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227 North Upper Street
Lexington, KY 40507-1016

General and Technical Specifications

**Cutshin Water Line Replacement Project – Phase 1
Hyden-Leslie County Water District
Hyden, Kentucky**

August 2025

TABLE OF CONTENTS

DIVISION 0

GENERAL SPECIFICATIONS, BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT

<u>Section No.</u>	<u>Title</u>	<u>Page No.</u>
C-111	Advertisement for Bids for Construction Contracts	2
C-200	Suggested Instructions to Bidders for Construction Contracts	13
C-410	Bid Form for Construction Contracts	5
	C-410 3a Bid Schedule	1
	C-410 3b Compliance Statement	2
	C-410 3c Certification Regarding Debarment etc.	2
	C-410 3d Certification for Contracts, etc.	1
	C-410 3e AML Campaign Finance Law Compliance Form	1
	C-410 3f AML Contractor-Subcontractor Information Form	1
C-430	Bid Bond – Penal Sum Form	2
C-451	Qualifications Statement	7
	Schedule A thru C	6
C-510	Notice of Award	1
C-520	Agreement Between Owner and Contractor for Construction Contract (Stipulated Price)	7
C-520a	Certificate of Owner's Attorney	1
C-550	Notice to Proceed	1
C-610	Performance Bond	4
C-615	Payment Bond	4
C-616	Insurance Certificate	1
C-618	Davis Bacon 29 CRF 5.5	12
C-620	Contractors Application for Payment	1
	Progress Estimate – Unit Price Work	1
	Stored Material Summary	1
C-622	Report of Compliance BABA	2
C-624	Certificate of Compliance Buy America	2
C-625	Certificate of Substantial Completion	1

C-626	Notice of Acceptability of Work	1
C-700	Standard General Conditions of the Construction Contract	70
C-720	Engineer's Supplemental General Conditions	6
C-800	Supplementary Conditions EJCDC	34
	Exhibit A – Software Requirements for Electronic Document Exchange	1
	Exhibit B – Foreseeable Bad Weather Days	1
	Exhibit C – Geotechnical Baseline Report Supplement to the Supplementary Conditions	6
C-801	RUS-Mandated Engineer's Supplementary Conditions	7
C-802	Engineer's Special Conditions	8
C-802a	AML Project Sign	1
C-803	KPDES Notice of Intent	2
C-820	Federal Wage Rates	6
C-822	Report of Compliance DBA	2
C-825	Approval Letters & Permits	1
C-940	Work Change Directive	1
C-941	Change Order	1
C-942	Field Order	1

DIVISION 1

GENERAL REQUIREMENTS

Section No.	Title	Page No.
01010	Summary of Work	01010-1 thru 01010-2
01025	Measurement and Payment	01025-1 thru 01025-10
01060	Regulatory Requirements	01060-1
01200	Project Meetings	01200-1
01300	Submittals	01300-1 thru 01300-7

01310	Progress Schedules	01310-1 thru 01310-4
01500	Construction Facilities and Temporary Controls	01500-1 thru 01500-4
01510	Surface Water Pollution Prevention Plan	01510-1 thru 01510-4
01510b	NOISW	01510b-1 thru 01510b-2
01510c	NOTSW	01510c-1 thru 01510c-2
01785	Operation & Maintenance (O&M) Data	01785-1 thru 01785-17
01788	Project Record Documents	01788-1 thru 01788-4

DIVISION 2

SITE WORK

Section No.	Title	Page No.
02050	Selective Demolition	02050-1 thru 02050-3
02110	Site Clearing and Grubbing	02110-1
02140	Dewatering	02140-1
02200	Earthwork	02200-1 thru 02200-21
02255	Crushed Stone and Dense Graded Aggregate	02255-1 thru 02255-2
02270	Erosion and Sedimentation Control	02270-1 thru 02270-5
02320	Horizontal Directional Drilling	02320-1 thru 02320-6
02326	Steel Casing Pipe	02326-1 thru 02326-4
02500	Bituminous Pavement	02500-1 thru 02500-4
02515	Portland Cement Concrete Paving	02515-1 thru 02515-5
02610	General Piping	02610-1 thru 02610-18
02640	Meters, Individual Pressure Reducing Valves, and Service Lines	02640-1 thru 02640-3
02702	HDPE Storm Drainage Pipe	02702-1 thru 02702-5
02831	Chain Link Fences and Gates	02831-1 thru 02831-3
02900	Landscaping	02900-1 thru 02900-5

DIVISION 3

CONCRETE

Section No.	Title	Page No.
03300	Cast-In-Place Concrete	03300-1 thru 03300-28

DIVISION 5

METALS

Section No.	Title	Page No.
05120	Structural Steel	05120-1 thru 05120-3
05520	Metal Fabrication	05520-1 thru 05520-10
05540	Castings	05540-1 thru 05540-3

DIVISION 7

THERMAL & MOISTURE PROTECTION

Section No.	Title	Page No.
07720	Access Hatches	07720-1 thru 07720-2
07900	Joint Sealers	07900-1 thru 07900-3

DIVISION 15

MECHANICAL

Section No.	Title	Page No.
15100	Small Plumbing Valves, Plumbing Specialties & Service Accessories	15100-1 thru 15100-18
15101	Large Valves and Appurtenances	15101-1 thru 15101-15
15122	Pressure Sensing and Control Instrumentation	15122-1 thru 15122-4
15123	Couplings, Flanged Coupling Adapters and Service Saddles	15123-1 thru 15123-4

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

ADVERTISEMENT FOR BIDS FOR CONSTRUCTION CONTRACT

Prepared By



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ADVERTISEMENT FOR BIDS
HYDEN-LESLIE COUNTY WATER DISTRICT
HYDEN, KY
CUTSHIN WATER LINE REPLACEMENT PROJECT – PHASE 1

General Notice

Hyden-Leslie County Water District (Owner) is requesting Bids for the construction of the following Project:

Cutshin Water Line Replacement Project – Phase 1

Bids for the construction of the Project will be received at the **Hyden-Leslie County Water District**, at the **Hyden-Leslie County Water District, PO Box 906, 356 Wendover Rd, Hyden, KY 41749**, until **Tuesday, September 23rd, 2025 at 1:00 PM** local time. At that time the Bids received will be **publicly** opened and read.

The Project includes the following Work:

Replacement of approximately 14,400 LF of water line & installation of approximately 10,220 LF of new water line & other appurtenances near Cutshin, KY.

Bids are requested for the following Contract: **Cutshin Water Line Replacement Project – Phase 1**

The Project has an expected duration of **210** days.

Obtaining the Bidding Documents

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

lynnimaging.com/distribution

Bidding Documents may be downloaded from the designated website. Prospective Bidders are urged to register with the designated website as a plan holder, even if Bidding Documents are obtained from a plan room or source other than the designated website in either electronic or paper format. The designated website will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only through the designated website. Neither Owner nor Engineer will be responsible for Bidding Documents, including addenda, if any, obtained from sources other than the designated website.

The Issuing Office for the Bidding Documents is:

Lynn Imaging, Inc.
328 East Vine St. Lexington, KY 40507

Prospective Bidders may obtain or examine the Bidding Documents at the Issuing Office on Monday through Friday between the hours of **8:00 AM & 5:00 PM**, and may obtain copies of the Bidding Documents from the Issuing Office as described below. Partial sets of Bidding Documents will not be available from the Issuing Office. 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.

Printed copies of the Bidding Documents may be obtained from the Issuing Office by paying a **non-refundable** deposit of **\$225.00** for each set. Make deposit checks for Bidding Documents payable to **Lynn Imaging, Inc.**

Bidding Documents may be purchased from the Issuing Office during the hours indicated above. Cost does not include shipping charges. Upon Issuing Office's receipt of payment, printed Bidding Documents will be sent via the prospective Bidder's delivery service. The shipping charge amount will depend on the shipping method chosen. Bidding Documents are available for purchase in the following formats:

Format	Cost
Bidding Documents (including Full-Size Drawings)	\$225.00

Pre-bid Conference

A pre-bid conference for the Project will be held on **Tuesday, September 16th, 2025 at 1:00 PM at 11545 Cutshin Rd, Yeaddiss, KY 41777**. Attendance at the pre-bid conference is encouraged but not required. Please notify the Engineer if you plan to attend the pre-bid conference.

Instructions to Bidders.

Questions regarding this project must be received by Nesbitt Engineering, Inc. (859-685-4547 bgreenwell@nei-ky.com) in writing no later than **5:00 PM on Tuesday, September 16th, 2025**.

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.

Domestic Preference

This project is subject to the Build America, Buy America Act (BABAA) requirements under Title IX of the Infrastructure Investment and Jobs Act (IIJA), Pub. L. 117-58, §§ 70901-70953. Absent an approved waiver, all iron, steel, manufactured products, and construction materials used in this project must be produced in the United States.

**The following waivers apply to this Contract:
BABAA De Minimis, Small Grants, and Minor Components**

Wage Rates

This project is subject to federal wage rate requirements, including the Davis-Bacon Act (DBA).

This Advertisement is issued by:

Owner: **Hyden-Leslie County Water District**

By: **L.J. Turner**

Title: **Manager**

Date: **09/04/2025**

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

Prepared By



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INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

TABLE OF CONTENTS

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

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.
 - B. **Domestic Preference – The Build America, Buy America Act (BABAA) requirements under Title IX of the Infrastructure Investment and Jobs Act (IIJA), Pub. L. 117-58, §§ 70901-70953.**

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Owner has established a Bidding Documents Website as indicated in the Advertisement or invitation to bid. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.05 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may 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.
- 2.06 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.

1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader Version. 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.
- C. After the Contract is awarded, the Owner will provide or direct the Engineer to provide for the use of the Contractor documents that were developed by Engineer as part of the Project design process, as Electronic Documents in native file formats.
 1. Electronic Documents that are available in native file format include: **.PDF**
 2. Release of such documents will be solely for the convenience of the Contractor. No such document is a Contract Document.
 3. Unless the Contract Documents explicitly identify that such information will be available to the Successful Bidder (Contractor), nothing herein will create an obligation on the part of the Owner or Engineer to provide or create such information, and the Contractor is not entitled to rely on the availability of such information in the preparation of its Bid or pricing of the Work. In all cases, the Contractor shall take appropriate measures to verify that any electronic/digital information provided in Electronic Documents is appropriate and adequate for the Contractor's specific purposes.
 4. In no case will the Contractor be entitled to additional compensation or time for completion due to any differences between the actual Contract Documents and any related document in native file format.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within **[3]** 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 Deleted
- 3.03 Bidder is to submit the following information with its Bid to demonstrate Bidder's qualifications to perform the Work:
 - A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
 - B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
 - C. Bidder's state or other contractor license number, if applicable.
 - D. Subcontractor and Supplier qualification information.
 - E. Other required information regarding qualifications.
- 3.04 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.05 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 for the Project will be held on **Tuesday, September 16th at 1:00 PM at 11545 Cutshin Rd, Yeaddiss, KY 41777**. Attendance at the pre-bid conference is encouraged but not required.
- 4.02 Deleted
- 4.03 Deleted
- 4.04 Deleted

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

5.03 *Other Site-related Documents*

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

Owner will make copies of these other Site-related documents available to any Bidder on request.
- B. Owner has not verified the contents of these other Site-related documents, and Bidder may not rely on the accuracy of any data or information in such documents. Bidder is responsible for any interpretation or conclusion Bidder draws from the other Site-related documents.
- C. The other Site-related documents are not part of the Contract Documents.
- D. Bidders are encouraged to review the other Site-related documents, but Bidders will not be held accountable for any data or information in such documents. The requirement to review and take responsibility for documentary Site information is limited to information in (1) the Contract Documents and (2) the Technical Data.
- E. 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. Maps to the Site will be available at the pre-Bid conference.
- C. Maps to the Site will be made available upon request.
- D. Bidders visiting the Site are required to arrange their own transportation to the Site.
- E. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the following Owner or Engineer contact for visiting the Site. Bidder must conduct the required Site visit during normal working hours.
- F. Deleted
- G. 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.
- H. 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.
- I. 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: See Advertisement for Bid.
- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of **[5%]** percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents. **Bid security must be at least 5% of the Bidder's maximum Bid price.**
- 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 **91** 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 Deleted
- 9.03 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 Deleted
- 10.02 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those “or-equal” or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an “or-equal” or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer 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. **Each such request shall include the Manufacturers’ Certification for Compliance with Domestic Preference requirements. Refer to the suggested Manufacturer’s Certification provided in these construction Contract Documents.** 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. **Substitutes and “or-equal” materials and equipment may be proposed by Contractor in accordance with Paragraphs 7.05 and 7.06 of the General Conditions after the Effective Date of the Contract. Each such request shall include Manufacturer’s Certification letter to document compliance with Domestic Preference requirements. Refer to Manufacturer’s Certification Letter provided in these Contract Documents.**
- 10.03 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as

supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

11.01 Deleted

11.02 Deleted

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.

