching, labor, tools, thrust restraint, flushing, pigging, disinfection, and pressure testing necessary to install complete water lines.

This includes the following:

1. Repair to driveways, damaged culverts, curbs, sidewalks, paved areas, utilities, signs, and sodded areas. Damaged culverts shall be replaced with county approved pipe on County Road ROW and with approved material on MoDOT ROW.
2. Crossing and repair of streets, parking areas, and drive-ways that are not designated as separate bid items in the Proposal.
3. Stream or ditch crossings not designated as separate bid items in the Proposal. This includes road crossings not designated as pay items in other parts of the Proposal.
4. Rock excavation and pipe bedding as per the detailed Specifications. Also included is off-site disposal of any material that is unsuitable for backfill. All excavation on the project is unclassified.
5. Pipeline or cable crossings. Crossings shall comply with the requirements of the utility company. Notify the company 72 hours in advance of crossing.
6. Trenching under fences or repair of fences to the satisfaction of the land Owner.
7. Initial and final cleanup. Where un-compacted backfill is specified, initial cleanup shall include mounding of backfill over trench, unless it is contrary to the desires of the property Owner, and removal of material unsuitable for backfill. After sufficient settlement has occurred, in the opinion of the Engineer, final cleanup

shall be done. This method shall be used unless modified by other sections of these Specifications.

8. Crushed rock for repair of roads, driveways, and parking areas. The material, labor, hauling, and disposal of material displaced by the crushed rock are subsidiary items to the pipeline installation and will not be paid for separately unless bid as a separate item. Crushed rock shall be placed as directed by the Construction Representative.
9. Seeding and Restoration. Seeding as detailed in Section 32 92 19 - Seeding, Fertilizing, and Mulching will be considered a subsidiary item for which no direct payment will be made.
10. Skips. Reduction of amounts due Contractor will be made for sections of line, 500 feet or less, that are left because of rock excavation being required or other difficult conditions. Deductions in amounts otherwise due Contractor will be the Engineer's estimate of the cost to complete the Skip. The Contractor is urged to make lines continuous as soon as possible so that this deduction will not be made.
11. Fittings specified for use on the pipeline, the cost of these fittings shall be figured in the unit cost of the pipeline.
12. Temporary Flushing Assemblies shall be considered a subsidiary item for which no direct payment will be made.
13. Crushed rock pipe bedding.
14. Open-cut and crossings not called out as bid items.

D. Valve and box:

The payment for valves and valve boxes shall include labor, tools, and materials required for a complete installation. The materials include valve as specified, specified valve box with required length and other incidentals. The bidder shall note that no deduction is made in the pipeline length to account for valves which are paid for separately.

E. Ductile iron change of direction fittings:

1. Fittings shall be considered a subsidiary item.

F. Crossing:

1. River crossing:

The river crossing shall be paid for at the Contract unit price as stated in the Proposal on a lineal foot basis. Payments shall be for all materials, labor, and tools necessary for a complete installation (including directional bore, pipeline, excavation, and backfill).

2. Street crossing - bored:

Payment for crossings designated as Street Crossings on the Plans shall include all labor, tools, and materials necessary for a complete installation. This includes all excavation, boring, steel or PVC casing, compaction of the backfill and repair of pavement. The carrier pipe will be paid for separately. Where street pavements are on State Highway right-of-way, requirements of the State shall be strictly adhered to.

3. Street crossings - open cut:

The City street crossings shall be paid for at the Contract unit price specified in the Proposal. Payment shall include all materials, labor, and tools necessary for a complete crossing and repair of the street. This will include pavement removal, trenching, disposal of excess material, crushed rock backfill, replacement of pavement, casing pipe, casing spacers, end seals and all other necessary items. The carrier pipe will be paid for separately.

G. Connections:

1. Connection to existing pipeline:

Payment for connection made to existing pipeline shall include all labor, tools, and materials necessary for a complete working connection as shown on plans. The Contractor is to include all subsidiary materials required, as well as the major items called for on the Plans, when preparing the bid. No additional amount will be paid to obtain a complete connection.

Example: A lump sum price for connection to existing includes the valve at the connection fitting, if called for (often, but not always, may be a tapping valve). Also included are any additional valves and piping within detail, straddle blocks, tracer wire, plugs, fittings, cut, cap, and abandon waterlines, and temporary flushing fittings listed on the bid form or within the connecting detail. Hydrants shown in the connection detail drawing are paid for at contract unit price in the Bid Form.

The Contractor should verify the size of pipe, type of pipe, and orientation before acquiring the materials and beginning the connection. No additional payment will be paid for connections that must be made to pipeline under pressure. Coordination with the Owner's personnel is mandatory and to be considered a part of this item. It is possible that some connections will have to be made at off-peak usage periods.

H. Polyethylene encasement (fittings):

The polyethylene encasement where DIP fittings are called for will be subsidiary to the pipeline items. The price for pipe shall include the encasement on all DIP and fittings along the route.

I. Straddle Blocks will be considered a subsidiary item for which no direct payment will be made.

J. Locator Wire:

Payment for No. 12 solid insulated locator wire shall be paid for at the contract unit price as specified in the Proposal. Payment shall include all materials, labor and tools necessary for a complete installation including the locator wire to be installed with the pipe in the trench.

K. Utility location:

Contractor shall locate and protect all utilities by pot holing or other methods. This is a subsidiary item to the pipe. No additional payment will be made for this work.

L. Abandon:

Payment for abandoning existing waterline shall include all labor, tools and materials necessary for complete abandonment after new line is in service as noted on the plan. Abandonment may include cutting, capping, blocking and removing and salvaging valves. See plans for specific information related to each abandon item.

END OF SECTION

SECTION 01 25 00 - SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Substitutions and product options.

1.02 RELATED REQUIREMENTS

- A. Section C-200; Instructions to Bidders
- B. Section 01 33 23 - Shop Drawings, Product Data, and Samples

1.03 PRODUCTS LIST

- A. Within 30 days after date of Contract, submit to Engineer five (5) copies of complete list of all products which are proposed for installation.
- B. Tabulate list by each Specification section.
- C. For products specified under reference standards, include with listing of each product:
 - 1. Name and address of manufacturer.
 - 2. Trade name.
 - 3. Model or catalog designation.
 - 4. Manufacturer's data:
 - a. Performance and test data.
 - b. Reference standards.

1.04 CONTRACTOR'S OPTIONS

- A. For products specified only by reference standards, manufacturer shall submit data for approval 10 days prior to bid date; requests received after that time will not be considered.
- B. For products specified by naming several products or manufacturers, select any product and manufacturer named.
- C. For products specified by naming one (1) product, Contractor must submit a request, as required for substitution, for any product not specifically named.

1.05 SUBSTITUTIONS

- A. During bidding, Engineer will consider written requests from prime Bidders for substitutions, received at least 10 days prior to bid date; requests received after that time will not be considered.
- B. Submit five (5) copies of request for substitution. Include in request:
 - 1. Complete data substantiating compliance of proposed substitution with Contract Documents.
 - 2. For products:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature.
 - 1) Product description.
 - 2) Performance and test data.
 - 3) Reference standards.

- c. Samples.
 - d. Name and address of similar projects on which product was used, and date of installation.
 - 3. For construction methods:
 - a. Detailed description of proposed method.
 - b. Drawings illustrating methods.
 - 4. Itemized comparison of proposed substitution with product or method specified.
 - 5. Data relating to changes in construction schedule.
 - 6. Relation to separate contracts.
- C. In making request for substitution, Bidder represents:
- 1. They have personally investigated proposed product or method and determined that it is equal or superior in all respects to that specified.
 - 2. They shall provide the same guarantee for substitution as for product or method specified.
 - 3. They shall coordinate installation of accepted substitution into work, making such changes as may be required for work to be complete in all respects.
 - 4. They waive all claims for additional costs related to substitution which consequently becomes apparent.
 - 5. Cost data is complete and includes all related costs under their contract, but excludes:
 - a. Costs under separate contracts.
 - b. Engineer's redesign.
- D. Substitutions will not be considered if:
- 1. They are indicated or implied on Shop Drawings or Project Data submittals without formal requests submitted in accord with Paragraph 1.04.
 - 2. Acceptance will require substantial revision of Contract Documents.
- E. Engineer will notify Bidders of all approved substitutions by Addendum listing manufacturers of each item.

PART 2 - PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01 29 76 - APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Progress payment and final payment.

1.02 RELATED SECTIONS

- A. EJCDC Section C-410: Bid Forms
- B. EJCDC Section C-700: Standard General Conditions
- C. EJCDC Section C-800: Supplementary Conditions

1.03 QUALITY ASSURANCE

- A. Prior to start of construction, secure the Engineer's approval of the schedule of values to be submitted under the Regulations of the Contract and further described in these Specifications.
- B. During progress of the Work, modify the schedule of values for approval by the Engineer to reflect changes in the contract sum due to change orders or other modifications of the Contract or Work schedule.
- C. Base requests for payment on the approved Work completed, not to exceed the schedule of values.

1.04 SUBMITTALS

- A. Progress payment submittal:
 - 1. Make formal submittal by typing in the agreed data, on EJCDC C-620 – Contractor's Application for Payment, plus continuation sheet or sheets.
 - 2. Included with certificate for payment shall be properly executed bills of sale for materials and equipment upon which payment is being requested.
 - 3. Sign and notarize the application and certificate for payment.
 - 4. Submit the original and three (3) copies to the Engineer for payment approval.
 - 5. Payments shall be submitted to the Engineer on the 20th of each month for approval. Owner will process payment submittal within 30 days after Engineer approval.
- B. Final payment:
 - 1. Final payment shall be processed as described within these specifications.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

Not applicable to this Section.

END OF SECTION

SECTION 01 31 19 - PROJECT MEETINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Project meeting.
- B. Delays in meeting schedules shall not constitute an allowable extension of time when determining liquidated damages.

1.02 RELATED SECTIONS

- A. Section 01 33 23 - Shop Drawings, Product Data, and Samples
- B. Section 01 78 39 - Project Record Documents

1.03 PRE-CONSTRUCTION MEETING

- A. Schedule after date of notice to proceed.
- B. Attendance:
 - 1. Owner.
 - 2. Engineer.
 - 3. General Contractor.
 - 4. Subcontractors.
 - 5. Representatives of governmental or other regulatory agencies.
- C. Minimum agenda:
 - 1. Distribute and discuss:
 - a. List of major subcontractors.
 - b. Tentative construction schedule.
 - 2. Critical work sequencing.
 - 3. Relation and coordination of prime contractors.
 - 4. Designation of responsible personnel.
 - 5. Processing of field decisions and Change Orders.
 - 6. Adequacy of distribution of Contract Documents.
 - 7. Submittal of Shop Drawings, Project Data and Samples.
 - 8. Procedures for maintaining record documents.
 - 9. Use of premises:
 - a. Office and storage areas.
 - b. Owner's requirements.
 - 10. Major equipment deliveries and priorities.
 - 11. Safety and first-aid procedures.
 - 12. Security procedures.
 - 13. Housekeeping procedures.

1.04 PROJECT MEETINGS

- A. Hold called meetings as progress of work dictates.
- B. Location of meetings:
Job Site, or as indicated in notice.
- C. Attendance:
 - 1. Engineer or Engineer's representative.
 - 2. General Contractors.

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Project Meetings

3. Subcontractors as pertinent to agenda.
- D. Minimum agenda:
1. Review work progress since last meeting.
 2. Note field observations, problems, and decisions.
 3. Identify problems which impede planned progress.
 4. Revise construction schedule as indicated.
 5. Plan progress during next work period.
 6. Coordinate projected progress with other prime contractors.
 7. Review submittal schedules, expedite as required to maintain schedule.
 8. Maintaining of quality and work standards.
 9. Review changes proposed by Owner for:
 - a. Effect on construction schedule.
 - b. Effect on completion date.
 10. Complete other current business.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

Not applicable to this Section.

END OF SECTION

SECTION 01 33 23 - SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Shop Drawings, Product Data, and Samples required by specification sections.

1.02 RELATED SECTIONS

- A. Section 01 45 29 - Testing Laboratory Services
- B. Section 01 77 00 - Project Closeout
- C. Section 01 78 39 - Project Record Documents

1.03 SHOP DRAWINGS

- A. Original drawings, prepared by Contractor, subcontractor, supplier or distributor, which illustrate some portion of the Work; showing fabrication, layout, setting or erection details.
- B. Prepared by a qualified detailer.
- C. Identify details by reference to sheet and detail numbers shown on Contract Drawings.
- D. All submittals shall be hard copies unless approval is given by the Engineer to provide electronic submittals.
- E. Reproductions for hard copy submittals:
Opaque diazo prints or blueprints, or black-lines on bond.

1.04 PRODUCT DATA

- A. Manufacturer's standard schematic drawings:
 - 1. Modify drawings to delete information which is not applicable to project.
 - 2. Supplement standard information to provide additional information applicable to project.
- B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data.
 - 1. Clearly mark each copy to identify pertinent materials, products or models.
 - 2. Show dimensions and clearances required.
 - 3. Show performance characteristics and capacities.
 - 4. Show wiring diagrams and controls.

1.05 SAMPLES

- A. Physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.
- B. Office samples: of sufficient size and quantity to clearly illustrate:
 - 1. Functional characteristics of product or material with integrally related parts and attachments devices.
 - 2. Full range of color samples.
 - 3. After review, samples may be used in construction of Project.
- C. Field samples and mock-ups:
 - 1. Erect at Project site at location acceptable to Engineer.

2. Construct each sample or mock-up complete, including work of all trades required in finished work.

1.06 CONTRACTOR RESPONSIBILITIES

- A. Review Shop Drawings, Product Data, and Samples prior to submission.
- B. Verify:
 1. Field measurements.
 2. Field construction criteria.
 3. Catalog numbers and similar data.
- C. Coordinate each submittal with requirements of Work and of Contract Documents.
- D. Contractor's responsibility for errors and omissions in submittals is not relieved by Engineer's review of submittals.
- E. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Engineer's review of submittals, unless the Engineer gives written acceptance of specific deviations.
- F. Notify Engineer, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.
- G. Begin no work which requires submittals until submittal approval.
- H. After Engineer's review, distribute copies.

1.07 SUBMISSION REQUIREMENTS

- A. Schedule submissions at least 10 days before dates approved submittals will be needed.
- B. Hard Copy Submittals:

Submit number of copies of Shop Drawings, Product Data, and Samples that Contractor requires for distribution plus three (3) copies which will be retained by the Engineer.

Electronic Submittals:

Submit Shop Drawing and Product Data in electronic (PDF) format, one (1) file per submission. Files shall be titled using CSI format to match specification section and paragraph. Electronic files shall include all information as required by this specification.
- C. Submit number of Samples specified in each Specification section.
- D. Accompany submittals with transmittal letter, in duplicate for hard copy submittals, containing:
 1. Date.
 2. Project title and number.
 3. Contractor's name and address.
 4. The number of each Shop Drawing, Product Data, and Sample submitted.
 5. Notification of deviations from Contract Documents.
 6. Other pertinent data.
- E. Submittals shall include:
 1. Date and revision dates.
 2. Project title and number.

3. The names of:
 - a. Engineer.
 - b. Contractor.
 - c. Subcontractor.
 - d. Supplier.
 - e. Manufacturer.
 - f. Separate detailer when pertinent.
4. Identification of product or material.
5. Relation to adjacent structure or materials.
6. Field dimensions, clearly identified.
7. Specification section number.
8. Applicable standards, such as ASTM number or Federal Specification.
9. A blank space, 3 inches by 5 inches, for the Engineer's stamp.
10. Identification of deviations from Contract Documents.
11. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements, and compliance with Contract Documents.

1.08 RESUBMISSION REQUIREMENTS

- A. Shop Drawings:
 1. Revise initial drawings as required and resubmit as specified for initial submittal.
 2. Indicate on drawings any changes which have been made other than those requested by Engineer.
3. Product Data and Samples:
Submit new data and samples as required for initial submittal.

1.09 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

- A. Distribute copies of Shop Drawings and Product Data which carry Engineer's stamp, to:
 1. Contractor's file.
 2. Job-site file.
 3. Record Documents file.
 4. Subcontractors.
 5. Supplier.
 6. Fabricator.
- B. Distribute samples as directed.

1.10 ENGINEER'S DUTIES

- A. Review submittals with reasonable promptness.
- B. Review for:
 1. Design concept of project.
 2. Information given in Contract Documents.
- C. Review of separate item does not constitute review of an assembly in which item functions.
- D. Affix stamp and initials or signature indicating review of submittal.
- E. Return submittals to Contractor for distribution.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

Not applicable to this Section.

END OF SECTION

SECTION 01 45 29 - TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Testing:

From time to time during progress of the work, the Owner may require that testing be performed to determine that materials provided for the work meet the specified requirements.

1.02 RELATED SECTIONS

- A. Requirements for testing may be described in various Sections of these Specifications. Where no testing requirements are described, but the Owner decides that testing is required, the Owner may require testing to be performed under current pertinent standards for testing.

1.03 QUALITY ASSURANCE

A. Qualifications of testing laboratory:

The testing laboratory will be qualified to the Owner's approval.

B. Codes and standards:

Testing will be in accordance with all pertinent codes and regulations and with selected standards of the American Society for Testing and Materials.

1.04 TEST REPORT DISTRIBUTION

- A. Promptly process and distribute all required copies of test reports and related instructions to ensure all necessary retesting and/or replacement of materials with the least possible delay in progress of the work. The testing laboratory shall distribute copies of the test results as follows:

Owner	1 copy
Engineer (Lamp Rynearson)	1 copy
Contractor office	1 copy
Project Representative	1 copy
Job Superintendent	1 copy

1.05 PAYMENT FOR TESTING SERVICES

A. Initial services:

1. The Contractor shall pay for all initial testing services for concrete testing during construction. All cost required for mix design shall be paid by Contractor.
2. The Contractor will pay for all initial testing services for soil and compaction testing.
3. Testing not called for but required by Owner will be paid by the Owner.
4. The Contractor shall pay all delivery cost on concrete cylinders.
5. The Contractor shall pay all cost for concrete and asphalt mix design requirements. This cost is not part of testing allowance.

B. Re-testing:

When initial tests indicate non-compliance with the Contract Documents, all subsequent retesting occasioned by the non-compliance shall be performed by the same testing laboratory and the costs thereof will be paid by the Contractor.

1.06 CODE COMPLIANCE TESTING

Inspections and tests required by codes or ordinances, or by a plan approval authority, and made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents.

1.07 CONTRACTOR'S CONVENIENCE TESTING

Inspection or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

PART 2 - PRODUCTS

Not applicable to this section

PART 3 - EXECUTION

1.08 COOPERATION WITH TESTING LABORATORY

- A. Representatives of the testing laboratory shall have access to the Work at all times. Provide facilities for such access in order that the laboratory may properly perform its functions.

1.09 SCHEDULES FOR TESTING

- A. Establishing schedule:
 - 1. By advance discussion with the testing laboratory selected by the Owner, determine the time required for the laboratory to perform its tests and to issue each of its findings.
 - 2. Provide all required time within the construction schedule.
- B. Revising schedule:

When changes of construction schedule are necessary during construction, coordinate all such changes of schedule with the testing laboratory as required.
- C. Adherence to schedule:

When the testing laboratory is ready to test according to the determined schedule but is prevented from testing or taking specimens due to incompleteness of the Work, all extra costs for testing attributable to the delay may be backcharged to the Contractor and shall not be borne by the Owner.

1.10 TAKING SPECIMENS

- A. All specimens and samples for testing, unless otherwise provided in these Contract Documents, will be taken by the testing laboratory; all sampling equipment and personnel will be provided by the testing laboratory; and all deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.
- B. Concrete specimens for test cylinders shall be taken by the Contractor. Four (4) cylinders shall be made for each concrete placement exceeding five (5) cubic yards. Cylinders shall be made in accordance with ACI recommended procedure. Contractor shall deliver samples to the laboratory.

END OF SECTION

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Temporary facilities and controls that are required for this Work but not necessarily limited to:
 - 1. Temporary utilities such as gas, water, electricity, and telephone.
 - 2. Sanitary facilities.
 - 3. Enclosures such as tarpaulins, barricades, and canopies.
 - 4. Schedule of work and plant operation.
 - 5. Field offices and sheds.

1.02 RELATED SECTIONS

- A. Section 01 73 29 - Cutting and Patching
- B. Section 01 78 00 - Closeout Submittals
- C. Utility hook-up: Installation and hook-up of the various utility lines are described in other pertinent sections of these Specifications.

1.03 REFERENCE STANDARDS

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2021a.
- B. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements 2009 (Reapproved 2016).

1.04 PRODUCT HANDLING

- A. Protection:

Use all means necessary to maintain temporary facilities and controls in proper and safe condition throughout progress of the Work.
- B. Replacements:

In the event of loss or damage, immediately make all repairs and replacements necessary at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 UTILITIES

- A. Temporary utilities:
 - 1. General

Provide and pay all costs for all gas, water, and electricity required for the performance of the Work.
 - 2. At start-up Contractor shall provide and pay for all costs associated with filling basins with water.
 - 3. Temporary piping:

Furnish and install all necessary temporary piping and, upon completion of the Work, remove all such temporary piping.

4. Temporary electricity:
 - a. Furnish and install all necessary temporary wiring and associated equipment.
 - b. Furnish and install area distribution boxes so located that the individual trades may use their own construction-type extension cords to obtain proper power and artificial lighting at all points where required by inspectors and for safety.

2.02 SANITARY FACILITIES

- A. Furnish and install all required temporary toilet buildings with sanitary toilets for use by all personnel. Comply with all minimum requirements of all public agencies having jurisdiction. Maintain in a sanitary condition at all times.

2.03 ENCLOSURES

- A. Furnish, install, and maintain for the duration of construction all required scaffolds, tarpaulins, barricades, canopies, warning signs, steps, bridges, platforms, and other temporary construction necessary for proper completion of the Work in compliance with all pertinent safety and other regulations.

2.04 FIELD OFFICE AND SHEDS

- A. Not required as long as Contractor Superintendent is readily available by cellular telephone.

2.05 CONSTRUCTION FENCE

- A. Fence shall be a minimum of four (4) feet high and constructed from snow fence, chain link or plastic safety fence. Fence shall be constructed completely around project.

2.06 TREE PROTECTION

- A. Trees inside project limits shall be protected with barricades. Barricades shall be same material as construction fence and located at tree drip line.

PART 3 - EXECUTION

3.01 REMOVAL

- A. Maintain all temporary facilities and controls as long as needed for the safe and proper completion of the Work. Remove all such temporary facilities and controls as rapidly as progress of the Work will permit or as directed by the Engineer.

3.02 SAFETY

- A. Erection and maintenance of all safety barricades, shoring, fences, and other devices necessary for safe conditions to protect the Work, equipment, workers, public, and others, shall be the responsibility of the Contractor. The Contractor shall erect or construct such devices as conditions may require and shall maintain them to provide safe conditions throughout the construction period.

END OF SECTION

SECTION 01 57 00 - MAINTENANCE OF TRAFFIC AND ACCESS

PART 1 - GENERAL

1.01 GENERAL

- A. The Contractor shall conduct their work so as to interfere as little as possible with public travel, whether vehicular or pedestrian. Whenever it is necessary to cross, obstruct, or close roads, driveways and walks, whether public or private, the Contractor shall, at their own expense, provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to owners of private drives before interfering with them provided that maintenance of traffic will not be required where the Contractor has obtained permission from the owner and tenant of private property, or from the authority having jurisdiction over public property involved, to obstruct traffic for the duration of time as may be agreed upon.
- B. The Contractor shall present a work schedule and a plan for handling traffic during construction for review and approval by the Owner before commencing any work. The traffic control plan shall be certified by an ATSSA Worksite Traffic Supervisor.
- C. Contractor shall obtain required permits 15 days in advance of proposed closure date in order to allow sufficient time for public notification.