11.05 – The Contractor shall not award work to Subcontractor(s) in excess of the limits stated in SC 7.07A.

ARTICLE 12—PREPARATION OF BID

12.01 The Bid Form is included with the Bidding Documents.

- A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
- B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”

12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.

- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder's name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

- 13.01 Deleted
- 13.02 *Base Bid with Alternates*
 - A. Bidders must submit a Bid on a lump sum basis for the base Bid and include a separate price for each alternate described in the Bidding Documents and as provided for in the Bid Form. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate.
 - B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form.
- 13.03 *Sectional Bids*
 - A. Bidders may submit a Bid on any individual section or any combination of sections, as set forth in the Bid Form.

- B. Submission of a Bid on any section signifies Bidder's willingness to enter into a Contract for that section alone at the price offered.
- C. If Bidder submits Bids on individual sections and a Bid based on a combination of those sections, such combined Bid need not be the sum of the Bids on the individual sections.
- D. Bidders offering a Bid on one or more sections must be capable of completing the Work covered by those sections within the time period stated in the Agreement.

13.04 Deleted

13.05 *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.

13.06 *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.

13.07 Deleted

ARTICLE 14—SUBMITTAL OF BID

- 14.01 The Bidding Documents include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The 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.
- 16.02 Deleted

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of

the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.

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

18.05 *Evaluation of Bids*

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

B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner will announce to all bidders a “Base Bid plus alternates” budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.

C. For determination of the apparent low Bidder(s) when sectional bids are submitted, Bids will be compared on the basis of the aggregate of the Bids for separate sections and the Bids for combined sections that result in the lowest total amount for all of the Work.

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

E. Deleted

F. Deleted

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 Deleted

ARTICLE 22—CONTRACTS TO BE ASSIGNED

ARTICLE 23 – FEDERAL REQUIREMENTS

- 23.01 If the contract price is in excess of \$100,000, provisions of the Contract Work Hours and Safety Standards Act at 29 CFR 5.5(b) apply.
- 23.02 Federal requirements at Article 19 of the Supplementary Conditions apply to this Contract.

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

BID FORM FOR CONSTRUCTION CONTRACT

Prepared By



Endorsed By



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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: **Hyden-Leslie County Water District, PO Box 906, 356 Wendover Rd, Hyden, KY 41749**
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
 - A. Required Bid security;
 - B. List of Proposed Subcontractors;
 - C. List of Proposed Suppliers;
 - D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;
 - E. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - F. Required Bidder Qualification Statement with supporting data;
 - G. **If Bid amount exceeds \$10,000, signed Compliance Statement (RD 400-6). Refer to specific equal opportunity requirements set forth in the Supplementary Conditions of the Construction Contract (EJCDC C-800);**
 - H. **If Bid amount exceeds \$25,000, signed Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions (AD-1048);**
 - I. **If Bid amount exceeds \$100,000, signed RD Instruction 1940-Q Exhibit A-1, Certification for Contracts, Grants, and Loans.**

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

- 3.01 Deleted
- 3.02 *Unit Price Bids*
 - A. Bidder will complete the Work in accordance with the Contract Documents for the prices on the attached "Bid Schedule" page C-410 2a.
 - 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.

3.03 Deleted

ARTICLE 4—BASIS OF BID—COST-PLUS FEE

4.01 Deleted

4.02 Deleted

4.03 Deleted

ARTICLE 5—PRICE-PLUS-TIME BID

5.01 Deleted

5.02 Deleted

ARTICLE 6—TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Deleted

6.03 Deleted

6.04 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

7.01 *Bid Acceptance Period*

- A. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

7.02 *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.

7.03 *Receipt of Addenda*

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

Addendum Number	Addendum Date

ARTICLE 8—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

8.01 *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, **including all Domestic Preference requirements.**
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.

8.02 *Bidder's Certifications*

A. The Bidder certifies the following:

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

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

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

Attest:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

Address for giving notices:

Bidder's Contact:

Name:

(typed or printed)

Title:

(typed or printed)

Phone:

Email:

Address:

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

Hyden-Leslie County Water District

Cutshin Water Line Replacement Project - Phase 1

Base Bid Schedule

Item #	Item Description	Unit	Quantity	Unit Cost	Total Cost
1	6" SDR-17 PVC Water Line ¹	LF	14,050		
2	4" SDR-17 PVC Water Line	LF	30		
3	3" SDR-17 PVC Water Line ²	LF	10,135		
4	6" D.I. CL350 Water Line	LF	350		
5	Jack and Bore - 10.75" OD Sch. 20 Steel Casing w/ End Caps & Spacers for 4" SDR-17 PVC	LF	40		
6	Open Cut - 8" DR13.5 HDPE Casing w/ End Caps & Spacers for 3" SDR-17 PVC Pipe	LF	15		
7	Directional Drill Creek Crossing #1 - Mudlick Branch Rd - 8" HDPE DR9 (250 PSI)	LS	1		
8	Directional Drill Creek Crossing #2 - Yeaddiss Rd - 8" HDPE DR9 (250 PSI)	LS	1		
9	Directional Drill Creek Crossing #3 - KY-699 - 8" HDPE DR9 (250 PSI)	LS	1		
10	Directional Drill Creek Crossing #4 - Mission Rd - 8" HDPE DR9 (250 PSI)	LS	1		
11	Directional Drill Creek Crossing #5 - Yeaddiss Rd - 4" HDPE DR9 (250 PSI)	LS	1		
12	Directional Drill Creek Crossing #6 - Yeaddiss Rd - 4" HDPE DR9 (250 PSI)	LS	1		
13	Directional Drill Creek Crossing #7 - Yeaddiss Rd - 4" HDPE DR9 (250 PSI)	LS	1		
14	Directional Drill Creek Crossing #8 - Pigeonroost Rd - 4" HDPE DR9 (250 PSI)	LS	1		
15	Directional Drill Creek Crossing #9 - Pigeonroost Rd - 4" HDPE DR9 (250 PSI)	LS	1		
16	6" D.I.M.J Gate Valve & Box (w/ Foster Adapter if Gate Valve is at a tee/cross)	EA	10		
17	4" D.I.M.J Gate Valve & Box (w/ Foster Adapter if Gate Valve is at a tee/cross)	EA	1		
18	3" D.I.M.J Gate Valve & Box (w/ Foster Adapter if Gate Valve is at a tee/cross)	EA	9		
19	Flushing Hydrant Assembly, Type 1	EA	8		
20	Flushing Hydrant Assembly, Type 3	EA	4		
21	Combination Air Release Valve	EA	11		
22	Type A Leak Detection Assembly, Type 1 (Includes Kamstrup FlowIQ 2200 Meter w/ Acoustic Leak Detection)	EA	8		
23	Type A Leak Detection Assembly, Type 1 - 2" Meter (Includes Kamstrup FlowIQ 2200 Meter w/ Acoustic Leak Detection)	EA	2		
24	PRV #1 - Hayes Lewis	LS	1		
25	PRV #2 - Yeaddiss Rd	LS	1		
26	Master Meter/PRV Pit - Wolfe Creek Rd	LS	1		
27	Kamstrup FlowIQ 2200 Meter w/ Acoustic Leak Detection & Radio Read	EA	77		
28	5/8" x 3/4" Tandem Setter & Tub w/ IPRV (Installed)	EA	77		
29	3/4" PE CL250 Service Line	LF	1925		
30	Remove Abandoned Flushing Hydrant Assemblies & Valve Boxes	LS	1		
Total Base Bid (Items 1-30) =					

Deductive Alternate #1 - STA 0+00 to 17+00 & 127+50 to 144+01 Removed					
1	6" SDR-17 PVC Water Line ¹	LF	3,350		
7	Directional Drill Creek Crossing #1 - Mudlick Branch Rd - 8" HDPE DR9 (250 PSI)	LS	1		
16	6" D.I.M.J Gate Valve & Box (w/ Foster Adapter if Gate Valve is at a tee/cross)	EA	2		
17	4" D.I.M.J Gate Valve & Box (w/ Foster Adapter if Gate Valve is at a tee/cross)	EA	1		
18	3" D.I.M.J Gate Valve & Box (w/ Foster Adapter if Gate Valve is at a tee/cross)	EA	1		
19	Flushing Hydrant Assembly, Type 1	EA	2		
21	Combination Air Release Valve	EA	1		
22	Type A Leak Detection Assembly, Type 1 (Includes Kamstrup FlowIQ 2200 Meter w/ Acoustic Leak Detection)	EA	1		
24	PRV #1 - Hayes Lewis	LS	1		
27	Kamstrup FlowIQ 2200 Meter w/ Acoustic Leak Detection & Radio Read	EA	5		
28	5/8" x 3/4" Tandem Setter & Tub w/ IPRV (Installed)	EA	5		
29	3/4" PE CL250 Service Line	LF	125		
Total Deductive Alternate #1 =					
Base Bid minus Deductive Alternate #1 =					

Deductive Alternate #2 - STA 17+00 to 31+00 Removed					
1	6" SDR-17 PVC Water Line ¹	LF	1,400		
16	6" D.I.M.J Gate Valve & Box (w/ Foster Adapter if Gate Valve is at a tee/cross)	EA	1		
19	Flushing Hydrant Assembly, Type 1	EA	1		
21	Combination Air Release Valve	EA	1		
22	Type A Leak Detection Assembly, Type 1 (Includes Kamstrup FlowIQ 2200 Meter w/ Acoustic Leak Detection)	EA	1		
27	Kamstrup FlowIQ 2200 Meter w/ Acoustic Leak Detection & Radio Read	EA	15		
28	5/8" x 3/4" Tandem Setter & Tub w/ IPRV (Installed)	EA	15		
29	3/4" PE CL250 Service Line	LF	375		
Total Deductive Alternate #2 =					
Base Bid minus Deductive Alternates #1 & #2 =					

Deductive Alternate #3 - STA 144+01 to 144+74 Removed					
2	4" SDR-17 PVC Water Line	LF	30		
5	Jack and Bore - 10.75" OD Sch. 20 Steel Casing w/ End Caps & Spacers for 4" SDR-17 PVC	LF	40		
26	Master Meter/PRV Pit - Wolfe Creek Rd	LS	1		
Total Deductive Alternate #3 =					
Base Bid minus Deductive Alternates #1, #2, & #3 =					

Co. Name _____

Signature _____ Date _____

Note: Unit prices for identical items shall remain the same between the Base Bid and all Deductive Alternates.

Materials/equipment shall be bid as specified on the plans and in the specifications. Any claim for price increase due to the contractor bidding a different material/equipment, will be denied.

Please carefully review the "Measurements and Payments" section of the specifications (01025). This section provides a detailed description of each pay item. To be considered responsive, a bidder must submit bids for all Base Bid Schedule items and all Deductive Alternates. The **apparent low bidder** is determined by the lowest Base Bid amount. During bid evaluation, Deductive Alternates will be considered in numerical order of priority. If all Base Bids exceed the Bid Budget, the process follows these steps:

1. **Deductive Alternate #1** is subtracted from each bidder's Base Bid. The bidder with the lowest adjusted bid below the Bid Budget is awarded the contract.
2. If no bids (Base Bid minus Deductive Alternate #1) fall within the Bid Budget, then **Deductive Alternate #2** is subtracted, and the process repeats.
3. This continues through all Deductive Alternates until a bidder meets the Bid Budget criteria.

The lowest responsive bid that falls within the Bid Budget will be recommended for contract award, pending Engineer approval.

COMPLIANCE STATEMENT

This statement relates to a proposed contract with _____

(Name of borrower or grantee)

who expects to finance the contract with assistance from either the Rural Housing Service (RHS), Rural Business-Cooperative Service (RBS), or the Rural Utilities Service (RUS) or their successor agencies, United States Department of Agriculture (whether by a loan, grant, loan insurance, guarantee, or other form of financial assistance). I am the undersigned bidder or prospective contractor, I represent that:

1. ☐ I have, ☐ have not, participated in a previous contract or subcontract subject to Executive 11246 (regarding equal employment opportunity) or a preceding similar Executive Order.
2. If I have participated in such a contract or subcontract, ☐ I have, ☐ have not, filed all compliance reports that have been required to file in connection with the contract or subcontract.

If the proposed contract is for \$50,000 or more and I have 50 or more employees, I also represent that:

3. ☐ I have, ☐ have not previously had contracts subject to the written affirmative action programs requirements of the Secretary of Labor.
4. If I have participated in such a contract or subcontract, ☐ I have, ☐ have not developed and placed on file at each establishment affirmative action programs as required by the rules and regulations of the Secretary of Labor.

I understand that if I have failed to file any compliance reports that have been required of me, I am not eligible and will not be eligible to have my bid considered or to enter into the proposed contract unless and until I make an arrangement regarding such reports that is satisfactory to either the RHS, RBS or RUS, or to the office where the reports are required to be filed.

I also certify that I do not maintain or provide for my employees any segregated facilities at any of my establishments, and that I do not permit my employees to perform their services at any location, under my control, where segregated facilities are maintained. I certify further that I will not maintain or provide for my employees any segregated facilities at any of my establishments, and that I will not permit my employees to perform their services at any location, under my control, where segregated facilities are maintained. I agree that a breach of this certification is a violation of the Equal Opportunity clause in my contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and wash rooms, restaurants and other eating areas time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise. I further agree that (except where I have obtained identical certifications for proposed subcontractors for specific time periods) I will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause; that I will retain such certifications in my files; and that I will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods): (See Reverse).

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays the valid OMB control number. The valid OMB control number for this information collection is 0575-0018. The time required to complete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

**NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENTS FOR
CERTIFICATIONS OF NON-SEGREGATED FACILITIES**

A certification of Nonsegregated Facilities, as required by the May 9, 1967, order (32F.R. 7439, may 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding \$ 10,000 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

Date _____

(Signature of Bidder or Prospective Contractor)

Address (including Zip Code)

U.S. DEPARTMENT OF AGRICULTURE

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 7 CFR part 3017, Section 3017.510, Participants' responsibilities. The regulations were published as Part IV of the January 30, 1989, Federal Register (pages 4722-4733). Copies of the regulations may be obtained by contacting the Department of Agriculture agency with which this transaction originated.

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS ON REVERSE)

- (1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Organization Name

PR/Award Number or Project Name

Name(s) and Title(s) of Authorized Representative(s)

Signature(s)

Date

Clear Form

Instructions for Certification

1. By signing and submitting this form, the prospective lower tier participant is providing the certification set out on the reverse side in accordance with these instructions.
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
3. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
5. The prospective lower tier participant agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
6. The prospective lower tier participant further agrees by submitting this form that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," without modification, in all lower tier covered transaction and in all solicitations for lower tier covered transactions.
7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

CERTIFICATION FOR CONTRACTS, GRANTS AND LOANS

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant or Federal loan, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant or loan.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant or loan, the undersigned shall complete and submit Standard Form - LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including contracts, subcontracts, and subgrants under grants and loans) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

(name)

(date)

(title)

oOo

Campaign Finance Law Compliance

In accordance with the provisions of KRS 45A.110 and KRS 45A.115, each bidder or offeror shall submit this affidavit with the bid or proposal.

I hereby swear or affirm under penalty of perjury that:

- (1) neither the bidder or offeror as defined in KRS 45A.070(6), nor the entity which he/she represents, has knowingly violated any provisions of the campaign finance laws of the Commonwealth of Kentucky, and
- (2) the award of a contract to the bidder or offeror or the entity which he/she represents will not violate any provisions of the campaign finance laws of the Commonwealth of Kentucky.

I have fully informed myself regarding the accuracy of the statement made above.

SIGNATURE

Printed Name

Title

Date

Company Name

Address

Subscribed and sworn to before me by _____,
(Affiant) (Title)

of _____ this _____ day of _____, 20____.
(Company Name)

Notary Public

(seal of notary)

My commission expires:_____

AML CONTRACTOR/SUBCONTRACTOR INFORMATION FORM

The requested information is necessary to obtain an AVS data evaluation to determine eligibility to work on AML-funded projects. Provide the requested information for the prime contractor and for each subcontractor.

Part A: General Information

Contractor Name: _____
Tax Payer ID No.: _____
Address: _____
City: _____
State: _____ Zip Code: _____
Phone : _____

Part B: Legal Structure

☐ Corporation ☐ Sole Proprietorship ☐ Partnership ☐ LLC
☐ Other _____

Part C: Ownership/Control Information

Provide information for the following relationships: names of officers/directors/persons (not company names) owning greater than 10% of the voting stock; partners; members; person(s) who commit the financial, real estate or working assets; and person(s) who have the authority to determine the manner in which the AML work is conducted.

*If listed ownership does not equal 100%, provide the remaining ownership percentage and an explanation to account for the remaining ownership percentage.

*

Name: _____
Address: _____
Position/Title: _____
Phone: _____
% of Ownership: _____ Fed I.D. #: _____

Name: _____
Address: _____
Position/Title: _____
Phone: _____
% of Ownership: _____ Fed I.D. #: _____

Attach additional pages as needed.

Signature: _____

Date: _____

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

BID BOND (PENAL SUM FORM)

Prepared By



Endorsed By



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1420 King Street, Alexandria, VA 22314-2794
(703) 684-2882
www.nspe.org

American Council of Engineering Companies
1015 15th Street N.W., Washington, DC 20005
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American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400
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BID BOND (PENAL SUM FORM)

Bidder Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: Hyden-Leslie County Water District Address <i>(principal place of business)</i> : PO Box 906 356 Wendover Rd Hyden, KY 41749	Bid Project <i>(name and location)</i> : Cutshin Water Line Replacement Project – Phase 1 Cutshin, KY Bid Due Date: 09/23/2025
Bond Penal Sum: Date of Bond:	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
<i>(Full formal name of Bidder)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i>	

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

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

QUALIFICATIONS STATEMENT

Prepared By



Endorsed By



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National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314-2794
(703) 684-2882
www.nspe.org

American Council of Engineering Companies
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ARTICLE 1—GENERAL INFORMATION

1.01 Provide contact information for the Business:

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

1.02 Provide information on the Business's organizational structure:

Form of Business:	☐ Sole Proprietorship ☐ Partnership ☐ Corporation		
☐ Limited Liability Company ☐ Joint Venture comprised of the following companies:			
1.			
2.			
3.			
Provide a separate Qualification Statement for each Joint Venturer.			
Date Business was formed:		State in which Business was formed:	
Is this Business authorized to operate in the Project location?		☐ Yes ☐ No ☐ Pending	

1.03 Identify all businesses that own Business in whole or in part (25% or greater), or that are wholly or partly (25% or greater) owned by Business:

Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			

1.04 Provide information regarding the Business's officers, partners, and limits of authority.

Name:		Title:	
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	\$
Name:		Title:	
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	\$
Name:		Title:	
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	\$
Name:		Title:	

ARTICLE 2—LICENSING

2.01 Provide information regarding licensure for Business:

Name of License:			
Licensing Agency:			
License No:		Expiration Date:	
Name of License:			
Licensing Agency:			
License No:		Expiration Date:	

ARTICLE 3—DIVERSE BUSINESS CERTIFICATIONS

3.01 Provide information regarding Business's Diverse Business Certification, if any. Provide evidence of current certification.

Certification	Certifying Agency	Certification Date
☐ Disadvantaged Business Enterprise		
☐ Minority Business Enterprise		
☐ Woman-Owned Business Enterprise		
☐ Small Business Enterprise		
☐ Disabled Business Enterprise		
☐ Veteran-Owned Business Enterprise		
☐ Service-Disabled Veteran-Owned Business		
☐ HUBZone Business (Historically Underutilized) Business		
☐ Other		
☐ None		

ARTICLE 4—SAFETY

- 4.01 Provide information regarding Business's safety organization and safety performance.

Name of Business's Safety Officer:		
Safety Certifications		
Certification Name	Issuing Agency	Expiration

- 4.02 Provide Worker's Compensation Insurance Experience Modification Rate (EMR), Total Recordable Frequency Rate (TRFR) for incidents, and Total Number of Recorded Manhours (MH) for the last 3 years and the EMR, TRFR, and MH history for the last 3 years of any proposed Subcontractor(s) that will provide Work valued at 10% or more of the Contract Price. Provide documentation of the EMR history for Business and Subcontractor(s).

Year									
Company	EMR	TRFR	MH	EMR	TRFR	MH	EMR	TRFR	MH

ARTICLE 5—FINANCIAL

- 5.01 Provide information regarding the Business's financial stability. Provide the most recent audited financial statement, and if such audited financial statement is not current, also provide the most current financial statement.

Financial Institution:		
Business address:		
Date of Business's most recent financial statement:		☐ Attached
Date of Business's most recent audited financial statement:		☐ Attached
Financial indicators from the most recent financial statement		
Contractor's Current Ratio (Current Assets ÷ Current Liabilities)		
Contractor's Quick Ratio ((Cash and Cash Equivalents + Accounts Receivable + Short Term Investments) ÷ Current Liabilities)		

ARTICLE 6—SURETY INFORMATION

- 6.01 Provide information regarding the surety company that will issue required bonds on behalf of the Business, including but not limited to performance and payment bonds.

Surety Name:			
Surety is a corporation organized and existing under the laws of the state of:			
Is surety authorized to provide surety bonds in the Project location?	☐ Yes ☐ No		
Is surety listed in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" published in Department Circular 570 (as amended) by the Bureau of the Fiscal Service, U.S. Department of the Treasury? ☐ Yes ☐ No			
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

ARTICLE 7—INSURANCE

- 7.01 Provide information regarding Business's insurance company(s), including but not limited to its Commercial General Liability carrier. Provide information for each provider.

Name of insurance provider, and type of policy (CLE, auto, etc.):			
Insurance Provider		Type of Policy (Coverage Provided)	
Are providers licensed or authorized to issue policies in the Project location?		☐ Yes ☐ No	
Does provider have an A.M. Best Rating of A-VII or better?		☐ Yes ☐ No	
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

ARTICLE 8—CONSTRUCTION EXPERIENCE

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

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

8.02 Provide information regarding the Business's previous contracting experience.

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

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

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

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

ARTICLE 9—REQUIRED ATTACHMENTS

9.01 Provide the following information with the Statement of Qualifications:

- A. If Business is a Joint Venture, separate Qualifications Statements for each Joint Venturer, as required in Paragraph 1.02.
- B. Diverse Business Certifications if required by Paragraph 3.01.
- C. Certification of Business's safety performance if required by Paragraph 4.02.
- D. Financial statements as required by Paragraph 5.01.