1.02 WHEN WORK NOT IN PROGRESS

The work shall be cleaned up at the end of each working day and temporary surfacing shall be placed such that access will be had to all driveways during the night, weekends, holidays and other days when work is not in progress and when the stage of the work does not directly interfere with the drive. The Engineer, at their discretion, may grant short-term exceptions to this requirement in connection with preparing sub-grade and paving.

1.03 CONTACT PERSON

The Contractor shall designate a person (with phone number) who can be reached by the Owner during the night, weekends, holidays and other days when work is not in progress. The Contractor will be responsible, through this person, for making such temporary repairs during said periods as may be needed to meet the requirements of paragraph 1.02 above.

1.04 THROUGH TRAFFIC AND LOCAL TRAFFIC

- A. The Contractor shall handle local traffic along the project in accordance with the applicable sub-sections of Section 616 of the **Missouri** Standard Specifications for Highway Construction. Local traffic includes the traffic to and from side streets in which there is no other outlet.
- B. Where required to provide access for local traffic and when directed by the Engineer, the Contractor shall provide and maintain temporary surfacing consisting of crushed stone. The crushed stone for temporary surfacing shall meet the requirements of Section 1007 of the **Missouri** Standard Specifications for Highway Construction for Type 1 Aggregate, unless the Engineer agrees to a different gradation because of site conditions.

- C. Driveway entrances, steps and finish grading, shall be completed as soon as practicable so that access may be had from the street adjacent property as soon as possible.

PART 2 - PRODUCTS

2.01 TRAFFIC CONTROL DEVICES

- A. In addition to traffic control devices shown on the plans, the Contractor shall provide and maintain all barricades, cones, construction warning signs, flags and flaggers, temporary pavement marking, and incidental devices to protect the traveling public and the Contractor's personnel or equipment on the job site. During all phases of construction, the Contractor shall display the required signs. Any traffic control device not in use shall be either covered, removed, or turned away from the view of on-coming traffic. Whenever the work area changes, all construction warning signs and traffic channelization devices shall be made current, both in legend and function. Temporary pavement marking shall be plastic or paint.
- B. All traffic control devices, design, installation and maintenance of the devices, shall conform to the "Manual on Uniform Traffic Control Devices for Streets and Highway," latest edition, and its most current revisions. No substitutions for the devices required by the above referenced manual will be allowed without the written approval of the Engineer.

2.02 INSPECTION

- A. The project representative on this project will make daily inspections of the traffic control devices installed as part of this contract and maintain an accurate record of any maintenance required and the date on which it was completed.

2.03 MAINTENANCE OF TRAFFIC CONTROL DEVICES

The Contractor will be required, at the time of the preconstruction conference, to detail a method by which the maintenance of the required traffic control devices will be accomplished during the working and non-working hours. The Contractor shall assign a specific person to be responsible for the installation and maintenance of traffic control devices. This information shall be provided to the Owner. The Contractor may, at their option, establish a maintenance agreement, approved by the Owner, with one (1) of the area sign companies to supply, install and maintain required traffic control devices throughout the duration of this project. When the traffic control devices are no longer needed, immediate removal of said devices shall be included in this agreement.

2.04 UTILITIES

Damage to existing utilities during construction of this project which require immediate repair, and which would necessitate the utility company or the Contractor to work in any manner other than described herein, may be considered an "Emergency." When the Owner declares an Emergency, the work shall proceed on a 24 hour a day basis until such time as the roadway can return to normal traffic and all costs, including cost for additional traffic control, will be the sole responsibility of the Contractor.

2.05 EMERGENCY VEHICLE ACCESS

The Contractor shall coordinate their work with public safety officials for emergency vehicle access.

2.06 COMMUNICATIONS WITH PROPERTY OWNERS AND TENANTS

- A. The Contractor shall endeavor, with the cooperation and concurrence of the Owner, to communicate with property owners and tenants affected by the work. Such communications may be both written and verbal. The emphasis shall be on advance notification and explanation of how the property owner or tenant will be affected during the course of the work.
- B. The Contractor shall investigate, answer and take care of complaints from property owners and tenants in connection with their work during the progress thereof.

2.07 ADDITIONAL TRAFFIC CONTROL DEVICES

- A. The Owner or the Owners Representative may inspect the work area at various times to determine if any additional traffic control devices are necessary or if any maintenance is required to the traffic control devices in place. Any traffic control device which requires maintenance or any additional traffic control needs found during these inspections will be reported to the Contractor. It will be the responsibility of the Contractor to perform the necessary maintenance or provide additional traffic control devices as requested by the Engineer. Failure to comply with this request will result in suspension of work in the street right-of-way until approval is obtained. No separate payment will be made for additional traffic control devices.

2.08 EXISTING TRAFFIC SIGNS, STOP SIGNS, AND STREET SIGNS

- A. All existing traffic signs, stop signs, and street signs in the way of the work shall be carefully removed by the Contractor and replaced. The required function of stop signs and other signs affecting driver safety shall be preserved by the Contractor whenever a street is open to traffic.
- B. Upon completion of the project, all street signs shall be reset by the Contractor as approved by the Engineer. No separate payment will be made for this work.

END OF SECTION

SECTION 01 73 29 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Coordination of work under the Contract; work under separate contracts, and coordination of various parts of work.

1.02 RELATED SECTIONS

- A. Section 31 23 16 - Excavation, Backfill, and Site Grading

1.03 SUBMITTALS

- A. Prior to cutting, submit notice requesting consent to proceed with cutting, including:
 - 1. Identification of project.
 - 2. Description of affected work.
 - 3. Necessity for cutting.
 - 4. Effect on other work, on structural integrity of Project.
 - 5. Description of proposed work. Designate:
 - a. Scope of cutting and patching.
 - b. Contractor and trades to execute work.
 - c. Products proposed to be used.
 - d. Extent of refinishing.
 - 6. Alternatives to cutting and patching.
 - 7. Designation of party responsible for cost of cutting and patching.
- B. Prior to cutting and patching inform Construction Observer.
- C. Should conditions of work, or schedule, indicate change of materials or methods, submit written recommendation, including:
 - 1. Conditions indicating change.
 - 2. Recommendations for alternative materials or methods.
 - 3. Submittals as required for substitutions.
- D. Submit notice designating time worked will be uncovered to provide for observation.

1.04 SYSTEM DESCRIPTION

- A. Execute cutting (including excavating), fitting, or patching of work required to:
 - 1. Make several parts fit properly.
 - 2. Uncover work to provide for installation of ill-timed work.
 - 3. Remove and replace defective work.
 - 4. Remove and replace work not conforming to requirements of Contract Documents.
 - 5. Remove samples of installed work as specified for testing.
 - 6. Install specified work in existing construction.
- B. In addition to Contract requirements, upon written instructions of Engineer:
 - 1. Uncover work to provide for Engineer's observation of covered work.
 - 2. Remove samples of installed materials for testing.
 - 3. Remove work to provide for alteration of existing work.
- C. Do not endanger any work by cutting or altering work or any part of it.
- D. Do not cut or alter work of another Contractor without written notice.

1.05 PAYMENT FOR COSTS

- A. Costs caused by ill-timed or defective work, or work not conforming to contract documents, including costs for additional services of Engineer shall be paid by the Contractor.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Match existing materials for cutting and patching work with new materials conforming to Project requirements.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Inspect existing conditions of work, including elements subject to movement or damage during:
 - 1. Cutting and patching.
 - 2. Excavating and backfilling.
- B. After uncovering work, inspect conditions affecting installation of new products.

3.02 PREPARATION (PRIOR TO CUTTING):

- A. Provide shoring, bracing, and support to maintain structural integrity of project.
- B. Provide protection for other portions of project.
- C. Provide protection from elements.

3.03 PERFORMANCE

- A. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances and finishes.
- B. Execute cutting and demolition by methods which shall prevent damage to other work and shall provide proper surfaces to receive installation of repairs and new work.
- C. Execute excavating and backfilling as specified in Section 31 23 16 - Excavation, Backfill, and Site Grading.
- D. Restore work which has been cut or removed. Install new products to provide completed work in accordance with requirements of Contract Documents.
- E. Refinish entire surfaces as necessary to provide an even finish.
 - 1. Continuous surfaces: to nearest intersections.
 - 2. Assembly: entire refinishing.
- F. Use cutting tools, not chopping tools. Make neat holes. Minimize damage to adjacent work. Check for concealed utilities and structure before cutting.

END OF SECTION

SECTION 01 74 00 - CLEANUP

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Project cleanup.

1.02 RELATED SECTIONS

- A. EJCDC Section C-700: Standard General Conditions
- B. Section 01 50 00 - Temporary Facilities and Controls
- C. Section 01 77 00 - Project Closeout
- D. Cleaning for Specific Products or Work: Specification Section for that work.

1.03 SAFETY REQUIREMENTS

- A. Hazards Control:
 - 1. Store volatile wastes in covered metal containers and remove from premises daily.
 - 2. Prevent accumulation of wastes which create hazardous conditions.
 - 3. Provide adequate ventilation during use of volatile or noxious substances.
- B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Do not burn or bury rubbish and waste materials on project site.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.01 GENERAL

- A. Maintain premises and public properties free from accumulations of waste, debris, and rubbish caused by operations.
- B. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery, and surplus materials, and clean all sight-exposed surfaces; leave project clean and ready for occupancy.

3.02 DURING CONSTRUCTION

- A. Execute cleaning to ensure that building, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.

- D. Provide on-site dump containers for collection of waste materials, debris, and rubbish.
- E. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.
- F. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.
- G. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.
- H. Remove from the Owner's property and from all public and private property, at Contractor's expense, all temporary structures, rubbish, excess excavation, and waste material resulting from his operations.
- I. Clean all dirt from paved surfaces, not allowing same to pack on the roadway or to create a traffic nuisance. Insofar as practicable, clean all dirt from gravel and oil aggregate surfaces.
- J. All existing sod areas shall be hand raked to remove earth deposited on or in them during construction.
- K. All ditches shall be graded and properly sloped.
- L. Shoulders where sodding, seeding, or surfacing is not required shall be bladed and shaped.

3.03 FINAL CLEANING

- A. Employ experienced workers or professional cleaners for final cleaning.
- B. Broom clean paved surfaces; rake clean other surfaces of grounds.
- C. Maintain cleaning until project, or portion thereof, is occupied by Owner.

END OF SECTION

SECTION 01 77 00 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Administrative procedures, closeout submittals, and forms to be used at substantial completion and at final completion of the Work.

1.02 RELATED SECTIONS

- A. EJCDC Section C-700: Standard General Conditions
- B. Section 01 74 00 - Cleanup
- C. Section 01 78 39 - Project Record Documents

1.03 FINAL PROJECT REVIEW

- A. Contractor shall submit written certification that:
 - 1. Contract Documents have been reviewed.
 - 2. Project has been reviewed for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents.
 - 4. Equipment and systems have been tested in presence of Owner's representative and are operational.
 - 5. Project is completed, and ready for final review.
- B. Engineer will make final project review within seven (7) days after receipt of certification.
- C. Should the Engineer consider that work is finally complete in accordance with requirements of Contract Documents the Project will be closed.
- D. Should the Engineer consider that work is not finally complete:
 - 1. The Engineer will notify Contractor, in writing, stating reasons.
 - 2. Contractor shall take immediate steps to remedy the stated deficiencies and send second written notice to the Engineer certifying that work is complete.
 - 3. Engineer will review work.

1.04 CLOSEOUT SUBMITTALS

- A. Project record documents:
To requirements of Section 01 78 39 - Project Record Documents.
- B. Deliver evidence of compliance with requirements of governing authorities.
- C. Deliver Certificate of Insurance for products and completed operations.

1.05 EVIDENCE OF PAYMENTS AND RELEASE OF LIENS

- A. Contractor's affidavit of payment of debts and claims.
- B. Contractor's affidavit of release of liens, with:
 - 1. Consent of surety of final payment.
 - 2. Contractor's release of waiver of liens.
 - 3. Separate releases of waivers of liens for subcontractors, suppliers, and others with lien rights against property of Owner, together with list of those parties.
- C. All submittals shall be duly executed before delivery.

1.06 INSTRUCTION

- A. Instruct Owner's personnel in operation of all systems, mechanical, electrical, and other equipment.

1.07 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit final statement of accounting to Engineer.
- B. Statement shall reflect all adjustments.
 - 1. Original Contract Sum.
 - 2. Additions and deductions resulting from:
 - a. Previous Change Orders.
 - b. Cash Allowances.
 - c. Other Adjustments.
 - d. Deductions for uncorrected Work.
 - e. Deductions for liquidated damages.
 - f. Deductions for Re-inspection Payments.
 - 3. Total Contract Sum, as adjusted.
 - 4. Previous payments.
 - 5. Sum remaining due.
- C. Engineer will prepare final Change Order, reflecting approved adjustments to Contract Sum not previously made by Change Orders.

1.08 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall submit final application in accordance with requirements of Regulations of the Contract.

1.09 FINAL CERTIFICATE FOR PAYMENT

- A. Engineer will issue final certificate in accordance with provisions of Regulations of the Contract.
- B. Should final completion be materially delayed through no fault of Contractor, Engineer may issue, for Owner's approval, a Semi-Final Certificate for Payment, in accordance with provisions of Regulations of the Contract.

1.10 POST-CONSTRUCTION PROJECT REVIEW

- A. Prior to expiration of one (1) year from Date of Substantial Completion, the Owner may request a visual review of Project in company with Engineer and Contractor to determine whether correction of Work is required, in accordance with provisions of Regulations of the Contract. The Contractor shall be present for the review and be ready to promptly correct any noted deficiencies. The Contractor will also provide equipment as necessary to facilitate this review.
- B. The Engineer will promptly notify Contractor in writing of any observed deficiencies.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

Not applicable to this Section.

END OF SECTION

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Record documents.

1.02 RELATED SECTIONS

- A. Section 01 33 23 - Shop Drawings, Product Data, and Samples

1.03 MAINTENANCE OF DOCUMENTS

- A. Maintain at job site, one (1) copy of:
 - 1. Contract Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Reviewed Shop Drawings.
 - 5. Change Orders.
 - 6. Other Modifications to Contract.
 - 7. Field Test Records.
- B. Maintain documents in clean, dry, legible condition.
- C. Do not use record documents for construction purposes.
- D. Make documents available at all times for inspection by Engineer, appropriate State and Federal Regulatory Agencies, and Owner.
- E. Store documents in temporary field office apart from documents used for construction.
- F. Provide files and racks for storage of documents.
- G. File documents in accordance with Project Filing Format of Uniform Construction Index.

1.04 RECORDING

- A. Label each document "PROJECT RECORD" in two (2) inch high printed letters.
- B. Keep record documents current.
- C. Do not permanently conceal any work until required information has been recorded.
- D. Contract Drawings: Legibly mark to record actual construction:
 - 1. Depths of various elements of sewer pipe and manholes in relation to survey datum.
 - 2. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 - 3. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - 4. Field changes of dimension and detail.
 - 5. Changes made by Change Order or Field Order.
 - 6. Details not on original contract drawings.

- E. Specifications and Addenda: Legibly mark up each section to record:
 - 1. Manufacturer, trade name, catalog number, and Supplier of each product and item of equipment actually installed.
 - 2. Changes made by Change Order or Field Order.
 - 3. Other matters not originally specified.
- F. Shop Drawings: Maintain as record documents; legibly annotate following drawings to record changes made after review.
 - 1. Electrical controls.
 - 2. Equipment.
 - 3. Structural.
 - 4. Mechanical.

1.05 SUBMITTAL

- A. At completion of project, deliver record documents to the Engineer.
- B. Accompany submittal with transmittal letter, in duplicate, containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. Title and number of each record document.
 - 5. Certification that each document as submitted is complete and accurate.
 - 6. Signature of Contractor, or their authorized representative.

PART 2 – PRODUCTS

Not applicable to this Section.

PART 3 – EXECUTION

Not applicable to this Section.

END OF SECTION

SECTION 01 89 00 - SPECIAL CONSTRUCTION REQUIREMENTS

PART 1 - GENERAL

1.01 FOREWORD

- A. The provisions of this Section supplement the other provisions in these Specifications.

1.02 INSURANCE

- A. As required in EJCDC C-700 General Conditions 6.03 and Supplementary Conditions 6.03.
- B. The insuring company shall deliver to the Owner together with all Certificates of Insurance required, a letter signed by an authorized surety representative and certifying that all provisions of the insurance requirements are complied with. A form of the letter is bound in these Specifications following the proposal form, except copy of Owner's Protective Liability Policy shall be required in addition thereto.
- C. The Contractor may not begin work of any nature until all insurance requirements are met and approved by the Owner's attorney.
- D. Contractor shall also supply a General Liability Insurance Certificate with the Missouri Department of Transportation as the Certificate holder. This Certificate shall be for \$3,000,000 per occurrence or as required by MoDOT.

1.03 GENERAL CONDITIONS

General Conditions are general in scope and may refer to conditions not encountered on or in connection with the work covered by this Contract. Any provisions of the General Conditions which pertains to a nonexistent condition and is not applicable to the work to be performed hereunder, or which conflicts with any provision of the General Construction Requirements, shall have no meaning in the Contract and shall be disregarded.

1.04 SPECIFICATIONS

- A. The specifications which shall govern the materials and equipment to be furnished and the work to be performed in the construction of the work under this Contract are identified and indexed in the Table of Contents at the beginning of this volume of the Contract Documents.
- B. No attempt has been made in the designated specifications to segregate work to be performed by any trade or subcontract under any one specification or part thereof. Any segregation between the trade or craft jurisdictional limits will be solely a matter of agreement between the Contractor and their employees and their subcontractors.

1.05 CHANGES, APPROVAL OF MATERIALS, AND AUTHORITY OF CONSTRUCTION REPRESENTATIVE

- A. Wherever the words "or equal" appear in the Plans and Specifications the Engineer shall be the sole judge as to whether an alternate product is equal to the product or trade name mentioned.
- B. The Contractor shall submit to the Engineer at least six (6) copies of shop drawings, catalog data, supporting data, specifications, etc., on all items of equipment and materials before ordering same. No equipment or material of any kind may be placed in

the work until the Contractor and the Construction Representative have received written approval either by letter or by drawings, etc., stamped "Approved-Final." It shall also be the Contractor's responsibility to point out any variations from the Engineer's specifications in any items submitted for approval.

- C. The project shall be constructed in accordance with the Contract Plans and Specifications unless a Change Order is received in writing from the Kansas City office of Lamp Rynearson. The Construction Representative will make general inspection of the construction but will have no authority to make or to allow changes in design or construction. Request for changes desired by the Contractor shall be submitted by them in writing to the Engineer sufficiently in advance to allow proper investigation and consideration. Otherwise, the Engineer will not be responsible for delays.

1.06 MAINTENANCE OF TRAFFIC

- A. The Contractor shall conduct their work so as to interfere as little as possible with public travel, whether vehicular or pedestrian; whenever it is necessary to cross, obstruct, or close roads, driveways, and walks, whether public or private. The Contractor shall at their own expense provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to owners of private drives before interfering with them; provided however, that such maintenance of traffic will not be required at any point where the Contractor has obtained permission from the owner and tenant of private property, or from the authority having jurisdiction over the public property involved, to obstruct traffic at any designated point thereon and for the duration of whatever period of time as may be agreed upon.

1.07 EXISTING UNDERGROUND INSTALLATIONS AND STRUCTURES

- A. Waterlines in the vicinity of the work to be done hereunder are indicated on the plans according to the best information available to the Owner. The Owner does not guarantee the accuracy of such information. The Contractor shall make every effort to locate all underground pipe lines, conduits and structures by contacting owners of underground utilities and by prospecting in advance of trench excavation.
- B. Any delays or extra cost to the Contractor caused by pipe lines or other underground structures or obstructions not shown by the plans, or found in locations different than those indicated, shall not constitute a claim for extra work, additional payment, or damages.

1.08 SUBSURFACE CONDITIONS

- A. Contractor is to satisfy themselves as to the nature of the material to be encountered, including rock excavation and possible ground water and take all conditions into account in their bid.

1.09 EROSION CONTROL

- A. The Contractor will be required to exercise reasonable erosion control of disturbed areas during the construction period through the use of check dams, siltation pools, mulching, etc.

1.10 HISTORICAL/ARCHEOLOGICAL

- A. If, during the course of construction, evidence of deposits of historical or archeological interest is found, the Contractor shall cease operations affecting the find and shall

notify the Owner, who shall notify the Missouri Department of Natural Resources and the Director, Division of Parks & Historical Preservation, P.O. Box 176, 205 Jefferson Street, Jefferson City, MO 65102, phone (573) 751-7858.

- B. No further disturbance of the deposits shall ensue until the Contractor has been notified by the Owner that they may proceed. The Owner will issue a notice to proceed only after the state official has surveyed the find and made a determination to the Environmental Protection Agency and the Owner. Compensation to the Contractor, if any, for lost time or changes in construction to avoid the find, shall be determined in accordance with changed conditions or Change Order provisions of these Specifications.

1.11 COMPLIANCE WITH LAWS

- A. The Contractor shall comply with all applicable Federal, State, and local laws and ordinances.

1.12 "OR EQUAL" STATEMENT

- A. When a manufacturer's name is used in these Specifications it is used to establish a standard and the words "or equal," if not stated, are implied.

1.13 PAYMENT TO CONTRACTOR

- A. The field representative and Contractor shall prepare and submit a monthly pay estimate to the Engineer for approval on or before the 20th day of each month. Request for payment received after the first day of the month will not be considered. This will ensure that no unnecessary delays in payment to contractors will result.
- B. The Engineer will recommend or reject pay estimates within a period of five (5) days after receipt of these estimates. The Owner shall pay the contractor the approved amount due within a period of 30 days from the Engineer's approval.
- C. If the Owner fails to make payment 30 days after approval by the Engineer, in addition to other remedies available to the contractor, then shall be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the Contractor. The legal rate of interest shall be as specified in 34.057 RSMo, latest revision.

1.14 CONSTRUCTION SCHEDULE

- A. The Contractor shall provide a schedule of construction activities within 30 days after initiation of construction. This schedule must show anticipated progress and the estimated dollar amount that will be requested each month. This schedule must be periodically updated to ensure accuracy. The schedule shall be revised if a variation of more than 10 percent occurs.