- E. Attachments providing additional information as required by Paragraph 8.02.
- F. Schedule A (Current Projects) as required by Paragraph 8.03.
- G. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 8.04.
- H. Schedule C (Key Individuals) and resumes for the key individuals listed, as required by Paragraph 8.05.
- I. Additional items as pertinent.

This Statement of Qualifications is offered by:

Business:

(typed or printed name of organization)

By:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(date signed)

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

Attest:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Address for giving notices:

Designated Representative:

Name:

(typed or printed)

Title:

(typed or printed)

Address:

Phone:

Email:

Schedule A—Current Projects

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

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

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

Schedule B—Previous Experience with Similar Projects

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

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

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

Schedule B—Previous Experience with Similar Projects

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

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

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

Schedule C—Key Individuals

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

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

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NOTICE OF AWARD

Prepared By



Endorsed By



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NOTICE OF AWARD

Date of Issuance:

Owner: **Hyden-Leslie County Water District**

Owner's Project No.:

Engineer: Nesbitt Engineering, Inc

Engineer's Project No.: **1218.07**

Project: **Cutshin Water Line Replacement Project – Phase 1**

Contract Name: **Cutshin Water Line Replacement Project – Phase 1**

Bidder:

Bidder's Address:

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

Replacement of approximately 14,400 LF of water line & installation of approximately 10,220 LF of new water line & other appurtenances near Cutshin, KY.

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

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

☒ Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 10 days of the date of receipt of this Notice of Award:

1. Deliver to Owner **[1]** counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent: **Hyden-Leslie County Water District and Nesbitt Engineering, Inc. shall be named as additional insured on Certification of Insurance.**

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

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

Owner: **Hyden-Leslie County Water District**

By (signature): _____

Name (printed): _____

Title: _____

Copy: Engineer

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

Prepared By



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

This Agreement is by and between Hyden-Leslie County Water District ("Owner") and _____ ("Contractor").

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

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

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

Replacement of approximately 14,400 LF of water line & installation of approximately 10,220 LF of new water line & other appurtenances near Cutshin, KY.

ARTICLE 2—THE PROJECT

- 2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **Cutshin Water Line Replacement Project – Phase 1**

ARTICLE 3—ENGINEER

- 3.01 The Owner has retained **Nesbitt Engineering, Inc.** ("Engineer") to act as Owner's representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.
- 3.02 The part of the Project that pertains to the Work has been designed by **Nesbitt Engineering, Inc.**

ARTICLE 4—CONTRACT TIMES

4.01 *Time is of the Essence*

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

4.02 *Contract Times: Dates*

- A. The Work will be substantially complete on or before **[date]**, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before **[date]**.

4.03 *Contract Times: Days*

- A. The Work will be substantially complete within **180** 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 **210** days after the date when the Contract Times commence to run.

4.04 Deleted

4.05 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed within the time specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. 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 **\$750.00** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
 - 2. Deleted
 - 3. Deleted
 - 4. Deleted
- B. Deleted
- C. Deleted

4.06 *Special Damages*

- A. Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.
- C. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established 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 per the "Bid Schedule" form C-410-3a, subject to adjustment under the Contract:

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). 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.

- A. Deleted
- B. Deleted
- C. Deleted
- D. Deleted

ARTICLE 6—PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

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

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment on or about the **25th** day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.
 - a. **95** percent of the value of the Work completed (with the balance being retainage).
 - b. **95** percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion of the entire construction to be provided under the construction Contract Documents, Owner shall pay an amount sufficient to increase total payments to Contractor to **100** percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less **200** percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

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

6.04 *Consent of Surety*

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

6.05 *Interest*

- A. All amounts not paid when due will bear interest at the rate of 0 percent per annum.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
1. This Agreement.
 2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
 3. General Conditions.
 4. Supplementary Conditions.
 5. Specifications as listed in the table of contents of the project manual (copy of list attached).
 6. Drawings (not attached but incorporated by reference) consisting of **22** sheets with each sheet bearing the following general title: **Cutshin Water Line Replacement Phase 1**.
 7. Drawings listed on the attached sheet index.
 8. Addenda (numbers 1 to 1, inclusive).
 9. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages 1 to 5, inclusive).
 10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
 - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 *Contractor's Representations*

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
 6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
 7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
 8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
 9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
 10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 *Contractor's Certifications*

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

8.03 *Standard General Conditions*

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

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

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

Owner:

Hyden-Leslie County Water District

(typed or printed name of organization)

By:

(individual's signature)

Date:

(date signed)

Name: **L.J. Turner**

(typed or printed)

Title: **Manager**

(typed or printed)

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:

(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:

CERTIFICATE OF OWNER'S ATTORNEY AND AGENCY CONCURRENCE

Notes to User: This exhibit consists of two certificates, on a single page, to be attached to the Contract and signed upon execution. The first is a certificate to be signed by the Owner's attorney and the second is the concurrence to be signed by the State Engineer. This page is to be inserted after the Agreement between Owner and Contractor for Construction Contract (Stipulated Price) (EJCDC C-520, 2018) in the Construction Contract Documents.

CERTIFICATE OF OWNER'S ATTORNEY

PROJECT NAME:

CONTRACTOR NAME AND CONTRACT NUMBER:

I, the undersigned, _____, the duly authorized and acting legal representative of _____, do hereby certify as follows: I have examined the attached Contract(s) and performance and payment bond(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements is adequate and has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions, and provisions thereof.

Name

Date

AGENCY CONCURRENCE

As lender or insurer of funds to defray the costs of this Contract, and without liability for any payments thereunder, the Agency hereby concurs in the form, content, and execution of this Agreement.

Agency Representative

Date

Name

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NOTICE TO PROCEED

Prepared By



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NOTICE TO PROCEED

Owner: Hyden-Leslie County Water District Owner's Project No.: _____
Engineer: Nesbitt Engineering, Inc. Engineer's Project No.: 1218.07
Contractor: _____ Contractor's Project No.: _____
Project: Cutshin Water Line Replacement Project – Phase 1
Contract Name: Cutshin Water Line Replacement Project – Phase 1
Effective Date of Contract: XX/XX/XXXX

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

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

In accordance with the Agreement:

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

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

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

Owner: Hyden-Leslie County Water District
By (signature): _____
Name (printed): L.J. Turner
Title: Manager
Date Issued: _____
Copy: Engineer

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

PERFORMANCE BOND

Prepared By



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PERFORMANCE BOND

Contractor Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: Hyden-Leslie County Water District Mailing address <i>(principal place of business)</i> : PO Box 906 356 Wendover Rd Hyden, KY 41749	Contract Description <i>(name and location)</i> : Cutshin Water Line Replacement Project – Phase 1 Contract Price: Effective Date of Contract:
Bond Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: ☐ None ☐ 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**

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

PAYMENT BOND

Prepared By



Endorsed By



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PAYMENT BOND

Contractor Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: Hyden-Leslie County Water District Mailing address <i>(principal place of business)</i> : PO Box 906 356 Wendover Rd Hyden, KY 41749	Contract Description <i>(name and location)</i> : Cutshin Water Line Replacement Project – Phase 1 Contract Price: Effective Date of Contract:
Bond Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: ☐ None ☐ 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: _____ <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 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**

SECTION 00616

INSURANCE CERTIFICATE

Certificate of Insurance shall be provided in accordance with the General Conditions, this Division, Section 00600.

END OF SECTION

This content is from the eCFR and is authoritative but unofficial.

Title 29 — Labor

Subtitle A — Office of the Secretary of Labor

Part 5 — Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction (Also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act)

Subpart A — Davis-Bacon and Related Acts Provisions and Procedures

Source: 48 FR 19540, Apr. 29, 1983, unless otherwise noted.

Authority: 5 U.S.C. 301; Reorganization Plan No. 14 of 1950, 5 U.S.C. appendix; 28 U.S.C. 2461 note; 40 U.S.C. 3141 *et seq.*; 40 U.S.C. 3145; 40 U.S.C. 3148; 40 U.S.C. 3701 *et seq.*; Secretary's Order No. 01-2014, 79 FR 77527; and the laws referenced by § 5.1(a).

Source: 48 FR 19541, Apr. 29, 1983, unless otherwise noted.

Editorial Note: Nomenclature changes to subpart A of part 5 appear at 61 FR 19984, May 3, 1996.

§ 5.5 Contract provisions and related matters.

Link to an amendment published at 88 FR 57734, Aug. 23, 2023.

(a) **Required contract clauses.** The Agency head will cause or require the contracting officer to require the contracting officer to insert in full, or (for contracts covered by the Federal Acquisition Regulation (48 CFR chapter 1)) by reference, in any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a public building or public work, or building or work financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the laws referenced by § 5.1, the following clauses (or any modifications thereof to meet the particular needs of the agency, *Provided*, That such modifications are first approved by the Department of Labor):

(1) **Minimum wages —**

(i) **Wage rates and fringe benefits.** All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of this section, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions

of paragraph (a)(1)(v) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph (a)(4) of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph (a)(1)(iii) of this section) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii) *Frequently recurring classifications.*

- (A)** In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph (a)(1)(iii) of this section, provided that:
 - (1)** The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;
 - (2)** The classification is used in the area by the construction industry; and
 - (3)** The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.
- (B)** The Administrator will establish wage rates for such classifications in accordance with paragraph (a)(1)(iii)(A)(3) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

(iii) *Conformance.*

- (A)** The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:
 - (1)** The work to be performed by the classification requested is not performed by a classification in the wage determination; and
 - (2)** The classification is used in the area by the construction industry; and
 - (3)** The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- (B)** The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

- (C) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- (D) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- (E) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under paragraphs (a)(1)(iii)(C) and (D) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph (a)(1)(iii)(C) or (D) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.
- (iv) **Fringe benefits not expressed as an hourly rate.** Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.
- (v) **Unfunded plans.** If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.
- (vi) **Interest.** In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.
- (2) **Withholding –**
 - (i) **Withholding requirements.** The [write in name of Federal agency or the recipient of Federal assistance] may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in paragraph (a) of this

section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work (or otherwise working in construction or development of the project under a development statute) all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph (a)(3)(iv) of this section, the [Agency] may on its own initiative and after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(ii) **Priority to withheld funds.** The Department has priority to funds withheld or to be withheld in accordance with paragraph (a)(2)(i) or (b)(3)(i) of this section, or both, over claims to those funds by:

- (A) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (B) A contracting agency for its reprocurement costs;
- (C) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (D) A contractor's assignee(s);
- (E) A contractor's successor(s); or
- (F) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901-3907.

(3) **Records and certified payrolls —**

(i) **Basic record requirements —**

- (A) **Length of record retention.** All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.
- (B) **Information required.** Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

- (C) **Additional records relating to fringe benefits.** Whenever the Secretary of Labor has found under paragraph (a)(1)(v) of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.
 - (D) **Additional records relating to apprenticeship.** Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.
- (ii) **Certified payroll requirements —**
- (A) **Frequency and method of submission.** The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the [write in name of appropriate Federal agency] if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the certified payrolls to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to the [write in name of agency]. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.
 - (B) **Information required.** The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph (a)(3)(i)(B) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347/.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the sponsoring government agency (or the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records).

- (C) **Statement of Compliance.** Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:
 - (1) That the certified payroll for the payroll period contains the information required to be provided under paragraph (a)(3)(ii) of this section, the appropriate information and basic records are being maintained under paragraph (a)(3)(i) of this section, and such information and records are correct and complete;
 - (2) That each laborer or mechanic (including each helper and apprentice) working 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 29 CFR part 3; and
 - (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(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.
- (D) **Use of Optional Form WH-347.** The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(C) of this section.
- (E) **Signature.** The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.
- (F) **Falsification.** The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 3729.
- (G) **Length of certified payroll retention.** The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.
- (iii) **Contracts, subcontracts, and related documents.** The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.
- (iv) **Required disclosures and access –**
 - (A) **Required record disclosures and access to workers.** The contractor or subcontractor must make the records required under paragraphs (a)(3)(i) through (iii) of this section, and any other documents that the [write the name of the agency] or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or

transcription by authorized representatives of the [write the name of the agency] or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(B) ***Sanctions for non-compliance with records and worker access requirements.*** If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(C) ***Required information disclosures.*** Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to the [write in name of appropriate Federal agency] if the agency is a party to the contract, or to the Wage and Hour Division of the Department of Labor. If the Federal agency is not such a party to the contract, the contractor, subcontractor, or both, must, upon request, provide the full Social Security number and last known address, telephone number, and email address of each covered worker to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to the [write in name of agency], the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

(4) ***Apprentices and equal employment opportunity –***

(i) ***Apprentices –***

(A) ***Rate of pay.*** Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an

apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- (B) **Fringe benefits.** Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.
 - (C) **Apprenticeship ratio.** The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph (a)(4)(i)(D) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph (a)(4)(i)(A) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.
 - (D) **Reciprocity of ratios and wage rates.** Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.
- (ii) **Equal employment opportunity.** The use of apprentices and journeyworkers under this part must be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.
- (5) **Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.
 - (6) **Subcontracts.** The contractor or subcontractor must insert in any subcontracts the clauses contained in paragraphs (a)(1) through (11) of this section, along with the applicable wage determination(s) and such other clauses or contract modifications as the [write in the name of the Federal agency] may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate.
 - (7) **Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

- (8) **Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.
- (9) **Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.
- (10) **Certification of eligibility.**
 - (i) By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of 40 U.S.C. 3144(b) or § 5.12(a).
 - (ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or § 5.12(a).
 - (iii) The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, 18 U.S.C. 1001.
- (11) **Anti-retaliation.** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:
 - (i) Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or 29 CFR part 1 or 3;
 - (ii) Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or 29 CFR part 1 or 3;
 - (iii) Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or 29 CFR part 1 or 3; or
 - (iv) Informing any other person about their rights under the DBA, Related Acts, this part, or 29 CFR part 1 or 3.
- (b) **Contract Work Hours and Safety Standards Act (CWHSSA).** The Agency Head must cause or require the contracting officer to insert the following clauses set forth in paragraphs (b)(1) through (5) of this section in full, or (for contracts covered by the Federal Acquisition Regulation) by reference, in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses must be inserted in addition to the clauses required by paragraph (a) of this section or 29 CFR 4.6. As used in this paragraph (b), the terms "laborers and mechanics" include watchpersons and guards.
- (1) **Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in

excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

- (2) **Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$32 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1).

- (3) **Withholding for unpaid wages and liquidated damages —**

(i) **Withholding process.** The [write in the name of the Federal agency or the recipient of Federal assistance] may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this paragraph (b) on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

(ii) **Priority to withheld funds.** The Department has priority to funds withheld or to be withheld in accordance with paragraph (a)(2)(i) or (b)(3)(i) of this section, or both, over claims to those funds by:

- (A) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (B) A contracting agency for its procurement costs;
- (C) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (D) A contractor's assignee(s);
- (E) A contractor's successor(s); or
- (F) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901-3907.

- (4) **Subcontracts.** The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs (b)(1) through (5) of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by

any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (5). In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

- (5) **Anti-retaliation.** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:
 - (i) Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;
 - (ii) Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;
 - (iii) Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or
 - (iv) Informing any other person about their rights under CWHSSA or this part.

(c) **CWHSSA required records clause.** In addition to the clauses contained in paragraph (b) of this section, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other laws referenced by § 5.1, the Agency Head must cause or require the contracting officer to insert a clause requiring that the contractor or subcontractor must maintain regular payrolls and other basic records during the course of the work and must preserve them for a period of 3 years after all the work on the prime contract is completed for all laborers and mechanics, including guards and watchpersons, working on the contract. Such records must contain the name; last known address, telephone number, and email address; and social security number of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid; daily and weekly number of hours actually worked; deductions made; and actual wages paid. Further, the Agency Head must cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph must be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview workers during working hours on the job.

(d) **Incorporation of contract clauses and wage determinations by reference.** Although agencies are required to insert the contract clauses set forth in this section, along with appropriate wage determinations, in full into covered contracts, and contractors and subcontractors are required to insert them in any lower-tier subcontracts, the incorporation by reference of the required contract clauses and appropriate wage determinations will be given the same force and effect as if they were inserted in full text.

(e) **Incorporation by operation of law.** The contract clauses set forth in this section (or their equivalent under the Federal Acquisition Regulation), along with the correct wage determinations, will be considered to be a part of every prime contract required by the applicable statutes referenced by § 5.1 to include such clauses, and will be effective by operation of law, whether or not they are included or incorporated by reference into such contract, unless the Administrator grants a variance, tolerance, or exemption from the

application of this paragraph. Where the clauses and applicable wage determinations are effective by operation of law under this paragraph, the prime contractor must be compensated for any resulting increase in wages in accordance with applicable law.

(The information collection, recordkeeping, and reporting requirements contained in the following paragraphs of this section were approved by the Office of Management and Budget:

Paragraph	OMB Control No.
(a)(1)(ii)(B)	1235-0023
(a)(1)(ii)(C)	1235-0023
(a)(1)(iv)	1235-0023
(a)(3)(i)	1235-0023
(a)(3)(ii)(A)	1235-0023
	1235-0008
(c)	1235-0023

[48 FR 19540, Apr. 29, 1983, as amended at 51 FR 12265, Apr. 9, 1986; 55 FR 50150, Dec. 4, 1990; 57 FR 28776, June 26, 1992; 58 FR 58955, Nov. 5, 1993; 61 FR 40716, Aug. 5, 1996; 65 FR 69693, Nov. 20, 2000; 73 FR 77511, Dec. 19, 2008; 81 FR 43450, July 1, 2016; 82 FR 2225, 2226, Jan. 9, 2017; 83 FR 12, Jan 2, 2018; 84 FR 218, Jan. 23, 2019; 87 FR 2334, Jan. 14, 2022; 88 FR 2215, Jan. 13, 2023; 88 FR 57734, Aug. 23, 2023; 89 FR 1815, Jan. 11, 2024]

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

APPLICATION FOR PAYMENT

Prepared By



Endorsed By



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GUIDELINES FOR THE INTENDED USE OF EJCDC C-620, APPLICATION FOR PAYMENT

1.0 PURPOSE AND INTENDED USE OF THE DOCUMENT

The Application for Payment is used to facilitate periodic progress payments to the Contractor for Work completed and for stored materials and equipment (referred to in this document as "Stored Materials").

For additional information regarding the Application for Payment, see EJCDC® C-700, Standard General Conditions of the Construction Contract (2018), Paragraph 15.01, and EJCDC® C-001, Commentary on the 2018 EJCDC Construction Documents (2018).

2.0 APPLICATION FOR PAYMENT OVERVIEW

This document was prepared in Microsoft Excel due to the number of calculations involved in the preparation of the Application for Payment. The application consists of a Summary worksheet, and 3 supporting worksheets: Lump Sum worksheet, Unit Price worksheet, and Stored Materials worksheet.

- 2.1 *Summary Worksheet* — calculates the amount to be paid to the Contractor at the end of each Application for Payment period. This calculation imports numbers from the supporting worksheets to determine the value of the Work completed and Stored Materials, calculate retainage, and deduct amounts previously paid to determine the amount the Contractor should be paid for the current application period. Application periods are typically one month; however these periods may be extended when Contractor's efforts do not result in the billable completion of Work or storage of materials and equipment during the payment period.
- 2.2 *Lump Sum Worksheet* — calculates the total value for completed Work for which compensation is paid on a Lump Sum basis. The schedule of values included in this worksheet reflects a breakdown of lump sum Work items to which Contractor and Engineer have agreed, pursuant to Article 2 of the General Conditions. Costs for Stored Materials associated with lump sum items are included on this worksheet to calculate the total value for completed lump sum Work and associated Stored Materials. This total is exported to the Summary worksheet. Separate totals for Work Completed and for materials currently stored are also exported to the Summary worksheet for use in calculating the amount of retainage to be held for each.
- 2.3 *Unit Price Worksheet* — calculates the total value for completed Work for which compensation is paid on a Unit Price basis. The schedule of values included in this spreadsheet is typically a tabulation of Unit Price items from the Agreement. Costs for Stored Materials associated with unit price items are included in this worksheet to calculate the total value for completed Unit Price Work and associated Stored Materials. This total is exported to the Summary worksheet. Separate totals for Work Completed and for Materials Currently Stored are also exported to the Summary worksheet for use in calculating the amount of retainage to be held for each.

- 2.4 *Stored Materials Worksheet* — calculates the total value for materials and equipment that have been purchased and are being stored until they are incorporated into the Work. This worksheet adds materials and equipment to the worksheet as they are brought to the site and stored; such Stored Materials are then deducted from the Stored Materials worksheet total as they are incorporated into the Work, providing a running net value for the materials and equipment remaining in storage. The values of Stored Materials must be manually added to the Lump Sum or Unit Price line items. These do not automatically update when changes are made. The amount of materials remaining in storage is eligible for payment but must be tracked separately from Work completed since different retainage rates may apply to Work completed and Stored Materials.

3.0 Instructions for filling out the Payment Application form

- 3.1 Project-specific information is to be entered in the top portion (header) of the Summary worksheet. This same information will automatically be copied to the other worksheets to complete the headers on all other worksheets.
- 3.2 Outside of the header, data can be entered in non-shaded cells when the sheet is protected. Cells shaded light blue contain equations that will automatically transfer data from other cells or make calculations to complete the worksheet. Altering any of these cells can result in errors in the Application for Payment. It is recommended that the worksheets be protected at all times unless alterations are deliberately being made to the Application for Payment form other than to enter data. See Paragraph 4.0 below for information on Protection of Worksheets.
- 3.3 Enter information regarding each item in the Lump Sum and/or Unit Price worksheets. For Lump Sum projects, each item should represent an item in the schedule of values prepared by the Contractor and approved by the Engineer/Owner, breaking down the Lump Sum amount into measurable components. For Unit Price contracts, use numbers from the Agreement as the schedule of values. Specific information on the data to be entered into each column may be seen by clicking on the header description for that column. Similar comments may be seen for cells in the "Totals" row that indicates how the number is calculated and where this number is exported to another part of the spreadsheet. See the Commentary for additional information.
- 3.4 The equations in the Summary worksheet use numbers imported from both the Lump Sum and Unit Price worksheets. Projects will typically either use the Lump Sum or the Unit Price worksheet, but some projects may use both. If one of the worksheets is not used, it should be hidden and not deleted. If it is deleted, Users will need to correct the equations in the Summary worksheet by unprotecting the worksheet and editing the equations. To hide a worksheet, right click on the worksheet tab at the bottom of the worksheet and select "Hide." To unhide a worksheet, right click on any worksheet tab and select "Unhide," and then select the worksheet to unhide and click "Okay." This same process may be used to hide these Guidelines for Use.

- 3.5 EJCDC C-620 contains calculation functions that are provided solely for the convenience of the user. EJCDC and its Sponsoring Organizations do not warrant or guarantee the accuracy or completeness of any information generated by the calculator.