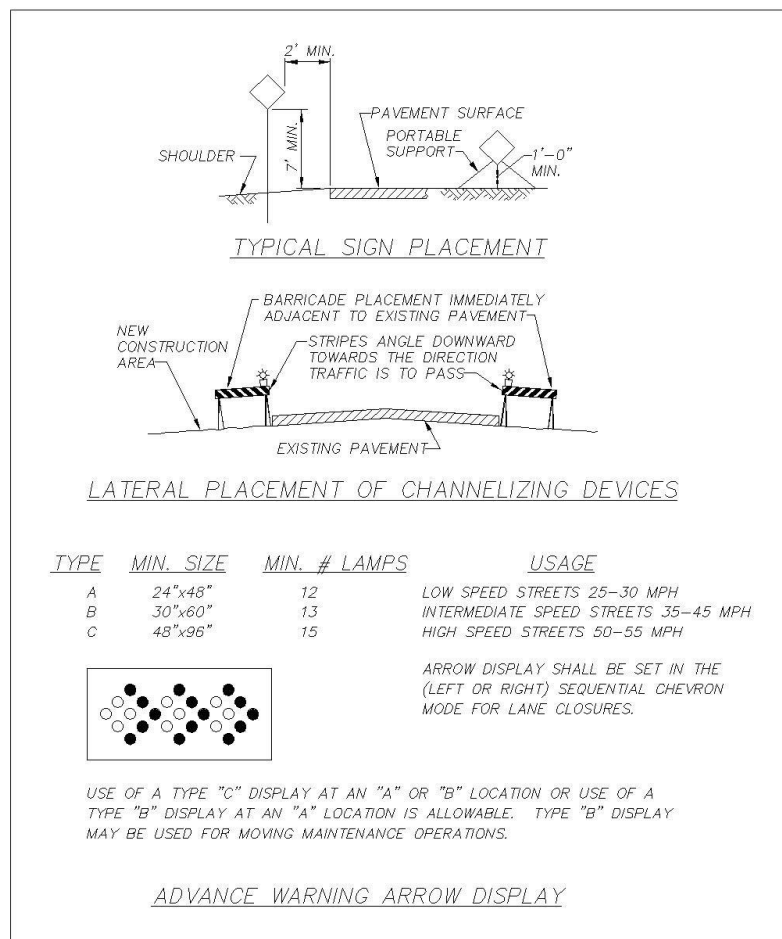
1.15 ONE HUNDRED PERCENT PERFORMANCE AND PAYMENT BOND

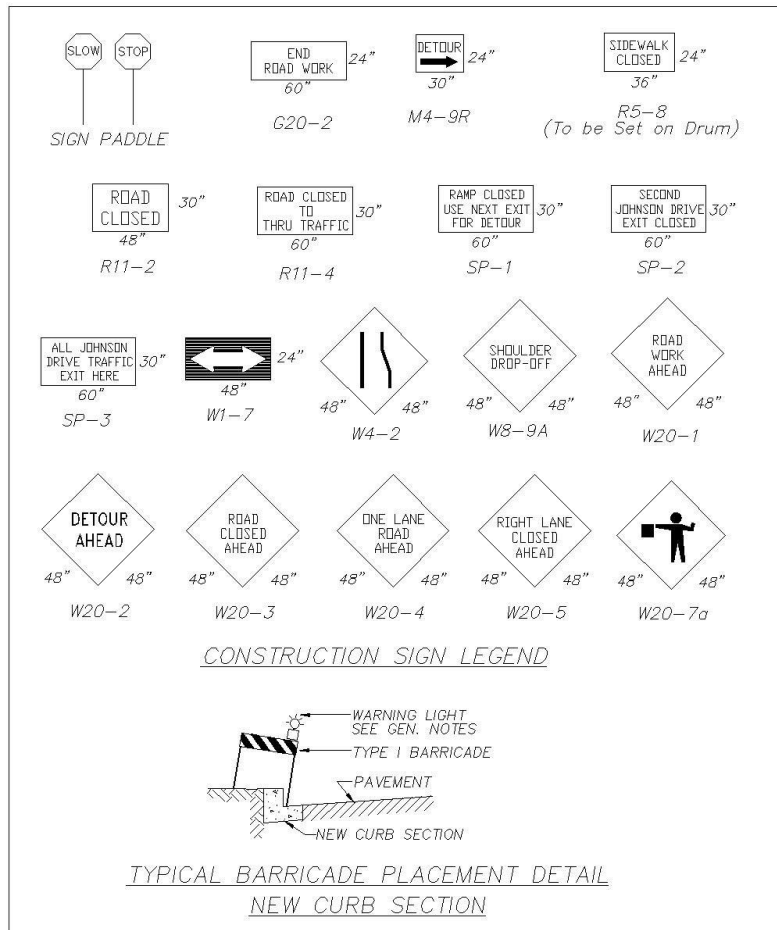
- A. The Contractor shall provide separate Performance and Payment Bonds, each in the amount of 100 percent of the contract amount.

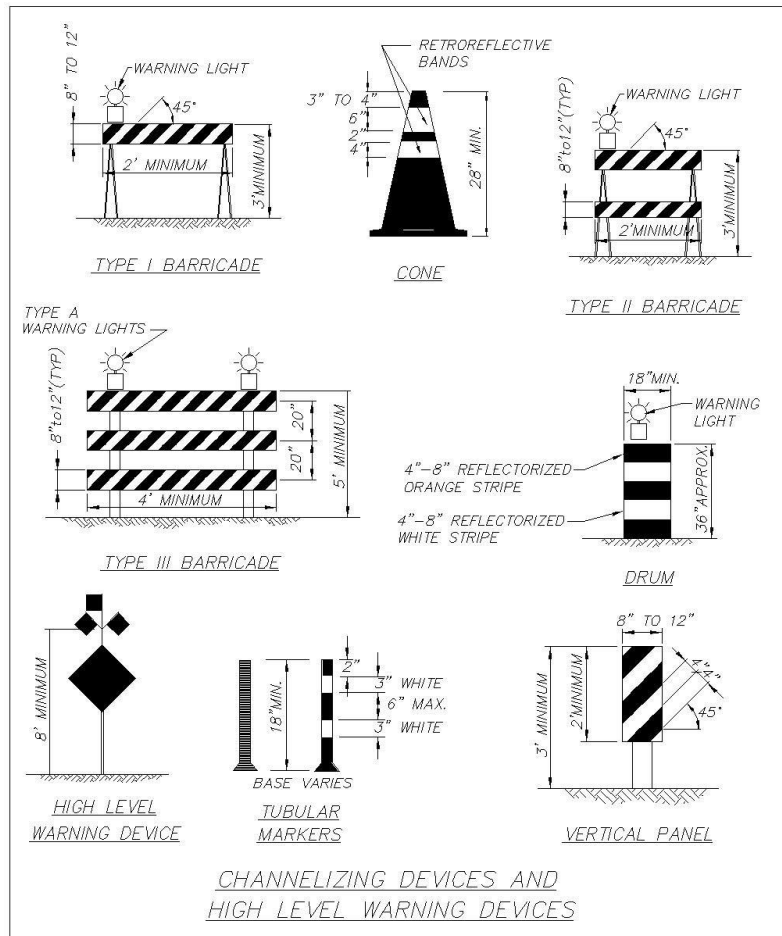
1.16 GENERAL TRAFFIC CONTROL REQUIREMENTS (ATTACHED SIGNING SHEETS)

- A. All signing and traffic control devices shall conform to the "Manual on Traffic Control Devices."

- B. The attached detail signing sheet(s) apply to a restricted roadway width caused by the Contractor's construction activities. If construction activity of the Contractor is located off the roadway, then the minimum signing will be required. W 20-1 ROAD WORK AHEAD and G 20-2 END OF ROAD WORK.
- C. Extended work areas may require additional signing.
- D. A minimum of one (1) lane in each direction must be provided at the end of each work day.
- E. All roadways which are closed due to the Contractor's construction activities shall be provided with Detour signing and appropriate barricades.
- F. All Jackson County, MoDOT, and State of Missouri procedures and regulations shall be followed. Contractor shall be responsible for all roadway crossing permits, erosion control permitting and permits to install waterline within road right-of-way.







PART 2 – PRODUCTS

Not applicable to this Section.

PART 3 – EXECUTION

Not applicable to this Section.

END OF SECTION

SECTION 01 89 10 - MODOT SAFETY SHEET

Daytime Worker PPE

For daytime activity, workers shall wear a hard hat; safety glasses; a Performance Class 3 top OR a Performance Class 2 top; and safety footwear.

Choose One
 -Hard hat may be any color or design
 OR
 -Safety glasses
 Choose One
 -Class 3 Shirt
 OR
 -Class 2 Shirt
 Choose One
 -Class 3 Vest
 OR
 -Class 2 Vest
 Choose One
 -Safety Footwear - metatarsal support needed for some operations
 OR
 -Safety Footwear

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Nighttime Worker PPE

For nighttime activity, workers shall wear a hard hat; safety glasses; a Performance Class 3 top OR a Performance Class 2 top; and a Class E bottom; and safety footwear.

Choose One
 -Hard hat may be any color or design
 OR
 -Safety glasses
 Choose One
 -Class 3 Shirt
 OR
 -Class 2 Shirt
 Choose One
 -Class 3 Vest
 OR
 -Class 2 Vest
 Choose One
 -Class E Bottom
 OR
 -Class E Bottom
 Choose One
 -Safety Footwear - metatarsal support needed for some operations
 OR
 -Safety Footwear

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Daytime Flagger PPE

For daytime activity, flaggers shall wear a high visibility hard hat; safety glasses; a Performance Class 3 top OR a Performance Class 2 top; and safety footwear.

Choose One
 -Hard hat must be high visibility
 OR
 -Safety glasses
 Choose One
 -Class 3 Shirt
 OR
 -Class 2 Shirt
 Choose One
 -Class 3 Vest
 OR
 -Class 2 Vest
 Choose One
 -Safety Footwear

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Nighttime Flagger PPE

For nighttime activity, flaggers shall wear a high visibility reflective hard hat; safety glasses; a Performance Class 3 top and a Class E bottom; and safety footwear.

Choose One
 -Hard hat must be high-visibility
 OR
 -Safety glasses
 Choose One
 -Class 3 Shirt
 OR
 -Class 2 Shirt
 Choose One
 -Class 3 Vest
 OR
 -Class 2 Vest
 Choose One
 -Class E Bottom
 OR
 -Class E Bottom
 Choose One
 -Safety Footwear

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END OF SECTION

SECTION 02 30 00 - SUBSURFACE CONDITIONS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. An investigation of subsoil has not been made for this project. Ground water and rock may be encountered in excavations. Depth of ground water may vary seasonally.

1.02 ADDITIONAL INFORMATION

- A. The Contractor should visit the site and acquaint themselves with all existing conditions. Prior to bidding, bidders may make their own subsurface investigations to satisfy themselves as to site and subsurface conditions, but such subsurface investigations shall be performed only under time schedules and arrangements approved in advance by the Owner. Such exploratory excavation shall be made in a manner and location that will not disturb piping or other buried utilities or facilities.
- B. The Contractor shall satisfy themselves as to the nature of the material to be excavated and the amount of rock or water to be handled. The Contractor shall include in their unit prices bid all costs in connection with excavation, dewatering and difficulties encountered and shall assume full risk in the matter.

PART 2 – PRODUCTS

Not applicable to this Section.

PART 3 – EXECUTION

Not applicable to this Section.

END OF SECTION

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Cast-in-place concrete.

1.02 RELATED SECTIONS

- A. Section 01 45 29 - Testing Laboratory Services

1.03 REFERENCE STANDARDS

- A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete 1991 (Reapproved 2009).
- B. ACI 318 - Building Code Requirements for Structural Concrete and Commentary 2014 (Errata 2018).
- C. ASTM C31/C31M - Standard Practice for Making and Curing Concrete Test Specimens in the Field 2021a.
- D. ASTM C33/C33M - Standard Specification for Concrete Aggregates 2018.
- E. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens 2021.
- F. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2021a.
- G. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete 2020.
- H. ASTM C150/C150M - Standard Specification for Portland Cement 2021.
- I. ASTM C172/C172M - Standard Practice for Sampling Freshly Mixed Concrete 2017.
- J. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete 2010a (Reapproved 2016).
- K. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete 2019.

1.04 QUALITY CONTROL

- A. Supervision:
 - 1. Provide full time superintendent on the project who is qualified and experienced in concrete construction. Superintendent shall direct all work in connection with concrete construction.
 - 2. Finishers shall be experienced concrete finishers experienced in concrete finish work.
- B. Codes and standards:

Work covered by this specification shall be as specified herein and as specified in "Building Code Requirements for Structural Concrete," ACI 318.

1.05 TESTING

- A. Laboratory and field testing shall be made on all concrete material including compression yield, air content, and slump test to the following ASTM Test and Specifications.

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Cast-in-Place Concrete

1. ASTM C31/C31M: Making and Curing Concrete Compressive and Flexural Strength Test Specimens in the Field.
 2. ASTM C33/C33M: Specification for Concrete Aggregate.
 3. ASTM C39/C39M: Test for Compressive Strength of Cylindrical Concrete Specimens.
 4. ASTM C87: Test for Effect of Organic Impurities in Fine Aggregate on Strength of Mortar.
 5. ASTM C143/C143M: Test for Slump of Portland Concrete.
 6. ASTM C150/C150M: Specification for Portland Concrete.
 7. ASTM C172/C172M: Sample Fresh Concrete.
 8. ASTM C231: Test for Air Content of Freshly Mixed Concrete by Pressure Method.
 9. ASTM C260/C260M: Specification for Air Entraining Admixtures for Concrete.
 10. ACI 211.1-70: Recommended Practice for Selecting Proportions for Normal Weight Concrete.
 11. ACI 214: Recommended Practice for Evaluation of Compression Test Results of Field Practice.
- B. Concrete test cylinders shall be made at the job site by the Contractor. Concrete sample shall be taken from concrete being placed. Four (4) cylinders shall be made for each pour over five (5) cubic yards. Two (2) cylinders shall be made for each pour for minor structural concrete as manholes, walks, etc.
- Identify test cylinders to area concrete was placed. Cure cylinders same as job concrete.
- Deliver three (3) cylinders at four (4) days. Test one (1) at seven (7) days, moist cure other and test two (2) at 28 days. Hold fourth cylinder for backup. Job cylinder tests are the basis for acceptance of concrete.
- C. Air content shall be measured at the job site by the pressure method ASTM C231. Each test shall be recorded and identified to area concrete was placed. Test results shall be submitted to the Engineer. Air tests shall be made for all pours over five (5) cubic yards and as directed by Engineer.
- D. Slump test shall be made on all concrete pours. Each test shall be recorded and identified to area concrete was placed. Test results shall be submitted to the Engineer.

1.06 SUBMITTALS AND CERTIFICATES

- A. Contractor shall submit name and location of transit mix company for approval.
- B. Submit complete laboratory testing data on aggregate gradation, deleterious substances, and durability of mix additives and cement.
- C. Delivery tickets shall be required with each load indicating mix design and information listed under ASTM C94/C94M-16.

1.07 PRODUCT HANDLING

- A. Transit mix:

Concrete shall be handled and preserved in its "batched" proportion during transportation. Mixing time shall not exceed 45 minutes.

Concrete improperly cared for or mixed in the truck longer than 45 minutes shall be disposed of away from the project. Water shall not be added at any time during transit or at the job site.

B. Defective concrete:

Damaged or defective concrete shall be repaired or removed and replaced immediately as directed by the Engineer.

C. Batch adjustment:

Cement, aggregate, or water, shall not be added to the truck after batching in an attempt to adjust slump or other batch characteristics.

PART 2 - PRODUCTS

2.01 STRUCTURAL CONCRETE

A. General:

1. All concrete used in the project shall be furnished by a reputable permanent concrete plant using transit mix trucks. The plant shall be located within a reasonable distance from the project, so travel time is 30 minutes or less. Supplier shall have adequate bins that weigh material by approved scale system. The supplier shall have an adequate number of modern trucks to ensure delivery of concrete as required for placing schedule. Supplier shall be subject to approval of the Engineer.
2. The Contractor shall use whatever means necessary to ensure concrete delivered to the project is properly batched with approved kinds and quantities of materials.
3. All admixtures used in concrete mix shall contain no chlorides.

B. Cement:

All cement shall be Type 1 Portland cement conforming to ASTM C150/C150M.

C. Fine aggregate:

1. Fine aggregate shall consist of natural sand conforming to ASTM C33/C33M. Sand shall be well graded, washed, and shall conform to the following sieve analysis:

Sieve Size	Percent Passing
½ Inch	100
3/8 inch	99-100
No. 4	95-100
No. 8	85-95
No. 16	66-85
No. 30	30-60
Sieve Size	Percent Passing
No. 50	10-30
No. 100	0-5

2. The sand shall not have more than 35 percent retained between any two (2) consecutive sieve sizes. Fineness modules shall not be less than 2.5 nor more than 3.1.
3. The amount of deleterious substances in fine aggregate, each determined on independent samples complying with the grading requirements of Division 3, shall not exceed the following limits:
4. Table 1. - Limits for Deleterious Substances in Fine Aggregate for Concrete:

Item	Maximum percent by Weight of Total Sample
Clay Lumps	0.25
Material Finer than No. 200 Sieve	2.00
Coal & Lignite	0.06
Sticks, Leaves & Other Deleterious Material	0.25

5. Fine aggregate shall be free of injurious amounts of organic impurities. Except as herein provided, aggregates subjected to ASTM test No. C40-56T for organic impurities and producing a color darker than the standard shall be rejected.
6. Fine aggregate shall be free of material that could react harmfully with alkali in the cement. If such materials are present in injurious amounts, the fine aggregate shall be rejected, or shall be used with cement containing less than 0.6 percent alkali calculated as sodium oxide or with the addition of a material that has been shown to inhibit undue expansion due to the alkali-aggregate reaction.
7. Except as provided above, fine aggregate subjected to five (5) cycles of the soundness test (ASTM C88-59T), shall show a loss, weighted in accordance with the grading of a sample complying with the limitations set forth above, not greater than 10 percent when sodium sulfate is used or 15 percent when magnesium sulfate is used.

Note: Submittals that do not address all of the above requirements will be returned "Revise and resubmit."

D. Coarse aggregate:

1. Coarse aggregate shall be crushed limestone having an established history of sound material conforming to ASTM C33/C33M and shall be approved by the Engineer. Furnish soundness test results for approval of source. Coarse aggregate source shall not contain chert deposits.

Gradation	
Sieve Size	Percent Passing
1½ inch	100
1 inch	95-100
½ inch	25-60
No. 4	0-10
No. 8	0-5

2. Satisfactory experience record shown for durability, otherwise pass soundness test ASTM C88-5 cycles using magnesium sulfate without splitting or losing more than 15 percent weight.
3. Contractor shall arrange and pay for testing if adequate history is not available.

Note: Submittals that do not address all of the above requirements will be returned "Revise and resubmit."

E. Water:

1. Water for mixing and curing concrete shall be clean, and free from injurious amounts of sewage, oil, acid, alkali, salt, or organic matter. Only potable water shall be used.

F. Concrete Mix:

1. All concrete for the project shall conform to the design mix listed in the table below. The concrete mix shall include water reducing agent and air entrainment of six (6) percent air plus or minus 1.5 percent. 28 day design strength shall be 4500 psi. The total aggregate volume is based on 60 percent coarse aggregate and 40 percent fine aggregate by volume. In the event the percentage of fine aggregate is increased, the amount of cement shall be increased as directed to provide equivalent strength.

Maximum aggregate size	- 1 inch
Maximum water	- 250 lb/cy
W/C weight ratio (maximum)	- 0.410
Cement	- 6.49 sacks/cy
Fibrous concrete reinforcement	- 1.5 lbs./cy

2. The supplier may submit complete data mix to accomplish the above design with which they have had a history of success for the Engineer's approval. The Contractor shall furnish laboratory design mix for the approved materials if a "history" mix is not available.
3. Water reducing agent shall conform to ASTM C494/C494M, Type A. Acceptable agents include Euclid "Eucon WR 91" or "Eucon MR"; Grace "WRDA with Hycol" or "Daracem 65"; Masterbuilders "Pozzoloth" or "Polyheed 997"; or approved equal.
4. Air entraining agent shall conform to ASTM C260/C260M. Acceptable agents include Euclid "Air Mix 250"; W.R. Grace "Daravair 1000"; Masterbuilders "Microair" or "AE90," or approved equal. Proportions shall be as prescribed by the manufacturer and testing laboratory.
5. All admixtures shall be the product of a single manufacturer.

G. Super Plasticizer:

1. Contractor may, at their option, add previously reviewed super plasticizer at the job site after slump has been taken in the event the concrete supplier is unable to deliver concrete to the jobsite within spec. In this event, slump as delivered must be 3" \pm 1". Super plasticizer may be added to increase slump to eight (8) inches maximum. If super plasticizer is added to increase slump beyond six (6) inches, then air shall be increased by 1%.

H. Fibrous concrete reinforcement:

1. Fibrous material shall be 100 percent virgin polypropylene, fibrillated fibers.
2. Physical characteristics:
 - a. Specific gravity: 0.91
 - b. Tensile strength: 80-110 lbs.
 - c. Fiber length graded per manufacturer.
3. Fibers shall be Fibermesh, Euclid "Fiberstrand 150 ML", Grace "Microfiber" or approved equal.

2.02 CURING MEMBRANES AND JOINTS

A. Curing membranes:

Curing membranes shall be six (6) mil clear sheet polyethylene, Vis-Queen or equal.

PART 3 - EXECUTION

3.01 GENERAL

A. Inspection:

Inspect all work of other trades to ensure installation is complete and ready for concrete placement. Verify all items are in place.

B. Conflicts:

Consult Engineer in case of conflict between placing and other equipment or material.

3.02 PREPARATION

A. General:

1. Clean all forms and correct all fine grade damage.
2. Wet down all subgrades.
3. Verify all needed equipment for placing concrete is on hand: vibrators, crane or pump, tremies, flumes, finishing equipment.
4. All keyways are to be in place.
5. Dry up excavation if any water is present.
6. Have cold weather equipment on hand if applicable.
7. Notify Engineer at least 48 hours in advance of placing concrete.

3.03 PLACING OF CONCRETE

A. General:

1. Only those methods and arrangements of equipment shall be used which will reduce to a minimum any segregation of coarse aggregate from the concrete.
2. Sufficient capacity of manpower and placing equipment shall be provided so that the work may be kept free from cold joints and other defects in the finished product.
3. Concrete shall be deposited into the forms or on the grade as nearly as practicable in its final position, and in such manner that the concrete will completely fill the forms.

4. Vibration shall not be used to move concrete in a horizontal direction after initial placement.
 5. Placement of concrete on a slope shall begin at the lower end of the slope and progress upward.
 6. Concrete that has partially hardened or has been contaminated by foreign material shall not be deposited in the work but shall be discarded.
 7. Inclined chutes beyond the mixer chute shall not be permitted. Only concrete pumps or crane with concrete bucket will be approved method of placing concrete beyond chutes on mixers.
 8. No water shall be added to the concrete, for any reason, at the job site.
 9. Care shall be taken to fill the forms and to finish the concrete, so the top surface is true to line and grade.
 10. Concrete shall not be placed on muddy or frozen ground.
 11. Dry subgrade shall be wetted in advance of concrete placement.
 12. Care shall be taken to assure proper concrete coverage of reinforcing steel and mesh, as designed.
 13. Care shall be taken to maintain the proper location of all joint material, dowels, embedded items, etc., during concrete placement.
 14. No mud or other foreign materials shall be tracked into the concrete during placement operations, and all contaminated concrete shall be removed.
 15. Laitance or soft layers of mortar shall be removed from the top or face of previously hardened concrete prior to placing additional concrete in contact with the surfaces.
 16. Immediately before placing concrete walls, concrete fill shall be placed on top of the previously placed concrete.
 17. Extreme care shall be taken to avoid damage to surfaces of forms for all exposed concrete work.
 18. Keyway shall be clean with no standing water.
 19. Concrete shall be placed so as to prevent a free fall of greater than eight (8) feet.
- B. Maximum acceptable slump for all structural concrete shall be three (3) inches (± 1 inch). Maximum slump for concrete fill shall be (6) inches.
- C. Cold Weather Requirements
1. Do not place concrete on ice or frozen subgrade.
 2. Concrete ingredients shall be heated when the air temperature is below 40 degrees F or forecast to drop below that temperature within 24 hours of the time concrete is to be placed.
 3. Heating shall be accomplished by heating either the aggregate or the mixing water, or both. Maximum temperature of the water or aggregates shall be 150 degrees F.
 4. Temperature of concrete at time of delivery shall be not less than 60 degrees F nor greater than 80 degrees F.