4.0 Protection of Worksheets

- 4.1 The cells in this Workbook that create the forms or contain equations have been coded to "lock" the cells that should not be altered. It is recommended that the Workbook be Protected (cells locked) at all times unless it is necessary to add or delete rows. Directions for adding and deleting rows are provided in the next section. Passwords can be used to lock the Protect / Unprotect settings on spreadsheets, however the worksheets in this workbook do not require a password.
- 4.2 To unprotect a worksheet, click on the "Review" menu tab at the top of Excel, then click "Unprotect Sheet." To protect a worksheet, click on the "Review" menu tab at the top of Excel, then click "Protect Sheet." This will open a dialog box in which the User is allowed to select protection options. It is recommended that only the top two checkboxes for "Select Locked Cells" and "Select Unlocked Cells" be checked. This will reset the protection for the Worksheet.

5.0 Adding and Deleting Rows

- 5.1 A limited number of blank rows are provided in the Lump Sum, Unit Price, and Stored Material worksheets. Additional rows may be added to these worksheets by the User. The first step in this process is to unprotect the worksheet as previously discussed. After the sheet is unprotected, move with caution to prevent inadvertently deleting any cells that contain equations. To insert a row, right click in the row heading at the left of the spreadsheet and select "Insert." A new row will be inserted at the location where the cursor was placed in the row heading. If more than one new row is desired, left click and drag the cursor to include the desired number of rows, right click in the selected row headings and then select "Insert." It is important that the line immediately above the "Totals" row not be included in the rows selected. Doing so will require that equations in the "Totals" row be adjusted. When rows are inserted, Excel automatically adjusts the equations to include the new rows, unless the row directly above the "Totals" row is also selected.
- 5.2 After new rows are inserted, it is important to copy a line from one of the original rows so correct formatting and equations are copied into each new row. To do this, select the row to be copied by clicking the cell in Column A and dragging the cursor to the last column in the table. Then select "Copy" from the menu or type CTRL+C to copy the cells. Excel will show that this row has been copied by showing a moving dashed line around the cells that are to be copied. Then select the new rows into which the information is to be copied as before and select Paste from the menu or type CTRL+V.
- 5.3 To delete an unused row, right click in the row heading on the left of the spreadsheet for the row to be deleted and select "Delete." The selected row will be deleted. If more than one row is to be deleted, left click and drag the cursor to the desired number of rows to be deleted and then right click to open the menu and select "Delete." Unlike the admonition on adding new rows, it is okay to delete the row just above the "Totals" row.
- 5.4 After rows have been added or deleted, it is important reset the worksheet protection.

6.0 Saving Files

This file is provided as a Microsoft® Excel Open XML workbook template (.xltx) to prevent this file from being inadvertently changed. When an application for payment is created for a specific project it should be saved as an Excel workbook (.xlsx) file. To do this, select Save As (F12), type in a new file name and select Excel Workbook (.xlsx) from the drop down Save As Type menu.

7.0 License Agreement

This document is subject to the terms and conditions of the License Agreement, 2018 EJCDC® Construction Series Documents. A copy of the License Agreement was furnished at the time of purchase of this document, and is available for review at www.ejcdc.org and the websites of EJCDC's sponsoring organizations.

Contractor's Application for Payment

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

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

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:

(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;

(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such liens, security interest, or encumbrances); and

(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor: _____	
Signature: _____	Date: _____

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

Contractor's Application for Payment

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

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

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

Contractor's Application for Payment

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

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

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

Contractor's Application for Payment

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

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

[illegible]



**SUBRECIPIENT REPORT OF COMPLIANCE
WITH BUILD AMERICA, BUY AMERICA PROVISIONS
FOR FEDERALLY ASSISTED CONTRACTS**

This form is to be submitted with each request for reimbursement of funding by the subrecipient and as requested by the Energy and Environment Cabinet during the project.

SUBRECIPIENT NAME:	
CONTRACT NUMBER:	
PROJECT DESCRIPTION:	
BILLING PERIOD:	TO

Subrecipient Statement:

I confirm to the best of my knowledge and belief that we are in compliance with the requirements of Pub. L. No 117-58, Sects 70901-525 as referenced in the following requirements of the Build America, Buy America Act (BABA) and the grant agreement between the Department of Interior (DOI) and the Commonwealth of Kentucky.

Signature (Subrecipient Representative)

Title

Date

The Build America, Buy America Act, enacted under Division G, Title IX of the Infrastructure Investment and Jobs Act (IIJA), applies a domestic content procurement preference requirement (Buy America Requirement) to federally funded public "infrastructure projects". Per Section 70914 of the IIJA funds may not be obligated for an "infrastructure project" unless all of the iron, steel, manufactured products, and construction materials used in the project are produced in the United States or an applicable a waiver to the domestic content procurement preference requirement is used.

Subrecipient Responsibility

The subrecipient is responsible for ensuring the Buy America Requirement flows down to all contracts, subcontracts, and purchase orders for work performed under the proposed infrastructure project. Subrecipients of awards containing the Buy America Requirement must ensure that absent a waiver none of the funds provided under their award may be used for a project for infrastructure unless:

1. All iron and steel used in the project is produced in the United States—this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;
2. All manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and
3. All construction materials are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States.

The Buy America Requirement only applies to articles, materials, and supplies that are consumed in, incorporated into, or permanently affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies brought into the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America Requirement apply to equipment and furnishings that are used at or within the finished infrastructure project but are not an integral part of the structure or permanently affixed to the infrastructure project.

Compliance Verification

Buy America requirements must flow down to all contracts, subcontracts and purchase orders for work performed under the infrastructure project; therefore, subrecipients must maintain certifications or equivalent documentation for proof of compliance that those articles, materials, and supplies that are consumed in, incorporated into, affixed to, or otherwise used in the infrastructure project, not covered by a waiver or exemption, are produced in the United States.

The Certification of Compliance form(s) (Form AML-001) must be provided by contractor and subcontractors from the suppliers or manufacturers of the iron, steel, manufactured products and construction materials and flow up from all contractors and subcontractors to the subrecipient.

Subrecipients must keep these certifications with the award/project files and be able to produce upon request from Department of Interior, Energy and Environment Cabinet, auditors or Office of Inspector General. Copies of the Certificate of Compliance with Buy America Form (Form AML-001) may be requested from the Energy and Environment Cabinet.

CERTIFICATE OF COMPLIANCE WITH BUY AMERICA

Prime Contractors should complete and sign a copy of this form and submit with each payment request to the Division of Abandoned Mine Lands. Prime contractors must also attach receipts and/or other documentation with this form showing evidence of Buy America compliance.

CONTRACTOR NAME			
CONTRACTOR ADDRESS			
PROJECT NAME			
INVOICE PERIOD		TO	
CONTRACT NUMBER			
CONTRACT AMOUNT			

This certification is to be utilized by prime contractors and subcontractors who have been awarded contracts funded through Abandoned Mine Lands Program Grant Funds and subject to the Buy America provisions of the Infrastructure Investment and Jobs Act (Pub. L. No 117-58). Buy America provisions state:

- (1) All iron and steel used in the project are produced in the United States. This means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
- (2) All manufactured products used in the project are produced in the United States. This means the manufactured product was manufactured in the United States, and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation.
- (3) All construction materials are manufactured in the United States. This means that all manufacturing processes for the construction material occurred in the United States.

MATERIALS/MANUFACTURED GOOD(S) BEING USED FOR PROJECT (Please List)

[illegible]

**ENERGY AND ENVIRONMENT CABINET
DIVISION OF ABANDONED MINE LANDS**

CERTIFICATE OF COMPLIANCE WITH BUY AMERICA

☐ I hereby certify that all of the iron, steel and manufactured goods supplied or provided by our company for use on this project was produced in the United State of America, unless an applicable waiver applies.

Or

I am relying on the following Buy America waiver(s) (check all that apply):

- ☐ *De Minimis Waiver*
Iron, steel and manufactured goods supplied/provided by our company equal no more than 5 percent of the total cost of the iron, steel and manufactured goods used in and incorporated into this project.
- ☐ *Small Grants Waiver*
The total cost of the award/subaward is less than \$250,000 and is not subject to the provisions of Buy America.

Representative Name

Title

Representative Signature

Date

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

CERTIFICATE OF SUBSTANTIAL COMPLETION

Prepared By



Endorsed by



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www.nspe.org

American Council of Engineering Companies
1015 15th Street N.W., Washington, DC 20005
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CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:
Engineer:
Contractor:
Project:
Contract Name:

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

This ☐ Preliminary ☐ Final Certificate of Substantial Completion applies to:

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

Date of Substantial Completion:

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

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

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

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

Amendments to Owner's Responsibilities: ☐ None ☐ As follows:

Amendments to Contractor's Responsibilities: ☐ None ☐ As follows:

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

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

Engineer

By *(signature)*: _____

Name *(printed)*: _____

Title: _____

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

NOTICE OF ACCEPTABILITY OF WORK

Prepared By



Endorsed By



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NOTICE OF ACCEPTABILITY OF WORK

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

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

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

Engineer

By *(signature)*: _____

Name *(printed)*: _____

Title: _____

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By



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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

TABLE OF CONTENTS

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

5.05	Underground Facilities.....	17
5.06	Hazardous Environmental Conditions at Site	19
Article 6—Bonds and Insurance.....		21
6.01	Performance, Payment, and Other Bonds	21
6.02	Insurance—General Provisions.....	22
6.03	Contractor’s Insurance.....	24
6.04	Builder’s Risk and Other Property Insurance	24
6.05	Property Losses; Subrogation	25
6.06	Receipt and Application of Property Insurance Proceeds	26
Article 7—Contractor’s Responsibilities		27
7.01	Contractor’s Means and Methods of Construction	27
7.02	Supervision and Superintendence	27
7.03	Labor; Working Hours	27
7.04	Services, Materials, and Equipment	28
7.05	“Or Equals”	28
7.06	Substitutes	29
7.07	Concerning Subcontractors and Suppliers.....	31
7.08	Patent Fees and Royalties.....	32
7.09	Permits	32
7.10	Taxes	33
7.11	Laws and Regulations.....	33
7.12	Record Documents.....	33
7.13	Safety and Protection	33
7.14	Hazard Communication Programs	35
7.15	Emergencies	35
7.16	Submittals	35
7.17	Contractor’s General Warranty and Guarantee	38
7.18	Indemnification	39
7.19	Delegation of Professional Design Services	39
Article 8—Other Work at the Site.....		40
8.01	Other Work	40
8.02	Coordination	41
8.03	Legal Relationships.....	41

Article 9—Owner’s Responsibilities	42
9.01 Communications to Contractor	42
9.02 Replacement of Engineer	42
9.03 Furnish Data	42
9.04 Pay When Due.....	42
9.05 Lands and Easements; Reports, Tests, and Drawings	42
9.06 Insurance.....	43
9.07 Change Orders	43
9.08 Inspections, Tests, and Approvals.....	43
9.09 Limitations on Owner’s Responsibilities	43
9.10 Undisclosed Hazardous Environmental Condition.....	43
9.11 Evidence of Financial Arrangements.....	43
9.12 Safety Programs	43
Article 10—Engineer’s Status During Construction	43
10.01 Owner’s Representative.....	43
10.02 Visits to Site.....	44
10.03 Resident Project Representative.....	44
10.04 Engineer’s Authority	44
10.05 Determinations for Unit Price Work	44
10.06 Decisions on Requirements of Contract Documents and Acceptability of Work	45
10.07 Limitations on Engineer’s Authority and Responsibilities	45
10.08 Compliance with Safety Program.....	45
Article 11—Changes to the Contract	45
11.01 Amending and Supplementing the Contract	45
11.02 Change Orders	46
11.03 Work Change Directives.....	46
11.04 Field Orders.....	47
11.05 Owner-Authorized Changes in the Work	47
11.06 Unauthorized Changes in the Work.....	47
11.07 Change of Contract Price	47
11.08 Change of Contract Times.....	48
11.09 Change Proposals.....	49
11.10 Notification to Surety.....	50

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

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

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

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

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

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

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

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

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

1.02 Terminology

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

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

ARTICLE 2—PRELIMINARY MATTERS

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

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

2.02 *Copies of Documents*

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

2.03 *Before Starting Construction*

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

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

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

2.05 *Acceptance of Schedules*

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

2.06 *Electronic Transmittals*

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

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

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

3.02 *Reference Standards*

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

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

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

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

B. *Resolving Discrepancies*

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

3.04 *Requirements of the Contract Documents*

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

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

3.05 *Reuse of Documents*

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

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

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

4.02 *Starting the Work*

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

4.03 *Reference Points*

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

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

4.04 *Progress Schedule*

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

4.05 *Delays in Contractor's Progress*

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

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

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

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are

to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

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

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

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.

- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

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

5.03 *Subsurface and Physical Conditions*

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

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

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

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

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

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

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;

2. is of such a nature as to require a change in the Drawings or Specifications;
3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

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

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
 1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

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

5.05 *Underground Facilities*

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

becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.

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

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

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

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

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

F. *Possible Price and Times Adjustments*

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

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

5.06 *Hazardous Environmental Conditions at Site*

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

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

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

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

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

- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or

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

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

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

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.
- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block

out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.

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

policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 Contractor's Insurance

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

6.04 Builder's Risk and Other Property Insurance

- A. *Builder's Risk:* Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations).

The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.

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

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.
 - 1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.

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

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may

reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 Contractor's Means and Methods of Construction

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

7.02 Supervision and Superintendence

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

7.03 Labor; Working Hours

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

7.04 *Services, Materials, and Equipment*

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

7.05 *“Or Equals”*

- A. *Contractor’s Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or equal” item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an “or equal” item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
 - b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and

- 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

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

- b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

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

- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

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

7.09 *Permits*

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

7.10 *Taxes*

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

7.11 *Laws and Regulations*

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

7.12 *Record Documents*

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

7.13 *Safety and Protection*

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

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

7.14 *Hazard Communication Programs*

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

7.15 *Emergencies*

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

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

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

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

1. *Shop Drawings*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. *Samples*

- a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Engineer's Review of Shop Drawings and Samples*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.
5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.

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

D. Resubmittal Procedures for Shop Drawings and Samples

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

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

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

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

7.17 Contractor's General Warranty and Guarantee

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

assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 Indemnification

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

7.19 Delegation of Professional Design Services

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

to the professional standard of care and the performance and design criteria stated in the Contract Documents.

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

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

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

unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

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

8.03 *Legal Relationships*

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

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

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

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

9.03 *Furnish Data*

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

9.04 *Pay When Due*

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

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

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
 - C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.
- 9.06 *Insurance*
- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.
- 9.07 *Change Orders*
- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.
- 9.08 *Inspections, Tests, and Approvals*
- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.
- 9.09 *Limitations on Owner's Responsibilities*
- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- 9.10 *Undisclosed Hazardous Environmental Condition*
- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.
- 9.11 *Evidence of Financial Arrangements*
- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).
- 9.12 *Safety Programs*
- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
 - B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

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

10.02 *Visits to Site*

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

10.03 *Resident Project Representative*

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

10.04 *Engineer's Authority*

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

10.05 *Determinations for Unit Price Work*

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

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

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

10.07 *Limitations on Engineer's Authority and Responsibilities*

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

10.08 *Compliance with Safety Program*

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

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.

- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

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

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.
- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

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

11.05 *Owner-Authorized Changes in the Work*

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

11.06 *Unauthorized Changes in the Work*

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

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 - 1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 - 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or

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

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.

- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

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

- B. *Change Proposal Procedures*

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

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

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

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

11.10 *Notification to Surety*

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

ARTICLE 12—CLAIMS

12.01 *Claims*

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

resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*

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

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

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

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

be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

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

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

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

D. *Contractor's Fee*

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

E. *Documentation and Audit:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions,

drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 Allowances

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

13.03 Unit Price Work

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

E. *Adjustments in Unit Price*

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

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

14.01 *Access to Work*

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

14.02 *Tests, Inspections, and Approvals*

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

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
3. by manufacturers of equipment furnished under the Contract Documents;
4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

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

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

14.03 *Defective Work*

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

14.04 *Acceptance of Defective Work*

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

14.05 *Uncovering Work*

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

14.06 *Owner May Stop the Work*

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

right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 Owner May Correct Defective Work

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

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

15.01 Progress Payments

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

equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

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

C. Review of Applications

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

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

D. *Payment Becomes Due*

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

E. *Reductions in Payment by Owner*

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

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

15.02 *Contractor's Warranty of Title*

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

15.03 *Substantial Completion*

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

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

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

15.04 *Partial Use or Occupancy*

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

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

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

15.05 *Final Inspection*

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

15.06 *Final Payment*

A. *Application for Payment*

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

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

15.07 *Waiver of Claims*

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

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

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

15.08 *Correction Period*

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

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

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

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

16.02 *Owner May Terminate for Cause*

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

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

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

16.03 *Owner May Terminate for Convenience*

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

16.04 *Contractor May Stop Work or Terminate*

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

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

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

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

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

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

18.02 *Computation of Times*

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

18.03 *Cumulative Remedies*

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

18.04 *Limitation of Damages*

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

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

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

18.09 *Successors and Assigns*

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

18.10 *Headings*

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

SECTION 00720

ENGINEER'S SUPPLEMENTAL GENERAL CONDITIONS

1. ADDITIONAL INSTRUCTIONS

1.1 Second Hand or Salvaged Materials

The use of second hand and/or salvaged materials will not be permitted unless specifically provided for in the detailed Specifications. Materials and equipment shall be new when turned over to the OWNER.

All materials and/or equipment to be removed from existing structures and not specifically specified to be reused or stored shall be stored or removed for disposal as directed by the OWNER in the field. Reused or stored material and/or equipment remain the property of the OWNER. Material and/or equipment not reused or stored shall become the property of the CONTRACTOR. Such materials and/or equipment shall be promptly removed by the CONTRACTOR from the site for disposal by the CONTRACTOR.

1.2 Ownership of Plans and Models

All Drawings, Specifications and copies thereof furnished to the CONTRACTOR by the OWNER are the property of the OWNER. They are not to be used on other work. All models are the property of the OWNER.

2. SURVEYS

2.1 Layout of Work

2.1.1 General

The layout of the Work shall be the responsibility of the CONTRACTOR and shall be subject to checking by the ENGINEER. The ENGINEER shall establish base lines and a system of bench levels for the CONTRACTOR'S use as required. All instruments, stakes, batter boards, barricades, traffic signs, flags, and other materials necessary, and personnel needed for establishing and marking lines, grades, and structure location during construction, shall be the responsibility of the CONTRACTOR.

The CONTRACTOR'S personnel engaged in the layout work described herein shall be fully capable of performing the duties set out herein and shall be fully qualified chiefs of party, instrument man, chainmen, rodmen and/or axmen as required.

3. PROTECTION OF PROPERTY

3.1 Use of Premises

The CONTRACTOR shall confine his apparatus, the storage of materials and the operations of his workmen to limits indicated by Laws and Regulations, permits or directions of the OWNER and shall not unreasonably encumber the premises with his materials.

The CONTRACTOR shall not load or permit any part of the Work to be loaded with a weight that will endanger its safety and integrity.

The CONTRACTOR shall enforce the Laws and Regulations regarding signs, advertisements, fires and smoking.

3.2 Damage to Equipment Stored

Any equipment damaged or which has been subjected to possible damage by reason of inundation, improper storage and/or improper protection during the construction period of a project, shall be handled only as follows:

3.2.1 Be replaced with new equipment

3.2.2 With consent of the OWNER, be returned to the manufacturer of the equipment, or his authorized repair agency, for inspection and repair provided, however, that such repair after inspection will place the equipment in new condition, and restore the manufacturer's guarantee the same as for new equipment.

3.3 Conflict With or Damage To Underground Facilities

The information and data shown or indicated in the Contract Documents with respect to existing underground facilities at or contiguous to the site is based on information and data furnished to the OWNER or the ENGINEER by the owners of such underground facilities or by others. The OWNER and the ENGINEER shall not be responsible for the accuracy or completeness of any such information or data.

The CONTRACTOR shall have full responsibility for reviewing and checking all such information and data, for locating all underground facilities shown or indicated in the Contract Documents, for coordination of the work with the owners of such underground facilities during construction, for the safety and protection thereof as provided in the Contract Documents, and for repairing any damage thereto resulting from the Work, the cost of all of which is considered to be included in the Contract Price.

If an underground facility is uncovered or revealed at or contiguous to the site, which was not shown or indicated in the Contract Documents and which the CONTRACTOR could not reasonably have been expected to be aware of, the CONTRACTOR shall, promptly after becoming aware thereof and before performing any Work affected thereby (except in an emergency as permitted by paragraph 11.4 of the General Conditions), identify the owner of such underground facility and give written notice thereof to that owner and to the OWNER and the ENGINEER. The ENGINEER will promptly review the newly discovered site conditions and make a recommendation to the OWNER regarding amendment of the Contract Documents. During such time as the underground facility is exposed, the CONTRACTOR shall be responsible for the safety and protection of such underground facility as provided in paragraph 11.2 of the General Conditions.

Repair to existing utilities and facilities damaged by the CONTRACTOR'S construction forces shall be considered as a part of the Contract covered only by the prices bid for the new construction. The only exceptions to this provision, wherein extra compensation will be authorized, are:

Relocation of an existing facility due to direct conflict with performing the work.

Relocation (outside of limits of maximum allowable trench widths) of an existing facility presently located within the bounds of maximum allowable trench width, where necessitated for assurance against future damage due to settlement or to permit reasonable access to the new work.

Repair to damaged underground utilities, must meet the requirements of the agency in charge of that particular utility.

The intent of this article is to assure compensation to the CONTRACTOR for changes in existing utilities reasonably necessary, and at the same time, to protect the OWNER against excessive damages due to carelessness of the CONTRACTOR'S construction forces. Compensation for extra work covered herein shall be in accordance with other provisions of the General Conditions.

3.4 Damage to Stream

The CONTRACTOR shall be liable for any costs incurred by the OWNER as a result of damage to any stream resulting from improper protection during the construction of this project.

4. CONTRACT COSTS AND PAYMENTS

4.1 Cleaning Up

During the progress of the Work, the CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish, weeds, brush or other debris cause by the CONTRACTOR'S employees or the Work. At the completion of the Work, the CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises, as well as all tools, appliances, construction equipment, machinery and surplus materials, and shall leave the site clean and ready for occupancy by the OWNER.

The CONTRACTOR shall restore to original conditions all property (including but not limited to streets, sidewalks, drainage channels, or private property) affected by his construction operations when, in the opinion of the OWNER, such restoration is needed.

The Contract shall not be considered complete until all construction equipment and machinery, waste materials, rubbish and debris resulting from the construction are cleaned from the site of the Work. All damage to existing paving, grounds, and structures caused by the CONTRACTOR'S operations must be repaired or the OWNER compensated for such damage before the Contract will be considered complete.

4.2 Payments Withheld

The OWNER may refuse payment to the CONTRACTOR if, in the OWNER'S or ENGINEER'S opinion such action is necessary to protect the OWNER from loss because:

The Work is defective, or completed Work has been damaged and requires correction or replacement;

Cleanup has not been completed;

The Contract price has been reduced by written amendment or change order;

The OWNER has been required to correct defective Work or complete Work in accordance with paragraph 16.2 of the General Conditions;

Claims have been filed or reasonable evidence exists indicating the probable filing of claims;

A reasonable doubt exists that the Contract can be completed for the balance then unpaid;

Activities of the CONTRACTOR have resulted in damages to another CONTRACTOR; or

The OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 18.2.1 through 18.2.11 of the General Conditions.