5. During the placing and finishing phase, concrete shall be maintained at a temperature of 50 degrees Fahrenheit or above, but not more than 80 degrees Fahrenheit.
 6. During placing and finishing, the concrete shall be protected from wind to prevent loss of heat and rapid drying.
 7. Heating of enclosures for flat slab finishing shall be done by vented heating methods. Open flame heating will not be permitted.
 8. Adequate facilities shall be provided prior to beginning concrete placement, for maintaining the ambient air temperature at the surface of the concrete or forms at 70 degrees Fahrenheit for five (5) days.
 9. Protective measures shall be maintained for at least four (4) days beyond the heating period, to prevent sudden cooling of the concrete. During this time, the concrete shall not be allowed to drop in excess of 20 degrees F in any 24 hour period with a minimum temperature of 40 degrees Fahrenheit.
 10. Newly finished flatwork shall be covered and protected for at least 14 days against exposure to rain, snow, sleet, and ice.
 11. During the entire protection period adequate means shall be provided to prevent loss of moisture from the concrete surface.
 12. All methods for protecting and heating concrete shall be subject to approval of the Engineer.
 13. See Part 3.05 for curing requirements.
- D. Hot weather requirements:
1. Concrete exposed to direct weather shall not be placed at temperatures above 100° Fahrenheit.
 2. Temperature of concrete when placed shall not exceed 85 degrees Fahrenheit.
 3. In dry, hot or windy weather, sunshades and wind breakers shall be required during finishing operations.
 4. As soon as practical and without damage to the surface finish, all exposed concrete shall be covered and kept continuously wet. Maintain concrete below 100° F.
 5. See Part 3.05 for curing requirements.

3.04 FINISHING CONCRETE

A. General:

1. All slabs, walks, and decks shall be sloped uniformly to drain to floor drains or to finish grade and shall drain completely without ponding water.
2. Finish shall be of specified texture and uniform in color and appearance. Approval of each type of finish is required on four (4) foot square test panels. Test panels shall be located in protected area away from actual project. Test panels shall be made and approved prior to first concrete placement.
3. All voids in slabs and horizontal surfaces are to be filled during finishing operation. Voids in formed surfaces are to be repaired immediately at the time forms are removed.

4. Avoid over finishing, late finishing, re-watering, and other techniques that may cause "crazing."
5. Provide adequate workforce and equipment for finishing prior to placing concrete.
6. Initiate curing process as soon as surface strength will permit.

B. Pavement:

1. Screed and float to eliminate coarse aggregate in surface material. Steel trowel to produce dense surface.
2. Final finish to be applied with a medium stiff broom, or with canvas strip dragged back and forth across concrete surface. Finished texture is to be medium coarse but not to expose coarse aggregate or voids in surface.

C. Sawcut joints:

1. Sawcut joints shall be made within 24 hours of concrete placement.
2. All sawcut residue shall be completely removed the same day each sawcut joints are made.

3.05 CURING

A. General:

1. All concrete shall be continuously moist cured a minimum of five (5) days after placing and finishing or five (5) days after repairing.
2. Protect all concrete surfaces from damage during and after curing period.

B. Formed surfaces

1. Forms are adequate if left in place five (5) days.
2. Cover top as described in B above.
3. If forms are removed to "stone" finish or repair concrete, moisten surface and completely cover with six (6) mil polyethylene sheets. Anchor in place.

3.06 DEFECTIVE WORK

A. General:

1. Defective concrete work shall be removed and replaced immediately.
2. Work built outside tolerances listed in Section 03 10 00 - Concrete Form Work shall be considered defective.
3. Concrete of inadequate strength or having surface conditions indicating poor durability such as crazing, severe "map cracking," crumbling, or other evidence shall be considered defective.
4. Engineer shall be notified immediately when such conditions become apparent.

B. Repairing:

1. The repair of minor faults such as small "honeycomb" areas and voids may be patched. Repairs shall be made as described in 3.04D above.
2. Cure patched areas five (5) days.

END OF SECTION

SECTION 31 11 00 - CLEARING AND GRUBBING (GENERAL)

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Removal of trees, stumps, vegetation and unusable material.
- B. Clearing and grubbing.

1.02 RELATED SECTIONS

- A. Section 02 30 00 - Subsurface Conditions
- B. Section 31 23 16 - Excavation, Backfill, and Site Grading

1.03 SUPERVISION AND QUALITY

- A. This work shall comply with all codes governing and all insurance requirements. Work shall be undertaken only when the construction superintendent is present and supervising the work.

PART 2 - PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

3.01 GENERAL

- A. Clear and grub trees, stumps, vegetation, debris, rubbish, and designated improvements from site.
- B. Protect trees, landscaping, site improvements, and other items not scheduled for clearing, or that might be damaged by construction activities.
- C. Strip topsoil and stockpile at approved location on-site.
- D. Provide temporary erosion and dust control.
- E. Do not disturb benchmarks or monuments.
- F. Tree removal will be limited to the period between October 1 and April 1.

3.02 PREPARATION

- A. Notification:
 - Notify the Owner and secure approval at least three (3) days prior to beginning work.
- B. Investigation:
 - 1. Investigate the site and locate all objects to be removed or protected.
 - 2. Locate all existing utility and pipe lines and determine the status of each.
 - 3. Relocate all existing piping that must remain in service but conflicts with new construction.
- C. Plans:
 - 1. Plans may not show all existing or exact location of utilities or pipelines.
- D. Removal of debris:
 - 1. Remove all debris and dispose of away from the site.

- E. The Engineer will designate all trees, shrubs and plants within the construction limits that are to remain. All other vegetation within the construction limits shall be removed and disposed of properly.

3.03 CLEARING

- A. Prevent damage to existing improvements indicated to remain, including improvements on and off site. Protect existing trees and vegetation indicated to remain. Do not stockpile materials within drip line of trees. Provide and maintain temporary guards to encircle trees or groups of trees; obtain approval before beginning work.
- B. Water vegetation as required to maintain health. Cover temporarily exposed roots with wet burlap and backfill as soon as possible. Coat cut plant surface with approved emulsified asphalt plant coating.
- C. Repair or replace vegetation which has been damaged. Remove heavy growths of grass before stripping. Stockpile satisfactory topsoil without stones, foreign matter and weeds in location directed.
- D. Completely remove all improvements including stumps and debris except for those indicated to remain. Remove below grade improvements at least 12 inches below finish grade and to the extent necessary to not interfere with new construction. Remove abandoned mechanical and electrical work as required.
- E. Prevent erosion and siltation of streets, catch basins and piping. Control windblown dust. Remove waste materials and unsatisfactory topsoil from site and dispose of in a legal manner.

3.04 BLASTING:

- A. Blasting will not be allowed.

3.05 GRUBBING

- A. Grubbing shall consist of the removal of all stumps, roots, buried logs, foundations, drainage structures, abandoned water wells and other objectionable materials below the ground surface.
 - 1. Limits of grubbing:
The area to be grubbed shall include all area within the construction site limits.
 - 2. Materials:
All tap roots, lateral roots or other projections over two (2) inches in diameter shall be removed to a depth of two (2) feet below the natural ground surface. Grubbing of Osage Orange or Locust hedge shall include removal of roots.
 - 3. Filling of holes:
All holes caused by grubbing operations shall be backfilled and compacted in accordance with the applicable provision of Section 31 23 16 - Excavation, Backfill, and Site Grading and to the level of the surrounding ground surface.
 - 4. Disposal:
Products of grubbing shall be disposed of away from the site.

3.06 BURNING

- A. When burning is permissible under controlling air pollution regulations, all burning of products of clearing and grubbing shall be done under the care of a competent watchperson at such times and in such manner that neither vegetation on adjacent property nor that designated to remain will be jeopardized. The burial of stumps and debris will not be permitted.

3.07 CLEARING

- A. The contractor shall scalp all areas where excavation or embankment is to be made. Scalping shall include the removal of material such as sod, grass residue of agricultural crops, sawdust, and decayed vegetable matter from the surface of the ground without removing more earth than is necessary. The products of scalping shall be disposed of away from the project site. All such disposal shall be at the Contractor's sole expense.

3.08 REMOVAL

- A. Pavements, abandoned sewers, pipe lines, or other obstructions to the project construction within the construction limits or street right-of-way not designated or permitted to remain, shall be removed and disposed of by the Contractor away from the site of the work.
- B. In removing pavement, curb, curb and gutter, gutters, sidewalk, and other similar improvements, and where a portion of such improvements are to be left in place, they shall be removed to an existing joint or to a joint sawed to a minimum depth of one (1) inch with a true line and vertical face. Sufficient removal shall be made to provide for proper grade and connections in the new work regardless of any limits which may be indicated on the plans.
- C. All sewers, drainage pipes and floor drains which have been or are to be abandoned shall be permanently sealed at the ends with bulkheads constructed of concrete or brick masonry, having a minimum thickness of eight (8) inches. The use of salvaged brick will be permitted for construction bulkheads provided the brick are clean and sound.

END OF SECTION

SECTION 31 23 16 - EXCAVATION, BACKFILL, AND SITE GRADING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Excavation, backfilling and site grading required to construct the project. Includes but is not necessarily limited to the following:
 - 1. Excavation for footings, foundations, and structures.
 - 2. Structure backfill.
 - 3. Subgrade preparation for structures, slabs & pavements.
 - 4. Controlled fill.
 - 5. Embankments and site grading.
 - 6. Roadway.

1.02 RELATED SECTIONS

- A. Section 01 45 29 - Testing Laboratory Services
- B. Section 02 30 00 - Subsurface Conditions
- C. Section 31 11 00 - Clearing and Grubbing (General)
- D. Section 31 23 16.13 - Trenching, Backfilling and Compaction: Excavating for utility trenches outside the building to utility main connections.
- E. Section 32 92 19 - Seeding, Fertilizing, and Mulching

1.03 REFERENCE STANDARDS

- A. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)) 2012 (Reapproved 2021).
- B. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method 2015.
- C. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) 2017, with Editorial Revision (2020).

1.04 QUALITY ASSURANCE

- A. Testing laboratory:
 - 1. Soil compaction testing and other required testing will be performed by a testing laboratory selected by the Owner.
 - 2. Frequency of testing and location of tests shall be determined by the Owner's representative and testing laboratory personnel to assure compliance with specification requirements.
- B. Standards: (Tests shall comply with the latest revisions)
 - 1. ASTM C136, Sieve or Screen Analysis of Fine and Coarse Aggregates.
 - 2. ASTM D2922, Density of Soil in Place and Soil Aggregate in Place by Nuclear Methods.
 - 3. ASTM D2167, Density of Soil in Place by the Rubber Balloon Method.
 - 4. ASTM D698, Moisture Density Relations of Soils and Soil-Aggregate Mixtures Using a 5.5 lb. Rammer and 12 in. drop.
 - 5. ASTM D2487, Classification of Soils for Engineering Purposes.

C. Compliance:

Contractor shall correct all deficiencies disclosed by test results promptly.

1.05 PROTECTION OF WORK

- A. Protect materials and preserve specification requirements in previously accepted materials.
- B. Remove and replace all materials that have been damaged or do not meet specification requirements.
- C. Control dust or mud that may interfere with operations or become a nuisance to the surrounding area.

1.06 LINES AND GRADES

- A. Excavations and embankments shall be constructed to the lines and grades indicated unless otherwise directed.
- B. Final grades shall be within three (3) inches of indicated elevations. Horizontal alignments shall be within three (3) inches of theoretical location.
- C. Finished surfaces shall be bladed and aligned to present a neat and uniform appearance.

PART 2 - MATERIALS

2.01 GENERAL

- A. Fill materials shall be obtained from approved borrow sources.
- B. Fill material shall be free of trash, debris, cinders, organic matter or other deleterious materials.
- C. All fill materials shall be subject to the Engineer's approval.

2.02 FILL MATERIALS

A. Controlled structural fill material:

1. Soil:

Soil fill material shall be clay soils of medium to low plasticity (CL) non-frost susceptible, with a liquid limit less than 45 percent, a plasticity index less than 20 and containing less than 10 percent shale, or rock particles larger than three (3) inches in greatest dimension.

2. Crushed stone:

Crushed stone shall be washed clean, free-draining, durable crushed rock with the following gradation limits:

Sieve Size	Percent Passing
1 inch	100%
$\frac{3}{4}$ inch	90%
$\frac{1}{2}$ inch	60-70%
$\frac{3}{8}$ inch	15-25%
#4	0-5%

B. Non-structural fill material:

1. Soil:

Non-structural fill material may be clay soils of medium to low plasticity (CL or ML) non-frost susceptible excavated from site or borrow area.

2.03 TOPSOIL

- A. Topsoil shall consist of fertile, friable loamy soil of uniform quality, free from subsoil, hard clods, stiff clay, hard pan, stones, crushed rock and other similar impurities. Topsoil shall be free from grass, roots, weeds and other materials harmful to plant life or which will prevent formation of suitable seed bed. Topsoil depth shall be minimum of four (4) inches.

2.04 OTHER MATERIALS

- A. Materials not specifically described above, but required for construction, or proposed substitutions for materials described above, shall be submitted to the Engineer for approval prior to incorporation into the work.

PART 3 - EXECUTION

3.01 GENERAL

- A. Excavation is unclassified and includes excavation to subgrade regardless of materials encountered. Repair excavations beyond elevations and dimensions indicated.
- B. Do not perform work without written authorization from the Owner if subgrade material is unsuitable for intended use.
- C. Maintain stability of excavations; coordinate shoring and bracing as required by authorities having jurisdiction. Prevent surface and subsurface water from accumulating in excavations. Stockpile satisfactory materials for reuse, allow for proper drainage and do not stockpile materials within drip line of remaining trees.
- D. Compact materials at the optimum moisture content as determined by ASTM D698 by aeration or wetting.
- E. Place acceptable materials in layers not more than eight (8) inches loose depth for materials compacted by heavy equipment and not more than four (4) inches loose depth for materials compacted by hand equipment.
- F. Grade to within ½ inch above or below required subgrade and within a tolerance of ½ inch in 10 feet.
- G. Protect newly graded areas from traffic and erosion. Re-compact and re-grade settled, disturbed and damaged areas as necessary to restore quality, appearance, and condition of work.
- H. Control erosion and wind-blown dust. Dispose of waste and unsuitable materials off site in a legal manner.
- I. The soils at the site will be susceptible to disturbance due to construction activity and water seepage. Care shall be taken during excavation and construction of the structures to minimize disturbance to the bearing soils. The base of all excavations shall be free of water and loose soil prior to placing concrete. Concrete shall be placed as soon as possible after excavation.

3.02 SITE PREPARATION

- A. Site stripping in the building and fill embankment areas and paved areas shall include the removal of vegetation, topsoil, and any other soft, loose, or unsuitable materials. Stripping depths of six (6) inches to 12 inches minimum should be expected over the site. Stripped topsoil shall be stockpiled for later use as surface dressing in landscaped areas.
- B. Major root systems of trees shall be thoroughly removed from the building areas and to a minimum of two (2) feet below pavement subgrades.

3.03 SUBGRADE PREPARATION AND STABILIZATION

- A. Subgrades for concrete structures, floor slabs, and pavements, shall be firm, dense, and properly compacted in accordance with applicable specification requirements. All subgrades shall be sufficiently stable to remain firm and intact under construction traffic.
- B. Excessively dry subgrades shall be scarified and moistened to within specification limits and re-compacted prior to placement of footings, slabs or pavements.
- C. Subgrade soils which have become excessively wet and mucky shall be removed. Free draining crushed stone or gravel shall be used to bring grade up to the bottom of slabs. This material shall be compacted as it is placed.
- D. Prior to placement of fill material, the subgrade shall be scarified to a depth of eight (8) inches and recompact to at least 95 percent of maximum density as determined by ASTM D698. Areas which cannot be re-compacted to this degree shall be undercut and replaced with stable material. Care shall be taken to maintain the prepared condition of the subgrades prior to construction. If the subgrades become saturated, frozen, or disturbed, they shall be reworked prior to construction.

3.04 EMBANKMENTS AND AREA FILL

- A. Strip all areas to receive compacted fill, of topsoil, organic or excessively wet soil or other unsuitable soils prior to placing fill. Stockpile topsoil and other usable materials for reuse in final site grading.
- B. Place approved fill materials in uniform layers not exceeding eight (8) inches in loose thickness. Compact with suitable equipment to a minimum of 90 percent of maximum density as determined by ASTM D698. Moisture content shall be suitable for good compaction but not less than three (3) percent below or more than three (3) percent above optimum moisture as determined by ASTM D698.
- C. After final finish rolling and blading, the surface shall be smooth and even and conform with the indicated lines and grades within specified tolerances.

3.05 BORROW MATERIAL

- A. If borrow material is required, the Contractor shall supply this material from a borrow area off the site. The borrow area shall be obtained by the Contractor at their sole expense. Borrow materials shall be approved by the Engineer before they are transported to the site of the Project. One borrow site will be inspected for approval at no cost to the Contractor. If they need to use additional sites, testing of such sites shall be at their sole cost.

- B. Materials shall be similar to soils found on the Project. Soils showing high swell potentials will not be approved.

3.06 DRAINAGE

- A. Control grading in vicinity of excavations to prevent excess surface drainage from running into excavations. Remove water promptly to avoid softening of subgrade soils.
- B. Provide for removal of seepage or ground water from excavations by pumping from sumps or other appropriate means.
- C. Excavations shall be kept dry during subgrade preparation and continually thereafter until construction is complete, to the extent that no damage from hydrostatic pressure, flotation or other causes will result.

3.07 SHORING AND BRACING

- A. Adequate shoring and bracing shall be provided to protect and maintain the stability of existing structures and facilities and prevent sliding of the sides of excavations, until they are backfilled.
- B. Sheet piling, bracing and shoring shall be designed and constructed to withstand all earth and equipment loads and shall remain rigid and maintain shape and position under all circumstances.
- C. Avoid hazardous and dangerous conditions. Maintain safety of personnel and existing work at all times.

3.08 BLASTING

- A. Blasting will not be permitted.

3.09 WASTE FILL

- A. Any extra fill material produced by the earthwork for this project and not required for the construction of the project shall be disposed of off the site of the work by and at the expense of the Contractor. Arrangements for waste fill sites shall be the sole responsibility- of the Contractor.

3.10 GRADING

- A. Rough grade:
Grade entire area as indicated by finish contours. Grading shall be performed to provide uniform appearing surface that will drain all surface water. Obtain approval by Engineer.
- B. Topsoil:
Subsoil shall be scarified to a two (2) inch depth for bonding of topsoil with subsoil. Spread topsoil over all graded area to a depth of four (4) inches. Existing topsoil may have to be supplemented by hauled-in material as required.
- C. Fine grade:
Fine grade site using light roller and drag to leave surface in condition for seeding. Finish grade shall be one (1) inch below all pavement unless otherwise specified. Repair eroded areas at time of project acceptance by the Owner.

3.11 ROCK EXCAVATION

A. General:

Should rock be encountered in two (2) or more ledges, each ledge being more than six (6) inches thick and with inner lying strata of earth clay, shale, or gravel not more than 12 inches thick in each stratum, the entire volume between the top ledge and bottom of the bottom ledge will be classified as rock.

B. Definition:

Rock is defined as being sandstone, limestone, chert, granite, sill stone, quartzite, slate or shale, occurring in its natural undisturbed state, hard and un-weathered or similar material in masses more than 1½ cubic yards in volume, in ledges six (6) inches more in thickness.

3.12 CLEAN UP

- A. Remove all rubbish, trash, debris, stones, concrete waste, crushed rock and sand pockets from site.

END OF SECTION

SECTION 31 23 16.13 - TRENCHING, BACKFILLING AND COMPACTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Trenching and Trench Backfilling.
- B. Pipe embedment.

1.02 RELATED SECTIONS

- A. Section 02 30 00 - Subsurface Conditions
- B. Section 31 11 00 - Clearing and Grubbing (General)
- C. Section 31 23 16 - Excavation, Backfill, and Site Grading
- D. Section 33 05 07.13 - Directional Bored Excavation
- E. Section 33 05 07.23 - Bored Excavation

1.03 REFERENCE STANDARDS

- A. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18 in.) Drop 2021, with Errata (2022).
- B. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates 2019.
- C. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)) 2012 (Reapproved 2021).
- D. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)) 2012 (Reapproved 2021).
- E. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method 2015.
- F. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) 2017, with Editorial Revision.
- G. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth) 2017a, with Editorial Revision.
- H. AWWA C150/A21.50 - Thickness Design of Ductile-Iron Pipe 2014.

1.04 QUALITY ASSURANCE

- A. Testing laboratory:
 - 1. Soil compaction testing and other required testing will be performed by a testing laboratory selected by the Owner.
 - 2. Frequency of testing and location of tests shall be determined by the Owner's representative and testing laboratory personnel to assure compliance with Specification requirements.
- B. Standards (Tests shall comply with the latest revisions):
 - 1. ASTM C136/C136M: Sieve or Screen Analysis of Fine and Coarse Aggregates.
 - 2. ASTM D698: Moisture Density Relations of Soils and Soil-Aggregate Mixtures Using a 5.5 lb. Rammer and 18 in. Drop.

3. ASTM D2167: Density of Soil in Place by the Rubber Balloon Method.
 4. ASTM D2487: Classification of Soils for Engineering Purposes.
 5. ASTM D2922: Density of Soil in Place and Soil Aggregate in Place by Nuclear Methods.
- C. Compliance:
1. Contractor shall correct all deficiencies disclosed by test results promptly upon being notified of deficiencies.

PART 2 - PRODUCTS

2.01 FILL AND PIPE EMBEDMENT MATERIAL

A. Embedment material:

1. Material shall be clean river gravel or sound crushed limestone, free of cementitious, shaly or flat and flaky particles in an amount which would cause the material to cake or pack or otherwise form an unyielding support for the pipe. Gradation shall be:
 - $\frac{3}{4}$ " square mesh sieve - 100% passing
 - $\frac{1}{2}$ " square mesh sieve - 90-100% passing
 - No. 4 square mesh sieve - 0-15% passing
 - No. 8 square mesh sieve - 0-5% passing
2. Where bedding rock is not required, bedding material shall be same as fill material.

B. Fill material:

Backfill material shall be selected earth or granular fill material, free from sod, sticks and roots over $\frac{1}{2}$ inch in diameter, and free from hard lumps, clods or rock in such quantity or concentration as to interfere with the specified compaction. Material shall be of proper moisture content for specified compaction.

PART 3 - EXECUTION

3.01 GENERAL

- A. Trenching work shall be performed in a safe and proper manner, with suitable precautions being taken against hazards of every kind. Trenching shall provide adequate working space and clearances for the work to be performed therein.
- B. Trenching and backfilling during freezing weather shall not be done except by permission of the Engineer. No backfill materials shall be installed on frozen surfaces or will frozen materials, snow or ice be placed in any backfill.
- C. When operating on pavements or walks all equipment shall be rubber tired, except for excavation equipment. Excavating equipment, in such cases, shall not have grousers, cleats or lugs on the tracks. The Contractor shall take all precautions necessary to protect the existing pavements and walks.
- D. No classification of excavated materials will be made. Trenching and trenching work shall include the removal and subsequent handling of all materials excavated or otherwise removed in performance of the contract work, regardless of the type, character, composition or condition thereof.

- E. Pipe lines and other existing underground installations and structures in the vicinity of the work to be done hereunder are indicated on the Plans according to the best information available to the Owner. The Owner does not guarantee the accuracy of such information. The Contractor shall make every effort to locate all underground pipe lines, conduits and structures by contacting Owners of underground utilities and by prospecting in advance of trench excavation. Damage to any existing underground installation caused by the Contractor's operation shall be repaired at the Contractor's expense.
- F. Any delays or extra cost to the Contractor caused by pipe lines or other underground structures or obstructions not shown by the Plans, or found in locations different than those indicated, shall not constitute a claim for extra work, additional payment or damages.
- G. Erosion control of disturbed areas will be required during the construction period through the use of check dams, siltation pools, mulching, etc.
- H. Operation:
 - 1. Use all means necessary to control dust or mud that may interfere with operation.
 - 2. Maintain all streets and driveways free of dirt and materials from Contractor's operation.
- I. Protection:
 - 1. Use all means necessary to protect material and preserve Specification requirements.
 - 2. Replace all damaged material or material that has lost Specification requirements.

3.02 TRENCH EXCAVATION

- A. General:
 - 1. The Contractor shall not open more trench in advance of pipe laying than is necessary to expedite the work. One (1) block or 400 feet (whichever is the shorter) shall be the maximum length of open trench permitted on any line under construction.
 - 2. Except where tunneling is permitted by the Engineer or called for on the Plans, all trench excavation shall be open cut from the surface.
 - 3. Trench walls shall be vertical, and braced where necessary, in streets or improved area unless otherwise authorized by Engineer.
- B. Alignment and Grade:
 - 1. Water lines:

Trenches shall be carefully excavated so that the minimum cover over top of pipe will be 42 inches to existing street or ground surface, or to future surface when indicated. Greater cover at some locations along the line may be required due to street or ground profile and clearance of culverts, structures, utility lines, etc.
- C. Minimum trench widths and pipe clearances:
 - 1. Trenches shall be excavated to a width which will provide adequate working space and pipe clearances for proper pipe installation, jointing and embedment.

2. Below an elevation of 12 inches from ground level to the top of the installed pipe, the trench width shall be maintained as narrow as possible.
3. Where necessary to reduce the earth load on trench banks to prevent sliding and caving, the banks may be cut back on slopes which shall not extend lower than one (1) foot above the top of the pipe.

D. Mechanical excavation:

1. The use of mechanical equipment will not be permitted in locations where its operation would cause damage to buildings, culverts, or other existing property, utilities, or structures above or below ground; in all such locations, hand excavating tools and methods shall be used.
2. Mechanical equipment used for trench excavation shall be of a type, design and construction and shall be so operated, that the rough trench excavation bottom elevation can be controlled, that uniform trench widths and vertical side walls are obtained at least from an elevation one (1) foot above the top of the installed pipe to the bottom of the trench, and that the trench alignment is such that the pipe, when accurately laid to specified alignment, will be centered in the trench with adequate clearance between the pipe and side walls of the trench. Undercutting of the trench sidewall to obtain clearance will not be permitted.

E. Excavation below pipe subgrade:

Except where otherwise required, pipe trenches shall be excavated below pipe subgrade elevations to provide for the installation of granular fill pipe foundation material.

F. Unauthorized trench widths:

Where the width of the lower portion of the trench as excavated at any point exceeds the maximum permitted, either pipe of adequate strength, classification or gauge, special pipe embedment, or Class A concrete arch encasement (for concrete pipe only), as required by loading conditions and as determined by the Engineer, shall be furnished and installed by and at the expense of the Contractor.

G. Grubbing:

Grub out live roots for a distance of at least six (6) inches below and eight (8) inches on sides of outside surface of pipe.

H. Bell holes:

Bell holes shall provide adequate clearance for the tools and methods used in installing the pipe. No part of any bell or coupling shall be in contact with the trench bottom, trench walls, or the granular fill when the pipe is jointed.

I. Cutting concrete pavement and walks:

1. Cuts in concrete and asphalt pavements shall be no larger than necessary to provide adequate working space for proper installation of pipe and pipe line appurtenances. Cutting shall be started with a concrete saw (or by other cutting method approved by the Engineer) and in a manner which will provide a clean groove at least 1½ inches deep along each side of the trench and along the perimeter of cuts for structures.

2. Pavement and base pavement over trenches excavated for pipe lines shall be removed so that a shoulder not less than six (6) inches in width at any point is left between the cut edge of the pavement and the top edge of the trench. The trench width at the bottom shall not be greater than at the top and no undercutting will be permitted. Pavement cuts shall be made to and between straight or accurately marked curved lines which, unless otherwise required, shall be parallel to the center line of the trench.

3.03 SHEETING AND SHORING

- A. Except where banks may be cut back on a stable slope, excavation for trenches shall be properly and substantially sheeted, braced and shored, as necessary, to prevent caving or sliding, to provide protection for the workers and the work, and to provide protection for existing structures and facilities. Sheet piling, bracing and shoring shall be designed and built to withstand all loads that might be caused by earth movement or pressure, and shall be rigid, maintaining its shape and position under all circumstances.

3.04 STABILIZATION

- A. General:
 1. Trench bottoms shall be firm, dense and thoroughly compacted and consolidated; shall be free from mud and muck; and shall be sufficiently stable to remain firm and intact under the feet of the workers.
 2. Trench bottoms which are otherwise solid, but which become mucky on top due to construction operations, shall be reinforced with one or more layers of granular fill material or other crushed stone or gravel embedded therein. Not more than ½ inch depth of mud or muck shall be allowed to remain on stabilized trench bottoms when the pipe bedding material is placed thereon. The finished elevation of stabilized subgrades for concrete structures shall not be above the subgrade elevations.
 3. All stabilization work hereunder shall be performed by and at the expense of the Contractor.
 4. If the subgrade for pipe can be stabilized with a thickness of granular fill of 12 inches or less below bottom of pipe, or subgrade of structure, such stabilization will be at the Contractor's expense.

3.05 BLASTING

- A. Blasting will not be permitted.

3.06 REMOVAL OF WATER

- A. The Contractor shall provide and maintain adequate dewatering equipment to remove and dispose of all surface and ground water entering excavations, trenches, or other part of the work. Each excavation shall be kept dry during subgrade preparation and continually thereafter until the structure to be built, or the pipe line to be installed, therein is completed to the extent that no damage from hydrostatic pressure, flotation, or other causes will result.

3.07 STANDARD COMPACTION AND FIELD DENSITY TESTS

A. General:

Wherever the terms, "____% of Maximum Density" or "Optimum Moisture", are used, Maximum Density and Optimum Moisture shall be determined by the standard compaction test described below.

B. Standard compaction test:

1. The standard compaction test shall be in accordance with AASHTO Desig. T99, except as modified below.
2. For samples containing no material retained on the No. 4 sieve, use Method A or B. When the plasticity index of the soil is greater than 25 (heavy clays), the soil shall be placed in the mold in four (4) layers, each compacted as outlined in the test method used.
3. For samples containing material retained on the No. 4 sieve, use Method D, preferably, or Method C. The amount retained on the $\frac{3}{4}$ inch sieve shall be weighed and discarded. To prepare the sample for the compaction test, the same amount of $\frac{3}{4}$ inch to No. 4 sieve material shall be substituted for the portion discarded.

C. Field density test:

Field density shall be obtained using the sand cone method (AASHTO Desig. T-147), by the balloon method, or by use of any satisfactory materials or equipment suitable to the conditions prevailing in the material being tested. The calculated density obtained in this test is divided by the Maximum Density as determined by the Standard Compaction Test to determine the percent compaction obtained.

D. Rock correction:

When the amount of material retained on the No. 4 sieve is different in the field density tests than that in the sample used in the Standard Compaction Test, the actual degree of compaction shall be determined by applying a correction factor to the apparent percent compaction. This correction factor may be arrived at by any well-established engineering procedure or by the recommendations of the State Highway Commission, "Geology and Soils Manuals," said recommendations being made a part of this Contract by reference.

E. Comparison with surrounding soil density:

It will be assumed that undisturbed surrounding soil in its natural state will have a field density of 87 percent of maximum density. On this basis, where 90 percent of maximum density is specified, the required density will be 103.5 percent of density of the surrounding soil. Where 95 percent of maximum density is specified, the required density will be 109 percent of the density of the surrounding soil.

3.08 PIPE EMBEDMENT

A. General:

1. Place pipe embedment material on a suitably prepared subgrade in lifts not exceeding six (6) inches and bring up evenly on both sides of pipe. Do not dump over side of trench in any manner that will bring earth into the embedment material or displace the pipe. Compact, vibrate, or slice with a shovel, in such

manner that material fill will take its final compaction and provide uniform and solid bearing under the pipe and its haunches.

B. Water line pipe bedding:

1. Where rock has been excavated, selected earth or granular material shall be placed under the sides and around the pipe to a point six (6) inches above the top of the pipe. Embedment material shall be deposited simultaneously on each side of the pipe to prevent lateral displacement of the pipe.
2. When not in rock excavation, all buried pipe shall be installed under Laying Condition Type 2 as described in AWWA C150/A21.50, latest edition. This condition calls for flat-bottom trench with backfill lightly consolidated to the centerline of the pipe.

3.09 TRENCH BACKFILL COMPACTION

A. General:

All trench backfill above pipe embedment shall conform to one of the following Specifications:

1. All County and City gravel surface roads shall be backfilled entirely with approved crushed rock or river gravel. The disposal of unsuitable material excavated will be the responsibility of the Contractor.
2. Ninety percent compacted backfill. Under streets, drives or state or county highways surfaced with gravel, crushed stone, "blacktop" or other low or intermediate type surfacing. In street, road, highway, railway or alley rights-of-way. In traveled ways. In established lawns. Any line within five (5) feet of back of curb or five (5) feet of street surfacing if no curb, either perpendicular to or parallel to the street shall be considered as under the street surfacing, and 90 percent compaction shall apply.
3. 95 percent compacted backfill. Under concrete, asphaltic concrete, brick, concrete structures or other high type pavements. Under concrete walks, curbs, gutters and culverts. Under all types of street surfacing where trench cut is approximately at right angle to roadway.
4. In areas not listed above, backfill shall be compacted to a density equal to the surrounding ground.
5. Six (6) inches of topsoil shall be placed in the top of trenches that are to be covered with sod or to be seeded.
6. If specified density cannot be obtained with available earth, the Contractor shall furnish and haul granular fill material or suitable earth at their expense. Unsuitable earth shall be disposed of at the Contractor's expense.
7. The Engineer will call for density tests to be made whenever deemed necessary. The specified density will be the minimum allowed and the obtainment thereof will be entirely the Contractor's responsibility.
8. Thickness of backfill layers will be determined by the coordination of test results with field performance and equipment used. The Contractor will be expected to maintain established procedures except where unusual conditions arise. If greater than 12 inch thick compacted layers are used, the Contractor shall hand excavate

to the test level as directed by the Engineer and then refill the test excavation with compacted backfill to the specified density.

9. All completed lines shall be returned, in the opinion of the Engineer, as nearly as possible to original condition, including reseeding, resodding or repaving.

3.10 DRAINAGE MAINTENANCE

- A. Trenches across roadways, driveways, walks, or other traffic way's adjacent to drainage ditches or water courses shall not be backfilled prior to completion of backfilling the trench on the upstream side of the traffic-way, to prevent impounding water after the pipe has been laid. Bridges and other temporary structures required to maintain traffic across such unfilled trenches shall be constructed and maintained by the Contractor. Backfilling shall be done so that water will not accumulate in unfilled or partially filled trenches. All material deposited in roadway ditches or other water courses crossed by the line of trench shall be removed immediately after backfilling is completed and the section, grades, and contours of ditches or water courses shall be restored to their original condition. Surface drainage shall not be obstructed longer than necessary.

3.11 FINAL GRADING AND DISPOSAL OF EXCESS EXCAVATED MATERIALS

A. General:

1. Except as otherwise indicated, all excess excavated materials shall be disposed of by the Contractor away from the site of the work.
2. Pavement and pavement base material, excavated rock in excess of the amount permitted to be and actually installed in trench backfill, junk and debris encountered in excavation work, and other similar waste materials shall be disposed of away from the site of the work.
3. The disposal of waste and excess excavated materials, including hauling, handling, leveling and surfacing, shall be at the Contractor's expense.

B. Other types of backfill:

For all types of backfill other than un-compacted, the Contractor shall dispose of excess excavated material above the surface of the ground or subgrade of pavement walks, etc., unless otherwise directed. Where directed, the Contractor shall leave all or a portion of the excess earth and grade smoothly along and adjacent to the trench in the manner prescribed by the Engineer. If directed, they shall grade excess earth into adjacent low areas, fine grading and sloping to drain.

C. Final grading:

1. Just prior to completion and acceptance of the project, the Contractor shall final grade over all pipe trenches and around structures, filling in any places that may have settled during the period between construction of each line and the completion of the entire Contract. Finished surface shall be bladed and aligned to a neat and uniform appearance.
2. Improved yards and lawns:
Fine grade, suitable for seeding or sodding. Hand rake earth off grass in established lawn areas, unless directed to leave excess earth as outlined above.

D. Deficiency of backfill:

Wherever there is a deficiency of material required to backfill to the specified surface or subgrade, the Contractor shall furnish the necessary amount of suitable earth at their expense.

E. Restoration of disturbed earth:

The Contractor shall restore all earth areas disturbed from the original condition by their operations. Restoration will be by seeding, fertilizing and mulching or by appropriate pavement and street repair.

3.12 RESPONSIBILITY OF CONTRACTOR FOR BACKFILL SETTLEMENT

A. The Contractor shall be responsible financially and otherwise, for:

1. All settlement of trench and other backfill which may occur from time of original backfilling until the expiration of one (1) year after the date of final payment for the entire contract under which the backfilling work was performed.
2. The refilling and repair of all backfill settlement and the repair or replacement to the original or a better condition of all pavement, top surfacing's, driveways, walks, surface structures, utilities, drainage facilities and sod which may have been damaged as a result of backfill settlement or which have been removed or destroyed in connection with backfill replacement operations.
3. All damage claims or court actions against the Owner for any damage directly or indirectly caused by backfill settlement.

B. The Contractor shall make all necessary backfill replacements and repairs, or replacements appurtenant thereto, within 30 days after notification by the Owner or Engineer. Upon the Contractor's failure to do so, the Owner may do, or have done, the necessary work and charge the cost to the Contractor.

3.13 BARRICADES AND LIGHTS

- A. All streets, roads, highways and other public thoroughfares which are closed to traffic shall be protected by means of effective barricades on which shall be placed acceptable warning signs. Barricades shall be located at the nearest intersecting public highway or street on each side of the blocked section.
- B. All open trenches and other excavations shall be provided with suitable barriers, signs, and lights to the extent that adequate protection is provided to the public. Obstructions such as material piles and equipment, shall be provided with similar warning signs and lights.
- C. All barricades and obstructions shall be illuminated by means of warning lights at night. All lights used for this purpose shall be kept on from sunset to sunrise. Materials stored shall be so placed, and the work at all times shall be so conducted, as to cause the minimum obstruction and inconvenience to the public.
- D. All barricades, signs, lights and other protective devices shall be installed and maintained in conformity with applicable statutory requirements, and where within highway rights-of-way, as required by the authority having jurisdiction.

3.14 MAINTENANCE OF TRAFFIC

- A. The Contractor shall conduct their work so as to interfere as little as possible with public travel, whether vehicular or pedestrian; whenever it is necessary to cross,

obstruct, or close roads, driveways, and walks, whether public or private, the Contractor shall at their own expense provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to Owners of private drives before interfering with them; provided however, that such maintenance of traffic will not be required at any point where the Contractor has obtained permission from the Owner and tenant of private property, or from the authority having jurisdiction over the public property involved, to obstruct traffic at any designated point thereon and for the duration of whatever period of time as may be agreed upon.

3.15 CROSSINGS:

A. Highway crossings - main:

Payment for crossings of pavements controlled by the State shall include all labor, tools, machines, and materials required for a complete installation to the satisfaction of the District Highway Engineer. Payment shall include all excavation, boring, steel casing, and compaction of backfill as required. Installation and safety policies required by the State shall be strictly adhered to. The carrier pipe shall be paid for separately.

B. County Highway or Street crossing - bored:

Payment for crossings designated as Street Crossings on the Plans shall include all labor, tools, and materials necessary for a complete installation. This includes all excavation, boring, steel casing, compaction of the backfill and repair of pavement. The carrier pipe will be paid for separately. Where street pavements are on State Highway right-of-way, to which requirements of the State shall be strictly adhered.

C. Road crossings - open cut:

The city street crossings shall be paid for at the contract unit price specified in the Proposal. Payment shall include all materials, labor, and tools necessary for a complete crossing and repair of the street. This will include surface removal, trenching, disposal of excess material, crushed rock backfill, replacement of surfacing, casing pipe and all other necessary items. The carrier pipe shall be paid for separately.

END OF SECTION

SECTION 31 25 00 - EROSION CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Temporary sediment barrier.
- B. Temporary ditch checks.

1.02 RELATED SECTIONS

- A. Section 31 11 00 - Clearing and Grubbing (General)
- B. Section 31 23 16 - Excavation, Backfill, and Site Grading

1.03 QUALITY ASSURANCE

- A. Regulatory Requirements:
Erosion controls shall meet all requirements of the EPA.

1.04 SYSTEM DESCRIPTION

- A. Definitions
 - 1. Silt Fence
A temporary sediment barrier consisting of filter fabric buried at the bottom, stretched, and supported by posts.
 - 2. Ditch Checks
A barrier installed across, or at the toe of, a slope to intercept and detain sediment.
- B. Purpose
 - 1. Silt Fence
To retain sediment from small disturbed areas by reducing the velocity of sheet flows to allow sediment deposition.
 - 2. Ditch Checks
To intercept and detain small amounts of sediment from unprotected areas of less than ½ acre.
- C. Location
 - 1. Silt Fence
 - a. Below small disturbed areas.
 - b. Where runoff can be stored behind the sediment fence without damaging the fence or the submerged area behind the fence.
 - c. Do not install sediment fences across streams, ditches, or waterways.
 - 2. Ditch Checks
 - a. Where contributing area is approximately ½ acre, or less.
 - b. Where there is no concentration of water in a channel above the barrier.
 - c. Where erosion would normally occur in form of sheet erosion.
 - d. Where length of slope above the barrier is less than 100 feet.
 - e. Straw bales shall not be used on high sediment producing areas, above "high risk" areas, where water concentrates, or where there would be a possibility of a washout.

D. Planning

1. A sediment fence is a permeable barrier that shall be planned as a system to retain sediment on the construction site. The fence retains sediment primarily by retarding flow and promoting deposition. In operation, generally the fence becomes clogged with fine particles, which reduce flow rate. This causes a pond to develop more quickly behind the fence. Anticipate ponding and provide sufficient storage areas and overflow outlets to prevent flows from overtopping the fence. Since sediment fences are not designed to withstand high heads, locate them so that only shallow pools can form. Tie the ends of a sediment fence into the landscape to prevent flow around the end of the fence before the pool reaches design level. Provide stabilized outlets to protect the fence system and release storm flows that exceed the design storm.
2. Deposition occurs as the storage pool forms behind the fence. Plan deposition areas at accessible points to promote routine cleanout.

E. Design Criteria

1. Silt Fence
 - a. Ensure that the drainage area is no greater than ¼ acre per 100 ft. of fence.
 - b. Make the fence stable for the 10 yr. peak storm runoff.
 - c. Ensure that the depth of impounded water does not exceed 1.5 ft. at any point along the fence.
 - d. Provide a riprap splash pad or other outlet protection device for any point where flow may overtop the sediment fence, such as natural depressions or swales. Ensure that the maximum height of the fence at a protected, reinforced outlet does not exceed one (1) ft. and that support post spacing does not exceed four (4) ft.
 - e. The design life of a synthetic sediment fence should be six (6) months.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Silt Fence

1. Use a synthetic filter fabric or a pervious sheet of polypropylene, nylon, polyester, or polyethylene yard, which is certified by the manufacturer or supplier as conforming to the requirements shown in Table below.
2. Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six (6) months of expected usable construction life at a temperature range of 0 to 120 degrees F.
3. Posts for sediment fences shall be either four (4) inch diameter pine, two (2) inch diameter oak, or 1.33 lb/linear ft. steel with a minimum length of four (4) ft. Make sure that steel posts have projections to facilitate fastening the fabric.
4. For reinforcement of standard strength filter fabric, use wire fence with a minimum 14 gauge and a maximum mesh spacing of six (6) inches.
5. Sediment Fence Fabric Specifications

Physical Property	Minimum Requirements
Filtering Efficiency	85%
Tensile Strength at 20%	Standard Strength @ (max.) Elongation 30 psi Extra Strength @ 50 psi
Slurry Flow Rate	0.3 gal/sq ft/min

- B. Straw Bales
 - 1. Straw shall be locally baled material.
 - 2. Anchors shall be #5 reinforcing bars or 2"x2" oak stakes.

PART 3 - EXECUTION

3.01 CONSTRUCTION

- A. Silt Fence
 - 1. Construct the sediment barrier of standard strength or extra strength synthetic filter fabrics.
 - 2. Ensure that the height of the sediment fence does not exceed 18 inches above the ground surface. (Higher fences may impound volumes of water sufficient to cause failure of the structure.)
 - 3. Construct the filter fabric from a continuous roll cut to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with overlap to the next post.
 - 4. Support standard strength filter fabric by wire mesh fastened securely to the upslope side of the posts using heavy duty wire staples at least one (1) inch long, or tie wires. Extend the wire mesh support to the bottom of the trench.
 - 5. When a wire mesh support fence is used, space posts a maximum of eight (8) ft. apart. Support posts should be driven securely into the ground to a minimum of 18 inches.
 - 6. Extra strength filter fabric with six (6) ft. post spacing does not require wire mesh support fence. Staple or wire the filter fabric directly to the posts.
 - 7. Excavate a trench approximately four (4) inches wide and eight (8) inches deep along the proposed line of posts and upslope from the barrier.
 - 8. Backfill the trench with compacted soil or gravel placed over the filter fabric.
 - 9. Do not attach filter fabric to existing trees.
- B. Ditch Checks
 - 1. Bales will be placed in a single row, lengthwise, on the contour and embedded in the soil to a depth of three (3) inches.
 - 2. Bales must be securely anchored in place by stakes or re-bars driven through the bales or by other acceptable means to prevent displacement.
 - 3. Inspection must be frequent, and repair or replacement must be made promptly as needed.

3.02 MAINTENANCE

- A. Silt Fence
 - 1. Inspect sediment fences at least once a week and after each rainfall. Make any required repairs immediately.
 - 2. Should the fabric of a sediment fence collapse, tear, decompose, or become ineffective, replace it promptly.
 - 3. Remove sediment deposits as necessary to provide adequate storage volume for the next rain and to reduce pressure on the fence. Take care to avoid undermining the fence during cleanout.
 - 4. Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

B. Ditch Checks

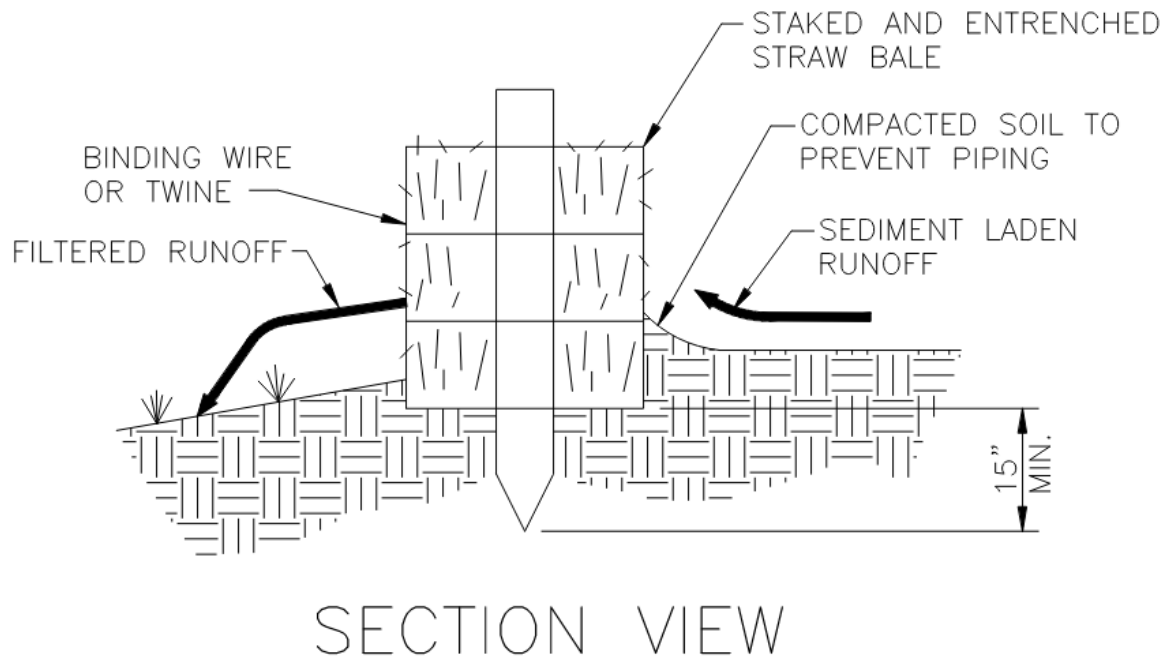
1. Inspect straw bale barriers at least once a week and after each rainfall. Make any required repairs immediately.
2. Should the barrier collapse, decompose or become ineffective, replace it promptly.
3. Remove sediment deposits as necessary to provide adequate storage volume for the next rain and to reduce pressure on the barrier.
4. Remove the barrier and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

3.03 CLEANUP

A. General

1. Remove all silt and other debris from project site.
2. Remove all silt fence and ditch check materials from project site.
3. Grade area for uniform slope to blend with existing or finish contours.

EROSION CONTROL - DITCH CHECK

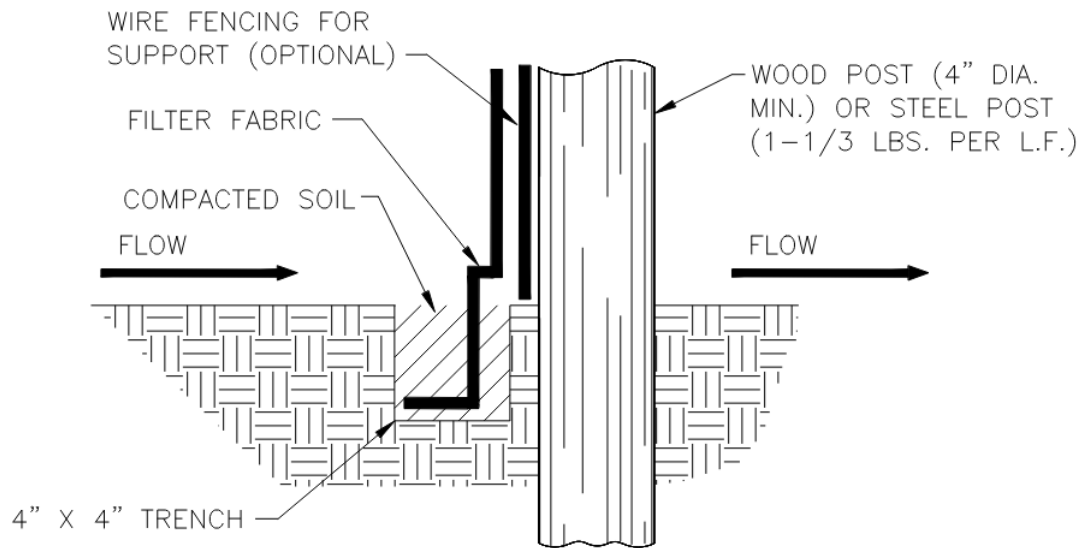


Notes:

- *Straw bales shall not be used longer than a time period of three months. If construction continues beyond this time period, replace bales with new.*
- *Excavate a trench along the areas that the straw bales will be used as erosion control to a depth of 4 inches and to the width of one straw bale. The straw bales then shall be placed in the trench. Place excavated material on upstream side of the trench.*
- *Straw bales shall be anchored with a min. of 2 stakes or rebar driven into the underlying soil, making sure that the binding wire or twine is facing the sides and not touching the soil. The first stake into each bale shall be driven toward the previously laid bale to force them together.*
- *Spacing between the bales shall be tightly chinked with loose straw.*
- *After straw bales are in place the excavated soil shall be backfilled against the upslope side of the straw bales to a height of 4 inches after compacting.*
- *Straw bales shall be inspected after each rainfall to determine if any repairs or replacements to the straw bales are needed. If it is determined that the straw bales need to be repaired or replaced, the work will occur immediately. Sediment accumulations must be removed when they reach $\frac{1}{2}$ the barrier height.*

EROSION CONTROL – SILT FENCE

EROSION CONTROL – STRAW BALES



SECTION VIEW

Notes:

- The filter fabric shall have a minimum filtering efficiency of 75% a minimum tensile strength of 30 lbs. per linear inch and a flow rate of 0.3 gallons per square foot per minute. The filter fabric shall also have ultraviolet ray inhibitors to assure a life use expectancy of 6 months at 0 to 100 degrees Fahrenheit.
- The filter fabric shall be 36 inches or less in height. Joints shall occur only at posts with 6 inch minimum overlap. Posts shall be spaced 10 feet on center when wire mesh support is included or 6 feet on center without wire mesh support. A minimum of 8 inches of fabric will be buried in the 4" x 4" trench.
- The silt fence shall be inspected after every rainfall to determine if any part of the fence needs to be repaired or replaced. If it is determined that the fence needs any repair or replacement, this work will occur immediately.
- Sediment deposits shall be removed after each rainfall or before they accumulate to 1/3 of the fence height.

END OF SECTION

SECTION 32 01 26 - STREET REPAIR AND DRIVEWAY REPAIR

PART 1 - GENERAL

1.01 SELECTION INCLUDES

Removing and replacement of various pavement surface required for this project.

1.02 RELATED SECTION:

Section 31 23 16.13 - Trenching, Backfilling and Compaction

1.03 JOB CONDITION:

- A. Operation:
 - 1. Use all means necessary to control dust or mud that may interfere with the neighborhood.
 - 2. Traffic access shall be maintained.
- B. Protection:
 - 1. Use all means necessary to protect material and preserve all Specification requirements.
 - 2. Replace all damaged material or material that has lost Specification requirements.

PART 2 - PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

3.01 STREET REPAIR AND DRIVEWAY REPAIR

- A. General:

These Specifications provide a minimum standard for the removing of various pavement surfaces, open trenches, excavating, method of backfilling, and replacement of various pavement surfaces. These Specifications meet the requirements of the Owner as a standard to be followed in all cases where street surfaces are disturbed in the process of any and all excavation work.
- B. Class "A" Street (Portland cement concrete pavement):
 - 1. Prior to replacement of the concrete pavement, the concrete surface shall be scored with a saw on each side of the required excavation to a minimum depth of two (2) inches. The size of the area cut shall be one (1) foot greater in all directions than the size of the excavation. This is to provide a minimum six (6) inch shoulder of undisturbed subgrade surrounding the excavation.
 - 2. All broken concrete shall be removed from the site and not used for backfill material.
 - 3. The walls of the excavation shall be vertical for the full length. Sufficient bracing or shoring shall be provided to hold the excavation walls in vertical plane and to prevent undercutting of the undisturbed pavement. Sloping of trench walls in deep excavations may be permitted by the Owner or his authorized representative. Bracing or shoring may be omitted where, in the opinion of the Owner's authorized representative, depth of excavation and soil conditions warrant.

4. All excavated materials shall be removed and disposed of after work within the excavated area is complete. The excavation shall be backfilled with clean $\frac{1}{2}$ inch aggregate ($\frac{3}{8}$ inch minimum to $\frac{3}{4}$ inch maximum) or type as specified in Section 109 and 109.1 and 109.2 of the Standard Specifications for State Road and Bridge Construction, State Highway Commission of Missouri, current edition, to the bottom of the concrete paving.
 5. The pavement removed shall be replaced with high early strength Class A concrete having a compressive strength of 3,750 pounds per square inch at 27 days. The new finish shall be flush with the present street surface.
- C. Class B Street (Hot mix asphaltic concrete or brick surface):
1. Conform to paragraphs (1) through (4) inclusive of the specifications for Class A Street (Portland cement concrete pavement).
 2. All removed paving shall be removed from the site and not used for backfill material. The minimum six (6) inch shoulder shall be excavated to a point no less than nine (9) inches below the existing street surface. Across the backfilled excavation and resting on the six (6) inch shoulders shall be poured a six (6) inch slab of high early strength Class A concrete having a compressive strength of 3,750 pounds per square inch at 27 days. After 48 hours, this slab shall be covered with three (3) inches of hot mix asphalt and rolled. The new finish shall be flush with the present street surface.
- D. Class C Street (D.A.S.T., double asphalt surface treatment roads with base):
1. Conform to paragraphs (1) through (4) inclusive of the specifications for Class D Streets below, except final six (6) inches of backfill shall be rolled stone base material. The crushed rock base shall be replaced by applying two (2) lifts of three (3) inch each of crushed rock to state highway specifications. Each lift shall be saturated with water and rolled. When compaction has been attained, and surface moisture evaporated, double asphalt surface treatment shall be applied. Penetration course shall be MC-0 at the rate of 0.20 gallon per square yard. Surface course shall be RC-3 at the rate of 0.35 per gallon per square yard and to be covered with clean $\frac{3}{8}$ inch to $\frac{1}{2}$ inch crushed aggregate at the rate of 20 pounds per square yard with a lap of one (1) foot outside the disturbed area. Surface course shall be applied twice.
- E. Class D Street: (Surface asphalt treatment roads and earth base):
1. Initial cutting will be permitted by excavating machinery.
 2. Excavation wall shall be vertical and shall be braced and shored to prevent undercutting or crumbling. Sloping of trench walls in deep excavations may be permitted by the Owner's authorized representative, if depth of excavation and soil conditions warrant.
 3. Backfill shall consist of clean $\frac{1}{2}$ inch aggregate or of rolled stone base material, to the level of the existing paving.
 4. Surface treatment shall conform to penetration and surface course for Class C Streets. Surface course shall be applied once.
- F. Crushed Stone Streets or Drives:
1. Type AB-3 aggregate shall be placed over all disturbed areas, except final six (6) inches of backfill be rolled stone base material.
 2. Crushed stone shall be placed and compacted in two (2) lifts.

3. All County and City gravel surface roads shall be backfilled entirely with approved crushed rock. The disposal of unsuitable material excavated will be the responsibility of the Contractor.

END OF SECTION

SECTION 32 92 19 - SEEDING, FERTILIZING, AND MULCHING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Seed
- B. Mulch
- C. Fertilizer
- D. Preparation
- E. Maintenance

1.02 RELATED SECTIONS

- A. Section 31 23 16: Excavation, Backfill, and Site Grading

1.03 ALTERNATE METHODS AND PRODUCTS

- A. Alternate methods from those specified will be considered for use, provided that in the Engineer's opinion the end product will be equal to or exceed that which would result from the specified methods and products.

1.04 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.

1.05 REGULATORY REQUIREMENTS

- A. Comply with regulatory agencies for fertilizer and herbicide composition.

1.06 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

1.07 MAINTENANCE DATA

- A. Submit maintenance data for continuing Owner maintenance.
- B. Include maintenance instruction, cutting method, maximum grass height, types, application frequency, and recommended coverage of fertilizer.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

PART 2 - PRODUCTS

2.01 AGRICULTURAL LIMESTONE

- A. Shall be agricultural limestone with not less than 90 percent passing the No. 4 sieve and containing not less than 40 percent calcium carbonate equivalent. Lime shall be applied at the rate recommended by soil test.

2.02 FERTILIZER

- A. Shall be a standard commercial product which when applied at the proper rate will supply the equivalent quantity of total nitrogen, available phosphoric acid and soluble potash specified. Fertilizer shall be delivered to the site in bags or other suitable containers, each fully labeled, conforming to applicable state fertilizer laws, and bearing the name, trade name or trademark, and warranty of the producer.
- B. Requirements per acre:
 - 1. 600 pounds of 17-17-17 grade fertilizer or equivalent.

2.03 MULCH

- A. Shall be vegetative mulch consisting of cereal straw from stalks of oats, rye, wheat or barley. Straw shall be free of prohibited weed seeds as stated in State Seed Law and shall be relatively free of all other noxious and undesirable seeds. Straw shall be clean and bright, relatively free of foreign material and be dry enough to be spread properly.

2.04 SEED

- A. Seed shall be a mixture with the specified minimum purity and germination requirements, as follows:

Seed Type	% Mix (by Wt.)	Purity %	Germination %
Kentucky K-31 Fescue	52	97	85
Creeping Red Fescue	18	85	80
Rye Grass	8	98	85
Rye Grain	22	-	-

- B. Variation in the above mix to suit local conditions or time of year may be required.
- C. Seed shall be labeled in accordance with USDA regulations. Care shall be taken during transportation to avoid segregation of seed mixtures.
- D. Seed shall be sown at a rate of 217 pounds of seed mix per acre for drill seeding. Seed mixture shall be thoroughly mixed prior to application.

PART 3 - EXECUTION

3.01 GENERAL

- A. The application of fertilizer, seed, and mulch shall follow each other in successive sequence as closely as possible. Seeding shall be accomplished in the first of the following two periods after completion of earthwork.
 - February 15 to May 1st
 - September 1st to October 1st
- B. Seeding outside the specified seeding periods may be permitted at the Engineer's option, provided the Contractor is willing to make appropriate modifications to their seeding operations, and will guarantee the crop.

3.02 INSPECTION

- A. Contractor must request that Engineer inspect site grading, clean-up and surface preparation to determine if site is ready for the seeding, fertilizing and mulching operations.
- B. Upon Engineer's approval operations may begin.

3.03 SURFACE PREPARATION

- A. Immediately in advance of fertilizing, the surface to be seeded shall be repaired, if necessary, to eliminate all damage from erosion or construction operations. The surface shall then be loosened and thoroughly pulverized by discing, harrowing and raking or other approved methods, to such an extent that it is free from sod, stones, clods, or roots. All growth of vegetation that will seriously interfere with planting operations shall be removed and disposed of as directed. The final surface shall be smooth and uniform and left in such a condition as to prevent formation of low places and pockets.

3.04 FERTILIZING

- A. Fertilizer and lime shall be dressed evenly over the areas to be seeded using approved mechanical type spreading equipment.
- B. Fertilizer and lime after spreading shall be immediately incorporated into the soil to a depth of approximately two (2) inches, by chisel, spike tooth harrow, or other approved methods.

3.05 SEEDING METHODS

- A. General methods:

The Contractor shall employ a satisfactory method of sowing by use of either approved mechanical hand seeders or mechanical power-driven drills. When delays in operation carry the work beyond the specified planting seasons, or when conditions are such that by reason of drought, high winds, excessive moisture, or other factors, satisfactory results are not likely to be obtained, seeding shall stop. It will be resumed only where the desired results are probable or when approved alternate procedures have been adopted.

- B. Broadcast seeding:

When broadcast seeding is utilized, the seed shall be uniformly broadcast by mechanical hand seeder, in two directions at right-angles to each other and at $\frac{1}{2}$ of the specified rate per acre in each direction. After the seed is broadcast it shall be covered by an approved method to a depth of $\frac{1}{3}$ inch to $\frac{3}{4}$ inch. Broadcast seeding shall not be done in windy weather.

- C. Drill seeding:

When drilling is utilized, it shall be done with approved equipment best suited to perform the work under prevailing conditions. The seed shall be uniformly drilled to a depth of $\frac{1}{3}$ inch to $\frac{3}{4}$ inch at the rate per acre specified. Drill seeding may be required in windy weather.

- D. Prior to start of seeding, the Contractor shall demonstrate that the application of seed is being made at the specified rate. A final check of the total quantity of seed used shall be made against the area seeded. If the check shows that the Contractor has not

applied seed at the specified rate, they shall uniformly distribute seed at a rate calculated to meet the shortage.

- E. The Contractor shall maintain the seeded areas until all fertilizing, seeding and mulching is complete, and the work accepted by the Engineer. Areas damaged from the Contractor's own operations shall be repaired at their expense. After acceptance of the work the Contractor will not be held responsible for erosion due to weather, or conditions not due to the Contractor's own operations or negligence. The Contractor is not required to guarantee a crop, if seeding is done during the specified seeding periods.

3.06 MULCHING

- A. Immediately after seeding, the Contractor shall apply vegetative mulch at a rate between 1½ and 2½ tons per acre to all seeded areas. Quantity of mulch shall be adjusted within the above limits, as directed by the Engineer, to the particular area or slope being mulched. Total application of mulch for the project shall average approximately two (2) tons per acre. Mulch shall be applied by mechanical mulch spreaders equipped to eject by means of a constant air stream controlled quantities of the vegetative mulch.
- B. Mulch shall be embedded by a disc type roller having flat serrated discs spaced not more than 10 inches apart, with cleaning scrapers for each disc.
- C. Where indicated, or in areas of the project where soil conditions are not suitable for satisfactory crimping, asphalt emulsion shall be applied with the mulching operation. The normal rate of application shall be 100 gallons per ton of straw; however, this rate may be varied as directed by the Engineer to suit the particular area or slope conditions.
- D. All mulch shall be distributed evenly over the areas to be mulched within 24 hours after the seeding operation. Following the mulching operation, suitable precautions shall be taken to prohibit traffic over mulched areas. Displaced mulch shall be replaced immediately, including repair of the underlying seed bed, if damaged as well.

3.07 MAINTENANCE

- A. The Contractor shall maintain all seeded areas until the grass is properly established (not less than 90 days) until satisfactory development. Maintenance shall be continued until final acceptance of the work.
- B. Maintenance of seeded areas shall include protecting, watering, mowing, fertilizing, and such other work as may be necessary to establish a permanent lawn. The Contractor shall reseed those seeded areas in which a satisfactory growth is not obtained and shall refill any areas which become eroded prior to final acceptance of the work.
- C. Paved areas shall be kept clean while maintenance operations are in progress.

3.08 REPLACEMENT

- A. The Contractor shall replace all trees, shrubs, and flowers damaged by construction activities in the areas designated on the construction plans. The replacement trees and shrubs shall be equal in size to the damaged or removed specimen.

END OF SECTION

SECTION 33 01 10.58 - WATER MAIN DISINFECTING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Disinfecting water lines and determining the bacteriologic quality by laboratory test after disinfection.

1.02 RELATED SECTIONS

- A. Section 33 05 31.13 - Water Main - PVC Pressure Pipe
- B. Section 33 14 19 - Water Main - Valves, Hydrants, and Accessories

1.03 REFERENCE STANDARDS

- A. AWWA B300 - Hypochlorites 2018.
- B. AWWA B301 - Liquid Chlorine 2010.
- C. AWWA B302 - Ammonium Sulfate 2016.
- D. AWWA B303 - Sodium Chlorite 2018.
- E. AWWA C651 - Disinfecting Water Mains 2014.

1.04 QUALITY CONTROL

- A. Supervision:
Provide full time superintendent on the project who is qualified and experienced in disinfection procedures. Superintendent shall direct all work in connection with the disinfection.
- B. Codes and standards:
Testing shall comply with AWWA C651 or latest revision thereto.

1.05 SUBMITTALS

- A. Test Reports:
- B. Submit certified copies of test reports on each section of pipe tested.

PART 2 - PRODUCTS

2.01 CHLORINE

- A. Calcium hypochlorite (70 percent available chlorine).

PART 3 - EXECUTION

3.01 FLUSHING

- A. Water lines shall be flushed prior to disinfection at a velocity of not less than 2.5 feet per second.
- B. Discharge point shall have adequate drainage to prevent flooding of surrounding area. Discharge point to be approved by Owner.

3.02 CHLORINE APPLICATION

- A. Continuous feed method:
 - 1. This method is suitable for general application.

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Buckner-Tarsney Transmission
Main Replacement - South

33 01 10.58 - 1

Water Main Disinfecting

TABLE 2

Chlorine Required to Produce 50 milligrams per liter Concentration in 100 feet of Pipe - by Diameter

Pipe Size	100% Chlorine lb.	1% Chlorine Solutions gal
4	0.027	0.33
6	0.061	0.73
8	0.108	1.30
10	0.170	2.04
12	0.240	2.88
14	0.334	4.01
16	0.436	5.24
18	0.552	6.63
24	0.981	11.78
30	1.533	18.40

2. Water from the existing distribution system or other approved sources of supply shall be made to flow at a constant measured rate into the newly-laid pipeline. The water shall receive a dose of chlorine, also fed at a constant measured rate. The two (2) rates shall be proportioned so that the chlorine concentration in the water in the pipe is maintained at a minimum of 50 milligrams per liter available chlorine. To assure that this concentration is maintained, the chlorine residual should be measured at regular intervals in accordance with the procedures described in the current edition of Standard Methods and AWWA M12 - Simplified Procedures for Water Examination. Prior to the start of the disinfection process, the new source shall be flushed.
3. In the absence of a meter, the rate may be determined either by placing a pitot gauge at the discharge or by measuring the time to fill a container of known volume.
4. Table 2 gives the amount of chlorine residual required for each 100 feet of pipe of various diameters. Solutions of one (1) percent chlorine may be prepared with sodium hypochlorite or calcium hypochlorite. The latter solution requires approximately one (1) lb. of calcium hypochlorite in 8.5 gallons of water.
5. During the application of the chlorine, the supply valve shall be closed to prevent the treatment dosage from flowing back into the line supplying the water. Chlorine application shall not cease until the entire main is filled with the chlorine solution. The chlorinated water shall be retained in the main for at least 24 hours, during which time all valves and hydrants in the section treated shall be operated in order to disinfect the appurtenances. At the end of this 24 hour period, the treated water shall contain no less than 25 milligrams per liter chlorine throughout the length of the main.

3.03 FINAL FLUSHING

- A. After the applicable retention period, the heavily chlorinated water shall be flushed from the main until the chlorine concentration in the water leaving the main is no higher than that generally prevailing in the system, or less than one (1) milligram per liter. Chlorine residual determination shall be made to ascertain that the heavily chlorinated water has been removed from the pipe line. Heavily chlorinated water shall be de-chlorinated with sodium thiosulfate prior to discharge to the water course or

sanitary/storm sewers. The sodium thiosulfate concentration shall be equal to 1.43 mg/L per 1 mg/L of residual chlorine concentration to be removed.

3.04 BACTERIOLOGIC TEST

- A. After final flushing, and before the water main is placed in service, a sample or samples shall be collected from the end of the line and tested for bacteriologic quality and shall show the absence of coliform organisms. If the number and frequency of samples is not prescribed by the public health authority having jurisdiction, at least one (1) sample shall be collected from chlorinated supplies where a chlorine residual is maintained throughout the new main. From unchlorinated supplies at least two (2) samples shall be collected at least 24 hours apart.
- B. In the case of extremely long mains, it is desirable that samples be collected the length of the line as well as at its end.
- C. Samples for bacteriologic analysis shall be collected in sterile bottles treated with sodium thiosulphate. No hose or fire hydrant shall be used in collection of samples. A suggested sampling tap consists of a standard corporation cock installed in the main with a copper tube gooseneck assembly. After samples have been collected the gooseneck assembly may be removed and retained for future use.

3.05 REPETITION OF PROCEDURE

- A. If the initial disinfection fails to produce satisfactory samples, disinfection shall be repeated until satisfactory samples have been obtained. When the samples are satisfactory, the main may be placed in service.

END OF SECTION

SECTION 33 01 12 - WATER MAIN PRESSURE AND LEAKAGE TEST

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Testing of water lines, fire hydrants, and valves.

1.02 RELATED SECTIONS

- A. Section 31 23 16 - Excavation, Backfill, and Site Grading
- B. Section 33 01 10.58 - Water Main Disinfecting
- C. Section 33 05 31.13 - Water Main - PVC Pressure Pipe
- D. Section 33 14 19 - Water Main - Valves, Hydrants, and Accessories

1.03 QUALITY CONTROL

- A. Supervision:

Provide full time superintendent on the project who is qualified and experienced in testing procedures. Superintendent shall direct all work in connection with the testing.

- B. Codes and standards:

Testing shall comply with AWWA C605 Section 7 - Hydrostatic Testing.

1.04 SUBMITTALS

- A. Test reports:

Submit certified copies of test reports on each section of pipe tested.

PART 2 - PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall provide all necessary piping connections, pumping equipment, pressure gauges, flow meters, manpower and other equipment necessary for the required test.
- B. Pressure and leakage test may be coordinated with the disinfection of the pipeline, subject to conditions of Section 33 01 10.58 - Water Main Disinfecting.
- C. The Owner will furnish at the nearest available source, all water required for filling the lines and making the required test. The pipe shall be filled with water at a velocity not to exceed one (1) foot per second. Air shall be expelled from pipeline during filling.
- D. Where practical, pipelines shall be tested in lengths of not more than 1,500 feet.
- E. All pipe, fittings and other materials found to be defective, shall be removed and replaced with new materials by the Contractor.
- F. All lines that fail to meet tests shall be repaired and retested as necessary until test requirements are satisfied.

- G. Testing prior to backfilling in no way relieves the Contractor of the responsibility of repairing leaks which become evident after the main is put into service or during the one (1) year guarantee period.

3.02 TESTING AFTER BACKFILL

- A. If the Contractor chooses to test after backfilling, they shall comply with all requirements shown for testing before backfilling, except that the duration of the test shall be for four (4) hours. All surface indications of leaks shall be immediately corrected even though the total leakage is less than allowed.
- B. In the event the leakage is more than permissible, the system shall be corrected as found necessary to bring it within the allowed limits. It shall be subject to as many four (4) hour tests as necessary to obtain the desired result. If a section of pipe fails the four (4) hour test, then a 24 hour test may be required by the Project Engineer.

3.03 TESTING BEFORE BACKFILL

- A. All thrust blocks and anchors shall have been in place at least 48 hours prior to testing.
- B. The test pressure shall be maintained for two (2) hours or longer as is necessary for time to inspect the pipeline for visible leaks and as is required to obtain a reasonable time for leakage measurement.

3.04 PRESSURE TEST

- A. Test pressure:
 - 1. All newly installed piping shall be hydrostatic pressure tested at not less than 1.5 times the sustained working pressure at the lowest elevation of the test section. Contractor is to request the sustained working pressure for each segment from the Engineer. (Not to exceed 80 percent of rated pressure for IPS SDR 26 or 21PVC pipe or rated pressure of C900 PVC or C905 PVC or DIP).
 - 2. Pressure shall not vary by more than plus or minus five (5) psi.
 - 3. Pressurization:
 - a. Each valved section of pipe shall be filled with water slowly and the specified test pressure shall be applied by means of a pump connected to the pipe. Test shall begin after pipe is filled with water and the air expelled.
 - 4. The contractor shall furnish all equipment and manpower to conduct the test. Written results on each test shall be submitted to the Engineer. Test duration shall not be less than two (2) hours. Engineer may request longer test duration for any necessary retests.

- B. Air removal:

Before applying the specified test pressure, air shall be expelled completely from the pipe, valves, and hydrants. If permanent air vents are not located at all high points, the Contractor shall install corporation cocks at such points so that the air can be expelled as the line is filled with water. After all the air has been expelled, the corporation cocks shall be closed, and the test pressure applied. At the conclusion of the pressure test, the corporation cocks shall be removed and plugged, or left in place at the discretion of the Owner.

C. Examination:

All exposed pipe, fittings, valves, hydrants, and joints shall be examined carefully during the test. Any damage or defective pipe, fittings, valves, or hydrants that are discovered following the pressure test shall be repaired or replaced with sound material and the test shall be repeated until it is satisfactory to the Owner.

3.05 LEAKAGE TEST

A. General:

A leakage test shall be conducted concurrently with the pressure test.

B. Leakage defined:

Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain pressure within five (5) psi of the specified test pressure during the test and to restore test pressure at the end of the test. Testing to be done after the pipe has been filled with water and after air in the pipeline has been expelled.

C. Acceptance of installation:

Acceptance shall be determined on the basis of allowable leakage. If any test of pipe laid discloses leakage greater than that specified, the Contractor shall, at their own expense, locate and repair the defective material until the leakage is within the specified allowance.

D. Allowable leakage:

1. No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

$$L = (ND \sqrt{P})/7400$$

L = allowable leakage, in gallons per hour

N = number of joints in the length of pipeline tested

D = nominal diameter of the pipe, in inches

P = average test pressure during the leakage test, in psi gauge.

2. The table below shows the allowable leakage in gallons per hour at 150 psi per 1,000 feet in 20-foot nominal lengths.

Pipe Size	Allowable Leakage
2	0.17
3	0.25
4	0.34
6	0.50
8	0.67
10	0.83
12	1.00
14	1.16
16	1.33
18	1.49
20	1.66
24	1.99

3. When testing against closed metal-seated valves, an additional leakage per closed valve of 0.078 gallons per hour per inch of nominal valve size shall be allowed.
 4. When hydrants are in the test section, the test shall be made against the closed hydrant valves.
 5. All visible leaks shall be repaired, regardless of the amount of leakage.
- E. Acceptance of installation:

Acceptance shall be determined on the basis of allowable leakage. If any test of pipe laid discloses leakage greater than that specified, the Contractor shall, at their own expense, locate and repair the defective material and retest until the leakage is within the specified allowance.

3.06 WATER LINE PIGGING

- A. All water mains 12 inch and larger shall be cleaned by passing a properly sized poly pig through the pipe. The poly pig shall be a medium density of 5-7 pounds per cubic foot standard red series. Pigs are to be coated with a double spiral wrap without wire brushes or scrapping tools. Travel velocity shall be 2-4 feet per second. Pigs to be red plain spiral, red crisscross standard red series or approved equal. All pigs are to be equipped with a tracing locator.
- B. The contractor shall prepare the main for the insertion and removal of the poly pig at points identified by the Engineer as insertion ports, if required, and exit ports. In general, this will consist of providing all material, equipment, and labor to insert the poly pig and construct a sanitary exit port. Where practical, the poly pig shall be inserted into the first length of pipe during the initial installation. At the exit port, the contractor shall prevent the backflow of purged water into the main by the temporary installation of mechanical joint bends and pipe joints to the same purpose. After the main is cleaned to the satisfaction of the Owner, the Contractor shall remove all temporary constructions and complete all work necessary to secure the system prior to backfilling insertion and exit sites. Additional poly pig runs may be required by the Owner when water purged from the main indicates the presence of excessive dirt or debris.

END OF SECTION

SECTION 33 05 07.13 - DIRECTIONAL BORED EXCAVATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Directional Boring under streams.

1.02 RELATED SECTIONS

- A. Section 02 30 00 - Subsurface Conditions
- B. Section 31 23 16.13 - Trenching, Backfilling and Compaction

1.03 SUPERVISION AND QUALITY

- A. This work shall comply with all codes governing and all insurance requirements. Work shall be undertaken only when the construction superintendent is present and supervising the work.

1.04 REQUIREMENTS OF REGULATORY AGENCIES

- A. Crossings shall be completed in accordance with applicable federal, state and local regulations.

1.05 SUBMITTALS

- A. Work Plan:
Prior to beginning work, the Contractor must submit to the Engineer a general work plan outlining the procedure and schedule to be used to execute the project. Plan should document the thoughtful planning required to successfully complete the project.
- B. Equipment:
Contractor will submit specifications on directional boring equipment to be used to ensure that the equipment will be adequate to complete the project. Spares inventory shall be included.
- C. Material:
Specifications on material to be used shall be submitted to Engineer. Material shall include the pipe, fittings and any other item which is to be an installed component of the project.
- D. Personnel:
Documentation of training and relevant experience of personnel shall be submitted.

PART 2 - PRODUCTS

2.01 CARRIER PIPE

- A. Carrier pipe shall be as shown on the plans and called for on the bid form.

2.02 BORING SYSTEM

- A. Boring Rig:
The directional boring machine shall consist of a hydraulically powered system to rotate, push and pull hollow drill pipe into the ground at a variable angle while delivering a pressurized fluid mixture to a guidable drill (bore) head. The machine shall be anchored to the ground to withstand the pulling, pushing and rotating pressure

required to complete the crossing. The hydraulic power system shall be self-contained with sufficient pressure and volume to power boring operations. Hydraulic system shall be free of leaks. Rig shall have a system to monitor and record maximum pull-back pressure during pull-back operations. The rig shall be grounded during boring and pull-back operations. Sufficient spares shall be kept on hand for any break-downs which can be reasonably anticipated.

B. Bore Head:

The bore head shall be steerable by changing its rotation and shall provide the necessary cutting surfaces and boring fluid jets.

2.03 GUIDANCE SYSTEM

- A. The Guidance System shall be of a proven type and shall be setup and operated by personnel trained and experienced with this system. The Operator shall be aware of any magnetic anomalies and shall consider such influences in the operation of the guidance system if using a magnetic system.

2.04 BORING FLUID (MUD) SYSTEM

A. Mixing System:

A self-contained, closed, boring fluid mixing system shall be of sufficient size to mix and deliver boring fluid composed of bentonite clay, potable water and appropriate additives. Mixing system shall be able to molecularly shear individual bentonite particles from the dry powder to avoid clumping and ensure thorough mixing. Mixing system shall continually agitate the boring fluid during boring operations.

B. Boring Fluids:

Drilling fluid shall be composed of clean water and an appropriate additive. Water shall be from a clean source with a pH of 8.5 - 10. Water of a lower pH or with excessive calcium shall be treated with the appropriate amount of sodium carbonate or equal. The water and additives shall be mixed thoroughly and be absent of any clumps or clods. No hazardous additives may be used. Boring fluid shall be maintained at a viscosity sufficient to suspend cuttings and maintain the integrity of bore wall.

2.05 OTHER EQUIPMENT

A. Pipe Rollers:

Pipe rollers, if required, shall be of sufficient size to fully support the weight of the pipe while being hydro-tested and during pull-back operations. Sufficient number of rollers shall be used to prevent excess sagging of pipe.

B. Pipe Rammers/Pullers:

Hydraulic or pneumatic pipe rammers or pullers may only be used if necessary and with the authorization of Engineer.

PART 3 - EXECUTION

3.01 GENERAL

- A. The depths and locations of bore and receiving pits (working pits) shall be established by the Contractor in accordance with the horizontal alignment and grade as shown on the project construction plans.

- B. The working pits shall adhere to OSHA requirements. Barricades shall be furnished around working pits to safeguard traffics and pedestrians.
- C. All discharge from dewatering of the working pits shall be directed into approved receiving basins in accordance with all applicable regulatory requirements.
- D. The working pits shall be in locations that in no way interfere with the operation of highways, streets, driveways, railroads or other facilities. Working pits shall not weaken or damage any embankment, utility or structure.

3.02 CONSTRUCTION

- A. The directional bore machine shall be located at the low or downstream end, if possible.
- B. The directional bore machine shall be equipped with a spoil transportation equipment using drilling fluid. The drilling fluid shall be compatible for soil condition. The drilling fluid, such as bentonite, shall be used by lubricating the casing during pull back operation.
- C. The drill bit head shall not be greater than the diameter of the pipe.
- D. The directional bore machine shall be equipped with an output signal that is located within the drill bit head. The output signal from the drill bit head shall allow the operator of the directional bore machine to track the location of the drill bit head.
- E. Spoil material and drilling fluid shall be removed from the working pits and disposed of properly.
- F. After completion of the pilot bore pipe installation and the backfill operation, the Contractor shall restore the profile of the surface to its original condition.

3.03 PERSONNEL REQUIREMENTS

- A. All personnel shall be fully trained in their respective duties as part of the directional boring crew and in safety. Training shall be provided specific to the project if any potential hazards may be encountered which has not already been included in personnel's training.

3.04 BORING PROCEDURE

- A. Site Preparation:

Prior to any alterations to work site, contractor shall photograph or video record entire work area, including entry and exit points. One (1) copy will be given to Engineer and one (1) copy to remain with contractor for a period of one (1) year following the completion of the project.

- B. Bore Path Survey:

Entire drill path shall be accurately surveyed with entry and exit stakes placed in the appropriate locations within the areas indicated on drawings. If contractor is using a magnetic guidance system, drill path will be surveyed for any surface geomagnetic variations or anomalies.

- C. Environmental Protection:

Contractor shall place silt fence between all boring operations and any drainage, wetland, waterway or other area designated for such protection by contract documents, state, federal and local regulations. Additional environmental protection

necessary to contain any hydraulic or boring fluid spills shall be put in place, including berms, liners, turbidity curtains and other measures. Contractor shall adhere to all applicable environmental regulations. Fuel or oil may not be stored in bulk containers within 200' of any water body or wetland.

D. Utility Locates:

Contractor shall notify all companies with underground utilities in the work area via the state or local "one-call" to obtain utility locates.

Once the utilities have been located, Contractor shall physically identify the exact location of the utilities by vacuum or hand excavation, when possible, in order to determine the actual location and path of any underground utilities which might be within 20 feet of the bore path. Contractor shall not commence boring operations until the location of all underground utilities within the work area have been verified.

E. Safety:

Contractor shall adhere to all applicable state, federal, and local safety regulations and all operations shall be conducted in a safe manner. Safety meetings shall be conducted at least weekly with a written record of attendance and topic submitted to Engineer.

F. Pipe:

Pipe shall be connected together in one (1) length prior to pull back operations, if space permits. Pipe will be placed on pipe rollers before pulling into bore hole with rollers spaced close enough to prevent excessive sagging of pipe.

G. Pilot Hole:

Pilot hole shall be drilled on bore path with no deviations greater than 5% of depth over a length of 100'. In the event that pilot does deviate from bore path more than 5% of depth in 100', contractor will notify Engineer and Engineer may require Contractor to pull back and re-drill from the location along bore path before the deviation.

In the event that an obstruction is encountered during the pilot bore, or the pilot hole pipe is misaligned, the pipe is to be removed from the borehole and the borehole shall be filled with pumpable, flowable fill at a sufficient pressure to fill all voids. The cost of the pumpable, flowable fill, removal of pipe and rebore/reinstalling the pipe is incidental to the cost of the project.

H. Reaming:

Upon successful completion of pilot hole, contractor will ream bore hole to a minimum of 25% greater than outside diameter of pipe using the appropriate tools. Contractor will not attempt to ream at one time more than the boring equipment and mud system are designed to safely handle.

I. Pull Back:

After successfully reaming bore hole to the required diameter, contractor will pull the pipe through the bore hole. In front of the pipe will be a swivel. Once pull back operations have commenced, operations must continue without interruption until pipe is completely pulled into bore hole. During pull back operations contractor will not apply more than the maximum safe pipe pull pressure at any time.

In the event that pipe becomes stuck, contractor will cease pulling operations to allow any potential hydrolock to subside and will commence pulling operations. If pipe remains stuck, contractor will notify Engineer. Engineer and Contractor will discuss options and then work will proceed accordingly.

3.05 SITE RESTORATION

- A. Following boring operations, contractor will demobilize equipment and restore the work site to original condition. All excavations will be backfilled and compacted to 95% of original density. Landscaping will be restored to original.

3.06 RECORD KEEPING AS-BUILTS

- A. Contractor shall maintain a daily project log of boring operations and a guidance system log with a copy given to Engineer at completion of project. As-built drawings shall be certified as to accuracy by contractor.

3.07 EXCAVATION

- A. The Contractor shall, during the entire period of construction, provide and maintain any necessary equipment as will, whenever practicable, keep their excavations reasonably free from water pending construction. When necessary to use pumps the Contractor must dispose of the water without detriment to adjacent properties.

3.08 SHEETING AND SHORING

- A. General:

Except where banks may be cut back on a stable slope, excavation for trenches shall be properly and substantially sheeted, braced and shored, as necessary, to prevent caving or sliding, to provide protection for the workmen and the work, and to provide protection for existing structures and facilities. Sheeting, bracing and shoring shall be designed and built to withstand all loads that might be caused by earth movement or pressure, and shall be rigid, maintaining its shape and position under all circumstances.

3.09 FINAL GRADING AND DISPOSAL OF EXCESS EXCAVATED MATERIALS

- A. General:

1. Except as otherwise indicated, all excess excavated materials shall be disposed of by the Contractor away from the site of the work.
2. Excavated rock, junk and debris encountered in excavation work, and other similar waste materials shall be disposed of away from the site of the work.
3. The disposal of waste and excess excavated materials, including hauling, handling, leveling and surfacing, shall be at the Contractor's expense.

- B. Restoration of disturbed earth:

The Contractor shall restore all earth areas disturbed from the original condition by their operations. Restoration will be by seeding, fertilizing and mulching to obtain an established cover or by appropriate pavement and street repair.

3.10 RESPONSIBILITY OF CONTRACTOR FOR BACKFILL SETTLEMENT

- A. The Contractor shall be responsible financially and otherwise, for:

1. All settlement of trench and other backfill which may occur from time of original backfilling until the expiration of one (1) year after the date of final payment for the entire contract under which the backfilling work was performed.

2. The refilling and repair of all backfill settlement and the repair or replacement to the original or a better condition of all pavement, top surfacings, driveways, walks, surface structures, utilities, drainage facilities and sod which may have been damaged as a result of backfill settlement or which have been removed or destroyed in connection with backfill replacement operations.
 3. All damage claims or court actions against the Owner for any damage directly or indirectly caused by backfill settlement.
- B. The Contractor shall make all necessary backfill replacements and repairs, or replacements appurtenant thereto, within 30 days after notification by the Owner or Engineer. Upon the Contractor's failure to do so, the Owner may do, or have done the necessary work and charge the cost to the Contractor.

3.11 MAINTENANCE OF TRAFFIC

- A. The Contractor shall conduct their work so as to interfere as little as possible with public travel, whether vehicular or pedestrian; whenever it is necessary to cross, obstruct, or close roads, driveways, and walks, whether public or private, the Contractor shall at their own expense provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to owners of private drives before interfering with them; provided however, that such maintenance of traffic will not be required at any point where the Contractor has obtained permission from the owner and tenant of private property, or from the authority having jurisdiction over the public property involved, to obstruct traffic at any designated point thereon and for the duration of whatever period of time as may be agreed upon.

END OF SECTION

SECTION 33 05 07.23 - BORED EXCAVATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Boring under highways, roads and railroads.
- B. Casing pipe.

1.02 RELATED SECTIONS

- A. Section 02 30 00 - Subsurface Conditions
- B. Section 31 23 16.13 - Trenching, Backfilling and Compaction

1.03 SUPERVISION AND QUALITY

- A. This work shall comply with all codes governing and all insurance requirements. Work shall be undertaken only when the construction superintendent is present and supervising the work.

1.04 REQUIREMENTS OF REGULATORY AGENCIES

- A. Crossings shall be completed in accordance with applicable federal, state and local regulations. In the case of railroad crossings, the project shall comply with regulations established by the railroad company.

PART 2 - PRODUCTS

2.01 CASING PIPE

- A. Smooth wall casing pipe shall be of welded steel construction and shall be new material with a minimum yield point of 35,000 psi. The pipe shall have a wall thickness as noted on the plans.

2.02 CARRIER PIPE

- A. Carrier pipe shall be as noted on plans.

2.03 CASING SPACERS

- A. Spacers shall be RACI Type F from Public Works Marketing or approved equal. HDPE spacers shall be Type F or Type G for carrier pipe sizes four (4) inch through 16 inch (Maximum spacing as per manufacturer's recommendations).

2.04 END SEALS

- A. End seals shall be synthetic rubber "wrap around" style with stainless steel band as manufactured by Advance Products and Systems, Inc. or approved equal.

PART 3 - EXECUTION

3.01 GENERAL

- A. Crossings under highways, roads and railroads shall be continuously encased under and through roadways, median, ramps and shoulder area to the limits called for or required by the federal, state and local regulations. Railroad crossings shall conform to the requirements of the regulations established by the railroad company.

- B. Work shall be performed in a safe and proper manner, with suitable precautions being taken against hazards of every kind. All crossings shall be bored, unless rock formations or other obstructions are encountered that prevents boring or pushing operations. If such conditions are encountered, excavation shall be performed by standard tunneling methods.
- C. Excavations shall provide adequate clearance for installation of and removal of equipment.
- D. Backfilling and construction of fills and embankments during freezing weather shall not be done except by permission of the Engineer. No backfill, fill or embankment materials shall be installed on frozen surfaces, or will frozen materials, snow or ice be placed in any backfill, fill or embankments.
- E. When operating on pavements or walks all equipment shall be rubber tired, except for excavation equipment. Excavating equipment, in such cases, shall not have grousers, cleats or lugs on the tracks. The Contractor shall take all reasonable precautions to protect the existing pavements and walks.
- F. No classification of excavated materials shall be made. Boring excavation and trenching work shall include the removal and subsequent handling of all materials excavated or otherwise removed in performance of the contract work, regardless of the type, character, composition or condition thereof.
- G. Pipe lines and other existing underground installations and structures in the vicinity of the work to be done hereunder are not indicated on the plans. The Contractor shall make every effort to locate all underground pipe lines, conduits and structures by contacting owners of underground utilities and by prospecting in advance of excavation and boring. Damage to any existing underground installation caused by the Contractor's operation shall be repaired at the Contractor's expense.
- H. Any delays or extra cost to the Contractor caused by pipe lines or other underground structures or obstructions not shown by the plans, or found in locations different than those indicated, shall not constitute a claim for extra work, additional payment or damages.
- I. Erosion control of disturbed areas shall be required during the construction period through the use of check dams, siltation pools, mulching, etc.
- J. The Contractor shall meet the specific requirements of the governing authority of the Crossing. The Contractor shall obtain all necessary permits and insurance.
- K. Operation:
Use all means necessary to control dust or mud that may interfere with operation.
- L. Protection:
 - 1. Use all means necessary to protect material and preserve specification requirements.
 - 2. Replace all damaged material or material that has lost Specification requirements.
 - 3. All open trenches shall be protected by necessary means to insure the safety of others.

3.02 EXCAVATION

- A. The Contractor shall, during the entire period of construction, provide and maintain any necessary equipment as will, whenever practicable, keep their excavations reasonably free from water pending construction. When necessary to use pumps the Contractor must dispose of the water without detriment to adjacent properties.

3.03 SHEETING AND SHORING

- A. General:

Except where banks may be cut back on a stable slope, excavation for trenches shall be properly and substantially sheeted, braced and shored, as necessary, to prevent caving or sliding, to provide protection for the workers and the work, and to provide protection for existing structures and facilities.

Sheeting, bracing and shoring shall be designed and built to withstand all loads that might be caused by earth movement or pressure, and shall be rigid, maintaining its shape and position under all circumstances.

3.04 CASING AND CARRIER PIPE INSTALLATION

- A. Casing pipe:

1. Before starting work on borings, complete details of the method of operation and casing to be used shall be submitted to the Engineer for review. All permits shall be obtained by the Contractor.
2. Casing pipes shall have a clear inside diameter not smaller than the size indicated on the schedule.
3. The casing pipe shall be installed by jacking into place. Earth displaced by the casing pipe shall be removed through the interior of the casing by hand, by auger, or by other acceptable means. Sections of the casing pipe shall be welded together to form a continuous casing capable of resisting all stresses, including jacking stresses. The casing pipe in its final position shall be straight and true in alignment and grade. There shall be no space between the earth and the outside of the casing.

- B. Carrier pipe:

Polyethylene casing spacers shall be installed on carrier pipe at intervals as called for in Section 2.03 above. The pipe shall then be pushed into the casing pipe with care being taken to ensure the joints are not displaced.

- C. Casing closure:

Following the installation of the carrier pipe in the casing pipe, the ends of the casing pipe shall then be closed with wrap around seals.

3.05 FINAL GRADING AND DISPOSAL OF EXCESS EXCAVATED MATERIALS

- A. General:

1. Except as otherwise indicated, all excess excavated materials shall be disposed of by the Contractor away from the site of the work.
2. Excavated rock, junk and debris encountered in excavation work, and other similar waste materials shall be disposed of away from the site of the work.
3. The disposal of waste and excess excavated materials, including hauling, handling, leveling and surfacing, shall be at the Contractor's expense.

B. Restoration of disturbed earth:

The Contractor shall restore all earth areas disturbed from the original condition by their operations. Restoration will be by seeding, fertilizing and mulching to obtain an established cover or by appropriate pavement and street repair.

3.06 RESPONSIBILITY OF CONTRACTOR FOR BACKFILL SETTLEMENT

A. The Contractor shall be responsible financially and otherwise, for:

1. All settlement of trench and other backfill which may occur from time of original backfilling until the expiration of one (1) year after the date of final payment for the entire Contract under which the backfilling work was performed.
2. The refilling and repair of all backfill settlement and the repair or replacement to the original or a better condition of all pavement, top surfacings, driveways, walks, surface structures, utilities, drainage facilities and sod which may have been damaged as a result of backfill settlement or which have been removed or destroyed in connection with backfill replacement operations.
3. All damage claims or court actions against the Owner for any damage directly or indirectly caused by backfill settlement.

B. The Contractor shall make all necessary backfill replacements and repairs, or replacements appurtenant thereto, within 30 days after notification by the Owner or Engineer. Upon the Contractor's failure to do so, the Owner may do, or have done, the necessary work and charge the cost to the Contractor.

3.07 MAINTENANCE OF TRAFFIC

A. The Contractor shall conduct their work so as to interfere as little as possible with public travel, whether vehicular or pedestrian; whenever it is necessary to cross, obstruct, or close roads, driveways, and walks, whether public or private, the Contractor shall at their own expense provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to owners of private drives before interfering with them; provided however, that such maintenance of traffic will not be required at any point where the Contractor has obtained permission from the owner and tenant of private property, or from the authority having jurisdiction over the public property involved, to obstruct traffic at any designated point thereon and for the duration of whatever period of time as may be agreed upon.

END OF SECTION

**SECTION 33 05 09.53 - WATER MAIN - POLYETHYLENE ENCASEMENT FOR DUCTILE IRON
FITTINGS**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Polyethylene encasement.

1.02 RELATED SECTIONS

- A. Section 31 23 16.13 - Trenching, Backfilling and Compaction

1.03 QUALITY CONTROL

- A. Supervision:

Provide full time supervisor trained and familiar with the work to be undertaken.

- B. Workmanship:

All workers shall be skilled and experienced in the specified work.

1.04 SUBMITTALS

- A. Shop drawings:

Submit shop drawings to the Engineer within 30 days after award of Contract in accordance with Section 01 33 23 - Shop Drawings, Product Data, and Samples.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Polyethylene encasement materials shall be manufactured of virgin polyethylene possessing the following characteristics:

Type, Class, Grade, in accordance with ASTM Specification.

Other Characteristics D-1248-68 or latest revision thereof.

Type	1
Class C	Black where exposure to weather (including sunlight) may be more than 48 hours.
	Exposure to weather shall be kept to a minimum and in no case shall it exceed 10 days.
Grade	E-1
Flow Rate	0.4 Maximum
Tensile Strength	1200 psi Minimum
Elongation	300 percent (%) Minimum
Dielectric Strength	Volume resistivity, ohm-Cm3 = 10 ¹⁵ , 800 volts per mil thickness

- B. Polyethylene tube material shall have a thickness of 0.008 inches (8 mils). The minus tolerance on thickness shall not exceed 10 percent of the nominal thickness.

- C. The minimum tube size for each pipe diameter shall be as listed in Table 1. For pipe sizes greater than 24 inches, tube size may be determined by multiplying the nominal pipe diameter by 2.25 to obtain minimum flat tube width.

TABLE 1	
NOMINAL PIPE DIAMETER (INCHES)	POLYETHYLENE FLAT TUBE WIDTH (INCHES)
4	16
5	20
8	24
10	27
12	30
14	34
16	37
18	41
20	45
24	53

- D. Adhesive tape shall be a general purpose adhesive tape one (1) inch wide and approximately eight (8) mils thick, such as Scotch tape No. 50, Pol. No. 900, Tapecoat CT or approved equal.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General:

Polyethylene encasement shall be installed on all ductile iron pipe, hydrants and fittings at location specified on the construction drawings. Although not intended to be a completely air- and water-tight enclosure, the polyethylene shall prevent contact between the pipe and the surrounding backfill.

B. Pipe:

This standard includes two (2) different methods for the installation of polyethylene encasement.

1. Method A:

- Cut polyethylene tube to a length approximately two (2) feet longer than the length of the pipe section. Slip the tube around the pipe, centering it to provide a one (1) foot overlap on each adjacent pipe section, and bunching it accordion-fashion lengthwise until it clears the pipe ends.
- Lower the pipe into the trench and make up the pipe joint with the preceding section of pipe. A shallow bell hole must be made at joints to facilitate installation of the polyethylene tube.
- After assembling the pipe joint, make the overlap of the polyethylene tube. Pull the bunched polyethylene from the preceding length of pipe, slip it over the end of the new length of pipe, and secure in place with one (1) circumferential turn of adhesive tape plus enough overlap to assure a firm adhesion. Then slip the end of the polyethylene from the new pipe section

over the end of the polyethylene from the new pipe section over the end of the first wrap until it overlaps the joint at the end of the preceding length of pipe. Tape it in place. Take up the slack width to make a snug, but not tight, fit along the barrel of the pipe, securing the fold at quarter points with adhesive tape.

- d. Repair any rips, punctures, or other damage to the polyethylene with adhesive tape or with a short length of polyethylene tube cut open, wrapped around the pipe, and secured with adhesive tape. Proceed with installation of the next section of pipe in the same manner.

2. Method B:

- a. Cut polyethylene tube to a length approximately one (1) foot shorter than the length of the pipe section. Slip the tube around the pipe, centering it to provide six (6) inches of bare pipe at each end. Make polyethylene snug, but not tight. Tape down and secure ends as described in B,1.
- b. Before making up a joint, slip a three (3) foot length of polyethylene tube over the end of the preceding pipe section, bunching it accordion-fashion lengthwise. After completing the joint, pull the three (3) foot length of polyethylene over the joint, overlapping the polyethylene previously installed on each adjacent section of pipe by at least one (1) foot. Make snug, tape down, and secure each end as described in B,1.
- c. Repair any rips, punctures, or other damage to the polyethylene as described in B,1. Proceed with installation of the next section of pipe in the same manner.

C. Pipe-shaped appurtenances:

Bends, reducers, offsets, and other pipe-shaped appurtenances shall be covered with polyethylene in the same manner as the pipe.

D. Odd-shaped appurtenances:

Valves, tees, crosses, and other odd-shaped pieces which cannot practically be wrapped in a tube shall be wrapped with a flat sheet or split length of polyethylene tube. The sheet shall be passed under the appurtenance and brought up around the body. Seams shall be made by bringing the edges together, folding over twice, and taping down. Slack width and overlaps at joints shall be handled as described in B,1. Tape polyethylene securely in place at valve stem and other penetrations.

E. Openings in encasement:

Openings for branches, service taps, blow-offs, air valves, and similar appurtenances shall be made by making an x-shaped cut in the polyethylene and temporarily folding the film back. After the appurtenance is installed, tape the slack securely to the appurtenance and repair the cut as well as any other damaged areas in the polyethylene with tape.

F. Junctions between wrapped and unwrapped pipe:

Where polyethylene wrapped pipe joins a pipe which is not wrapped, extend the polyethylene tube to cover the unwrapped pipe a distance of at least two (2) feet. Secure the end with circumferential turns of tape.

END OF SECTION

SECTION 33 05 31.13 - WATER MAIN - PVC PRESSURE PIPE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Polyvinyl chloride pressure pipe required for project.

1.02 RELATED SECTIONS

- A. Section 31 23 16.13 - Trenching, Backfilling and Compaction
- B. Section 33 01 10.58 - Water Main Disinfecting
- C. Section 33 01 12 - Water Main Pressure and Leakage Test
- D. Section 33 14 19 - Water Main - Valves, Hydrants, and Accessories

1.03 QUALITY ASSURANCE

- A. Supervision:
 - 1. Provide full time superintendent on the project who is qualified and experienced in the installation of PVC pipe.
 - 2. The superintendent shall direct all work in the execution of this portion of the work to insure proper and adequate installation.
- B. Codes and standards:
 - 1. Installation shall comply with the applicable specifications of the AWWA and manufacturer.

1.04 SUBMITTALS

- A. Shop drawings:

Submit shop drawings to the Engineer within 30 days after award of Contract in accordance with Section 01 33 23 - Shop Drawings, Product Data, and Samples, showing all the plumbing system and plumbing materials to be furnished and installed.
- B. As-built drawings:

During progress of the work, maintain an accurate record of all changes made in the plumbing installation from the layout and materials shown on the approved shop drawings.

PART 2 - PRODUCTS

2.01 FITTINGS FOR DIP, CIP, OR C900 PVC THAT IS DUCTILE IRON O.D.

- A. Ductile Iron Fittings shall be "mechanical joint" conforming to AWWA C153/A21.53.
- B. Fittings on pipe thru 12 inch size shall be compact type conforming to AWWA C153/A21.53. All other sizes shall be normal dimension.

2.02 PLASTIC PIPE - DUCTILE IRON O.D.

- A. The pipe shall be produced according to AWWA C900 specification for Class 235 psi. The pipe shall be produced by an extrusion process using resin complying with ASTM D1784. Unless designated otherwise on the plans, the pipe shall conform to all the requirements of Specifications AWWA C900 with a standard dimension ratio of DR

of 18 for barrel, bell or coupling. All pipe shall bear the AWWA seal of approval and designation. Certificates of compliance with these specs shall be furnished upon request.

- B. Only elastomeric ring seals are to be used for joining pipes. Thrust blocks will be necessary at bends, tees, and reducers.
- C. The elastomeric gaskets for plastic pressure pipe shall conform with the requirements of ASTM F477. The joint shall have been tested and approved by the National Sanitation Foundation and certification of said approval shall be submitted.
- D. Prior to use, Engineer shall be given opportunity for examination and testing. Any pipe found to be injured, damaged or to have defects shall be removed. The pipe shall then be delivered along the line in which the pipe is to be laid. The pipe shall be handled in a manner as recommended by the manufacturer so that minimum damage results.

2.03 JOINT RESTRAINERS

- A. All water main materials are to be restrained at all joints, valves, hydrants, couplings, and fittings. Restrained joint pipe shall be C900 PVC DR18. Acceptable products are North American Specialty Products Certa-LOK Restrained Joint PVC Pressure Piping System, North American Specialty Products Certa-LOK Yelomine, JM Eagle Eagle Loc, or approved equal. Restrained joint pipe shall meet the ASTM D2241 Standard Specifications for Poly Vinyl Chloride (PVC), Pressure Rated pipe (SDR Series). At tees and crosses, all valves shall be installed utilizing anchor couplings. If pipe used does not have integral restraining system, use a pipe restraining system as called out below:
- B. Restrainer for PVC pipe joints, that are without an integral restraining system, shall be EBAA Split Serrated Restraint Harness.

The split serrated restraint harness for PVC pipe bells consists of two (2) split serrated rings and fastened together into a harness by thrust rods.

- C. Restrainer for fittings, valves, hydrants, and/or couplings shall be EBAA Iron Series 2000 Megalug.

2.04 RESTRAINED JOINT PVC PIPE

- A. Where restrained joint PVC is indicated on plan sheets, pipe shall be North American Specialty Products Certa-LOK Tapered Bell Restrained Joint PVC Pressure Piping System, Aquamine, or approved equal. Restrained joint pipe shall meet the ASTM D2241 Standard Specifications for Poly Vinyl Chloride (PVC)."
- B. Installation of pipe shall follow manufacturer's recommended procedure and is to be in accordance with Missouri Department of Natural Resources guidelines.
- C. Restrained Joint pipe shall have the following:
 - 1. DR 18, Class 235 psi pressure rating
 - 2. Designed for permanent use

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Maximum allowable bends in PVC pipe:

The following table gives the maximum distance from the center line of any length of PVC pipe to a chord line from the center of the joints at either end (mid-ordinate distance).

Pipe Size	20-Ft. Length	40-Ft. Length
1 in	1.0 Ft.	4.0 Ft.
2 in.	0.5 Ft.	2.0 Ft.
3 in.	0.33 Ft.	1.33 Ft.
4 in.	0.25 Ft.	1.0 Ft.
6 in.	0.16 Ft.	.67 Ft.
8 in.	0.125 Ft.	
10 in.	0.10 Ft.	
12 in.	0.082 Ft.	

Bends greater than the above require fittings. Use long radius elbow bends where possible.

- B. Plastic pipe shall be kept shaded and shall be covered with backfill immediately after installation. Pipe shall be installed in accordance with manufacturer's instructions.
No rock or debris shall be placed in trench within six (6) inches of the pipe.
- C. The interior of all pipe and fittings shall be thoroughly cleaned of all foreign matter before being installed and shall be kept clean until the work has been accepted. All joint contact surfaces shall be kept clean until the jointing is completed.
- D. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being installed. No debris, tools, clothing, or other materials shall be placed in the pipe.
- E. Whenever pipe laying is stopped, the open end of the line shall be sealed with a watertight plug. All water that may have entered the trench shall be removed prior to removing the plug. It is essential that no mud, trench water, or other foreign matter be permitted to enter the pipe line at any time.
- F. Pipe lines or runs intended to be straight shall be laid straight. Deflections from a straight line taken in joints or in pipe shall not be greater than that recommended by the pipe manufacturer.
- G. Either shorter pipe sections, or special bends shall be installed where the alignment or grade requires them.
- H. Pipe shall be protected from lateral displacement by means of pipe embedment material installed as provided in the trench backfill specification.
- I. Under no circumstances shall pipe be laid in water and no pipe shall be laid under unsuitable weather or trench conditions.
- J. Pipe shall be laid with the bell ends facing the direction of laying except when making closures.
- K. Mechanical joints shall be carefully assembled in accordance with the manufacturer's recommendations. If effective sealing is not obtained, the joint shall be disassembled, thoroughly cleaned and reassembled. Overtightening bolts to compensate for poor installation practice will not be permitted.

- L. Boltless gasket joints shall be assembled following all instructions and recommendations of the pipe manufacturer, relative to gasket installation and other jointing operations, and shall be observed and followed by the Contractor. All joint surfaces shall be lubricated with heavy vegetable soap solution immediately before the joint is completed.

3.02 CONNECTIONS WITH EXISTING PIPE LINES

- A. Where connections are made between new work and existing piping, such connections shall be made using suitable and proper fittings to suit the conditions encountered. Each connection with an existing water pipe shall be made at a time and under conditions which will least interfere with water service to customers affected thereby, and as authorized by the Owner. Suitable facilities shall be provided for proper dewatering, drainage and disposal of all water removed from the dewatered lines and excavations, without damage to adjacent property.
- B. Great care shall be taken to prevent pipe line contamination when dewatering, cutting into, and making connections with, existing pipe lines used for the conveyance or distribution of water for domestic or public use. No trench water, mud, or other contaminating substance shall be permitted to get into the connected line or lines at any time during the progress of the work. The interiors of all pipe, fittings, and valves, both new and re-used, installed in such connections, shall be thoroughly cleaned before installation.

3.03 REACTION ANCHORAGE AND BLOCKING

- A. All un-lugged bell and spigot or all-bell tees, Y-branches and bends deflecting 11¼ degrees or more which are installed in piping subjected to internal hydrostatic heads in excess of 15 feet in exposed, or 30 feet in buried, piping shall be provided with suitable reaction blocking, struts, anchors, clamps, joint harness, or other adequate means for preventing any movement of the pipe caused by unbalanced internal liquid pressure.

3.04 SEPARATION OF WATER MAINS, SANITARY SEWERS AND COMBINED SEWERS - MODNR

When buried water mains are in close proximity to non-potable pipelines, the water mains are vulnerable to contamination that can pose a risk of waterborne disease outbreaks. For example, sewers (sanitary sewer mains and sewage force mains) frequently leak and saturate the surrounding soil with sewage due to structural failure, improperly constructed joints, and subsidence or upheaval of the soil encasing the sewer. If a nearby water main is depressurized and no or negative pressure occurs, that situation is a public health hazard. The public health hazard is compounded if an existing sewer is broken during the installation or repair of the water main. Further, failure of a water main in close proximity to other pipelines may disturb their bedding and cause them to fail. To protect the public health, the following requirements shall be met. These requirements apply to horizontally directionally drilled pipe or pipe installed through other trenchless methods as well as pipe installed by conventional open-cut methods.

A. General

The following factors should be considered in providing adequate separation:

1. Materials and type of joints for water and sewer pipes;

2. Soil conditions;
3. Service and branch connections into the water main and sewer line;
4. Compensating variations in the horizontal and vertical separations;
5. Space for repair and alterations of water and sewer pipes; and
6. Off-setting of water mains around manholes.

B. Parallel installation

The water main shall be located at least 10 feet horizontally from any existing or proposed line carrying non-potable fluids such as, but not limited to drains, storm sewers, sanitary sewers, combined sewers, sewer service connections, and process waste or product lines. The distance shall be measured edge to edge.

In cases where it is not practical to maintain a 10 foot separation, the department may allow deviation on a case by case basis, if supported by data from the design engineer. Such deviation may allow installation of the water main closer to a non-potable fluid line, provided that the water main is laid in a separate trench located as far away from the non-potable line as feasible and meets other specific construction requirements. Locating a water main on an undisturbed earth shelf located on one side of the non-potable line is not recommended and requires justification by the engineer and specific case-by-case approval of the department. In either case, an elevation shall be maintained such that the bottom of the water main is at least 18 inches above the top of the non-potable line while meeting minimum cover requirements.

In areas where the recommended separations cannot be obtained, either the waterline or the non-potable line shall be constructed of mechanical or manufactured restrained joint pipe, fusion welded pipe, or cased in a continuous casing. Casing pipe must be a material that is approved for use as water main. Conventional poured concrete is not an acceptable encasement.

C. Crossings

Water mains crossing sewers, or any other lines carrying non-potable fluids shall be laid to provide a minimum vertical clear distance of 18 inches between the outside of the water main and the outside of the non-potable pipeline. This shall be the case where the water main is either above or below the non-potable pipeline. An 18 inch separation is a structural protection measure to prevent the sewer or water main from settling and breaking the other pipe. At crossings, the full length of water pipe shall be located so both joints will be as far from the non-potable pipeline as possible but in no case less than 10 feet or centered on a 20 foot pipe. In areas where the recommended separations cannot be obtained either the waterline or the non-potable pipeline shall be constructed of mechanical or manufactured restrained joint pipe, fusion, welded pipe, or cased in a continuous casing that extends no less than 10 feet on both sides of the crossing. Special structural support for the water and sewer pipes may be required. Casing pipe must be a material that is approved for use as water main. Conventional poured concrete is not an acceptable encasement.

D. Exception

Any exception from the specified separation distances in paragraphs B and C must be submitted to the department for approval.

E. Force mains

There shall be at least a 10 foot horizontal separation between water mains and sanitary sewer force mains or other force mains carrying non-potable fluids and they shall be in separate trenches. In areas where the recommended separations cannot be obtained, either the waterline or the non-potable line shall be constructed of mechanical joint pipe or be jointless or fusion welded pipe. Where possible, the waterline shall also be at such an elevation that the bottom of the water main is at least 18 inches above the top of the non-potable line. Casing pipe must be a material that is approved for use as water main. Conventional poured concrete is not an acceptable encasement.

F. Sewer manholes

No waterline shall be located closer than 10 feet to any part of a sanitary or combined sewer manhole. Where the separation cannot be obtained, the waterline shall be constructed of mechanical or manufactured restrained joint pipe, fusion welded pipe, or cased in a continuous casing. Casing pipe must be a material that is approved for use as water main. The full length of water pipe shall be located so both joints will be as far from the manhole as possible, but in no case less than ten feet or centered on a 20 foot pipe. No water pipe shall pass through or come into contact with any part of a sanitary or combined sewer manhole.

G. Disposal facilities

No water main shall be located closer than 25 feet to any wastewater disposal facility, agricultural waste disposal facility, or landfill. Water mains shall be separated by a minimum of 25 feet from septic tanks and wastewater disposal areas such as cesspools, subsurface disposal fields, pit privies, land application fields, and seepage beds.

END OF SECTION

SECTION 33 14 19 - WATER MAIN - VALVES, HYDRANTS, AND ACCESSORIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Valves
- B. Valve Boxes
- C. Related Items

1.02 RELATED SECTIONS

- A. Section 33 05 31.13 - Water Main - PVC Pressure Pipe

1.03 QUALITY CONTROL

- A. Supervision:
Provide full time supervisor trained and familiar with the work to be undertaken.
- B. Workmanship:
All workers shall be skilled and experienced in the specified work.
- C. Standards
All components that come into contact with potable water shall be NSF 372 approved.

1.04 SUBMITTALS

- A. Shop drawings:
Submit shop drawings to the Engineer within 30 days after award of Contract in accordance with Section 01 33 23 - Shop Drawings, Product Data, and Samples.

PART 2 - PRODUCTS

2.01 VALVES

- A. Gate valves 12 inches and smaller:
 - 1. All gate valves shall comply with requirements of "Standard Specifications for Resilient Seated Gate Valves for Ordinary Water Works Service" AWWA C515 except as amended herein. All valves shall be resilient seated wedge type.
 - 2. All gate valves unless noted otherwise on the plans shall have ends of standard mechanical joints conforming to AWWA C111/A21.11. Bolts and nuts are to be stainless steel. Flanged end valves shall conform to ANSI B16.1 Class 125.
 - 3. All gate valves shall be mounted in the line in a vertical position unless noted otherwise on the plans.
 - 4. All gate valves shall be provided with "O" rings for sealing of the valve stem.
 - 5. All gate valves shall be equipped with two (2) inch square operating nuts. Valves shall close on clockwise rotations.
 - 6. All valves shall be designed for operation at a working pressure of not less than 200 psi.

2.02 VALVE BOXES

A. Traffic areas:

Valve boxes shall be Clay & Bailey, or equal, three-piece, slip type 5¼ inch shaft for roadway service. Cover shall have the word "Water" cast on its top.

B. Non-traffic areas:

Use six (6) inch PVC C1.160 and extend 24 inches above grade. Install Clay and Bailey 2194 cover and 1108 lid or approved equal.

2.03 TAPPING SLEEVES

A. Tapping sleeves shall be as manufactured by the Mueller Co. or M & H Valve & Fitting Co. or approved equal, for 150 psi working pressure. Sizes and number shall be as indicated on the plans. Joints shall be mechanical joint suitable for the pipe to be tapped. Outlet shall be flanged ASA B 16.1.

B. Valves for tapping sleeves shall be as per 2.01 A in this section except that end connection shall be flanged and mechanical joint.

2.04 LOCATOR WIRE/ACCESS TESTING PORTS

A. Locator wire shall be 12 AWG solid copper insulated wire, or 12 AWG copper clad steel wire as manufactured by Copperhead Industries, LLC, or approved equal. Install wire in the trench with the main. All wire connections shall be Copperhead Snake Bite Connectors, dry conn direct bury lug or snake bite wire nuts or approved equal.

B. Install access ports at 1,000 feet max. intervals as detailed on plans. All valves, air release vaults, hydrants, flushing assemblies and blow-offs shall have access ports as well as every 1,000 feet. Access port shall be Copperhead, LP Test services or above ground posts shall be "Internal Terminal Style" with standard board with two terminals. Post shall be Rhino TriView Flex Tracing Station Model TVTI 72-BB2 or equal.

C. Contractor to field verify continuity of wire between access ports after installation. Payment for locator wire will be subject to successful continuity test and report.

D. When directional drilling or boring is required, only Copperhead Extra High Strength (EHS), #1245B with 45 mil High Density Polyethylene (HDPE) jacket with minimum 1150# break load, will be used.

2.05 RESTRAINED JOINT FITTINGS

Where called out on plans, all fittings shall be restrained by EBAA Iron Series 2000 Iron Mega Lugs or equal.

PART 3 - EXECUTION

3.01 VALVES AND VALVE BOXES

A. Valves and valve boxes shall be set plumb. Each valve box shall be placed directly over the valve it serves, with the top of the box brought flush with the finished grade. After being placed in proper position, earth shall be filled in around each valve box and thoroughly tamped for a distance on each side of the box of four (4) feet at the top of the pipe and two (2) feet measured at the top of the trench.

- B. Each valve shall be inspected before installation to ensure that all foreign substances have been removed from within the valve body and shall be opened and closed to see that all parts are in first-class working condition.

END OF SECTION