The OWNER may refuse to make payment to the CONTRACTOR, in accordance with the ENGINEER'S recommendation or otherwise, for those reasons cited above, but the OWNER must give the CONTRACTOR immediate written notice stating the reasons for such action.

Where Work on unit price items is complete but lacks clean up and/or corrections ordered by the OWNER or its authorized representatives, amounts shall be deducted from unit prices in payment certificates adequate to cover the cost of such clean up and corrections.

When the above grounds are removed, payment shall be made for amounts withheld because of them.

4.3 Liens

Neither the final payment nor any part of the retained percentage shall become due until the CONTRACTOR has delivered to the OWNER effective releases or waivers, receipts, and affidavits as required by the General Conditions.

5. WORK BY OWNER

5.1 OWNER'S Right to Do Work

If the CONTRACTOR should neglect to prosecute the work properly or fail to perform any provision of the Contract, the OWNER, in accordance with paragraph 16.2 of the General Conditions after ten (10) days written notice to the CONTRACTOR may, without prejudice to any other remedy he may have, make

good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the CONTRACTOR.

5.2 Use of Completed Portions of Work

The OWNER shall have the right to take possession of and use any completed or partially completed portions that constitute separately functioning and useable parts of the Work, notwithstanding that the time for completing the entire Work, or such portions, may not have expired; but such taking possession and use shall not be deemed an acceptance of any Work not completed in accordance with the Contract Documents. If such prior use increases the cost of, or delays the Work, the CONTRACTOR shall be entitled to such extra compensation, or extension of time, or both, as the OWNER may determine.

6. LIABILITY

6.1 Limit of Liability of Public Officials and OWNER'S Agents

In carrying out any of the provisions of the Contract or in exercising any power or authority granted to them thereby, there shall be no personal liability upon the ENGINEER, or the OWNER'S other consultants, agents, representatives, employees, and elected or appointed officials, it being understood that in such matters they act as the agents and representatives of the OWNER.

7. SUPERVISION BY CONTRACTOR

7.1 Character of Workmen

The CONTRACTOR shall at all times be responsible for the conduct and discipline of his employees and/or any Subcontractor or persons employed by the Subcontractor. All workmen must have sufficient knowledge and skill and experience to perform properly the work assigned to them. Any superintendent, foreman or workman employed by the CONTRACTOR, or Subcontractor who does not perform his work in a skillful manner or acts in an incompetent, disorderly or intemperate manner shall, at the written request of the OWNER, be removed from working on any project of the OWNER in progress.

8. RESIDENT OBSERVER

The ENGINEER'S Resident Observer shall serve as the OWNER'S construction site representative during the construction phase, with authority to act on behalf of the OWNER, work with the CONTRACTOR and to further the interests of the OWNER. The Resident Observer shall:

- a. Issue field orders of the OWNER, as authorized by the OWNER, to the CONTRACTOR. Only the OWNER shall have the authority to issue a stop work order except in the case of an emergency.
- b. Act as the initial interpreter of terms and conditions of the Contract Documents to ensure that the Drawings and Specifications are complied with to safeguard the OWNER against defects and deficiencies on the part of the CONTRACTOR.
- c. Observe shop, laboratory or on-site tests of equipment and materials to protect the OWNER from defects and deficiencies.

- d. Evaluate and recommend action to the OWNER on payment requisitions and payment requests.
- e. With the ENGINEER, conduct job site coordination meetings with the CONTRACTOR and the OWNER; and attend monthly Project Construction Review Meetings.
- f. Evaluate and assist in negotiating change order requests.
- g. Maintain all engineering, inspection, testing and administration documents necessary to the orderly construction of the project including, but not limited to, daily and weekly reports, record drawings, time and material records, submittal logs.
- h. Conduct a final inspection to determine if the Project has been completed in accordance with the Contract Documents and the CONTRACTOR has fulfilled all his obligations thereunder.

9. CLAIMS FOR EXTRA PAYMENT FOR TIME EXTENSIONS

The CONTRACTOR'S claims for extra payment or time extensions which have not resulted from executed Change Orders will only be considered if presented to the ENGINEER and the OWNER in accordance with the procedures outlined in the General Conditions.

10. PROJECT SIGNS

Two (2) project signs shall be provided by the CONTRACTOR as shown at the end of these Engineer's Supplemental General Conditions. The signs shall be placed where directed by the ENGINEER in the field.

END OF SECTION

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By



Endorsed By



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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

TABLE OF CONTENTS

	Page
Article 1— Definitions and Terminology.....	1
Article 2— Preliminary Matters	3
Article 3— Contract Documents: Intent, Requirements, Reuse	7
Article 4— Commencement and Progress of the Work	7
Article 5— Site, Subsurface and Physical Conditions, Hazardous Environmental Conditions	8
Article 6— Bonds and Insurance	10
Article 7— Contractor’s Responsibilities	17
Article 8— Other Work at the Site	20
Article 9— Owner’s Responsibilities	20
Article 10— Engineer’s Status During Construction	20
Article 11— Changes to the Contract	22
Article 12— Claims	23
Article 13— Cost of Work; Allowances, Unit Price Work.....	23
Article 14— Tests and Inspections; Correction, Removal, or Acceptance of Defective Work.....	24
Article 15— Payments to Contractor, Set Offs; Completions; Correction Period	24
Article 16— Suspension of Work and Termination	26
Article 17— Final Resolutions of Disputes	26
Article 18— Miscellaneous	28
Exhibit A— Software Requirements for Electronic Document Exchange.....	1
Exhibit B— Foreseeable Bad Weather Days	1
Exhibit C— Geotechnical Baseline Report Supplement to the Supplementary Conditions	1

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.8 – Add the following at the end of the Paragraph:

The Change Order form to be used on this Project is EJCDC C-941 (2018). Agency approval is required before Change Orders are effective.

SC-1.01.A.30 – Add the following at the end of the Paragraph:

For the purposes of Rural Development, this term is synonymous with the term "applicant" as defined in 7 CFR 1780.7 (a) (1), (2) and (3) and is an entity receiving financial assistance from the federal programs.

SC-1.01.A.50 – Add the following at the end of the Paragraph:

The Work Change Directive form to be used on this Project is EJCDC C-940 (2018). Agency approval is required before a Work Change Directive is issued.

SC-1.01.A.51 – Add the following new paragraph immediately after Paragraph 1.01.A.50:

51. Agency - The Project is financed in whole or in part by USDA Rural Utilities Service pursuant to the Consolidated Farm and Rural Development Act (7 USC Section 1921 et seq.). The Rural Utilities Service programs are administered through the USDA Rural Development offices; therefore, the Agency for these documents is USDA Rural Development.

SC-1.01.A.52 – Add the following new paragraph with the title "Domestic Preference Definitions" immediately after Paragraph 1.01.A.51:

52.a *Build America, Buy America Act (BABAA)* - Requirements mandated by Title IX of the Infrastructure Investment and Jobs Act (IIJA), Pub. L. 117-58, §§ 70901-70953-58 mandating domestic preference that all iron and steel, manufactured products, and construction materials are produced in the United States.

52.b *Construction Materials* - Those articles, materials, or supplies — other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives— that are or consist primarily of: nonferrous metals, plastic and polymer- based products, glass, lumber or drywall.

52.c *Contractor's Certification* - Documentation submitted by the Contractor upon Substantial Completion of the Contract that all iron and steel, manufactured products, and construction materials are produced in the United States.

52.d *De Minimis* - Materials and products that represent a small portion of an infrastructure project, specifically no more than 5% of the project costs up to a maximum of \$1,000,000,

52.e *Domestic Preference* - The Build America, Buy America Act (BABAA) requirements under Title IX of the Infrastructure Investment and Jobs Act (IIJA), Pub. L. 117-58, §§ 70901-70953.

52.f *Engineer's Certification* - Documentation submitted by the Engineer that Drawings, Specifications, and Bidding Documents comply with Domestic Preference requirements.

52.g *Manufactured Product* – Items assembled out of components, or otherwise made or processed from raw materials into finished products. Manufactured products must be manufactured (assembled) in the United States, and the cost of components that were mined, produced, or manufactured in the United States must be greater than 55 percent of the total cost of all components of the product.

52.h *Manufacturer's Certification* - Documentation provided by the Manufacturer stating that Domestic Preference requirements have been satisfied for all provided items. If items are purchased via a Supplier, distributor, vendor, etc. from the Manufacturer directly, then the Supplier, distributor, vendor, etc. will be responsible for obtaining and providing these certifications to the parties purchasing the products.

52.i *Minor Components* - Components *within* an iron and/or steel product otherwise compliant with the Domestic Preference requirements. This waiver, typically used by Manufacturers, allows use of non-domestically produced miscellaneous Minor Components comprising up to five percent of the total material cost of an otherwise domestically produced iron and steel product. However, unless a separate waiver for a product has been approved, all other iron and steel components in said product must still meet the Domestic Preference requirements. This waiver does not exempt the whole product from the Domestic Preference requirements only Minor Components within said product and the iron or steel components of the product must be produced domestically.

52.j Primarily Iron or Steel - A product is made of greater than 50 percent iron or Steel on a materials cost basis.

ARTICLE 2—PRELIMINARY MATTERS

2.01 Delivery of Bonds and Evidence of Insurance

SC-2.01 Delete Paragraphs 2.01.B. and C. in their entirety and insert the following in their place:

- B. *Evidence of Contractor's Insurance:* When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner copies of the policies (including all endorsements, and identification of applicable self-insured retentions and deductibles) of insurance required to be provided by Contractor in this Contract. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- C. *Evidence of Owner's Insurance:* After receipt from Contractor of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner in this Contract (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

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 ~~[number]~~ **five** printed copies of the Contract Documents (including one fully signed counterpart of the Agreement), and **[one copy]** ~~[none]~~ in electronic portable document format (PDF).

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

- A. Owner shall furnish to Contractor **2** printed copies of conformed Contract Documents incorporating and integrating all Addenda and any amendments negotiated prior to the Effective Date of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies of the conformed Contract Documents will be furnished upon request at the cost of reproduction.

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 **15 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.
- h. The Owner will operate a Project information management system (also referred to in this EDP as "Project Website") for use of Owner, Engineer and Contractor during the Project for exchange and storage of Project-related communications and information. Except as otherwise provided in this EDP or the General Conditions, use of the Project Website by the parties as described in this Paragraph will be mandatory for exchange of Project documents, communications, submittals, and other Project-related information. The following conditions and standards will govern use of the Project Website:
 - 1) Describe the period of time during which the Project Website will be operated and be available for reliance by the parties;
 - 2) Provide any minimum system infrastructure, software licensing and security standards for access to and use of the Project Website;

- 3) Describe the types and extent of services to be provided at the Project Website (such as large file transfer, email, communication and document archives, etc.); and
- 4) Include any other Project Website attributes that may be pertinent to Contractor's use of the facility and pricing of such use.

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 basis (at \$[number] per hour) 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

3.01 *Intent*

SC-3.01 Delete Paragraph 3.01.C in its entirety.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

SC-4.01.A – Delete the last sentence of paragraph.

4.05 *Delays in Contractor's Progress*

SC-4.05.C.5 Paragraph is mandatory for WWD projects.

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

5. *Weather-Related Delays*

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

on the Work as scheduled. **Extreme or unusual weather that is typical for a given region, elevation, or season should not be considered abnormal weather conditions. Requests for time extensions due to abnormal weather conditions will be submitted to the Engineer within five days of the end of the abnormal weather condition event. It is the responsibility of the Contractor to provide the information listed in SC 4.05.C.5.b.**

- b. The existence of abnormal weather conditions will be determined on a month-by-month basis in accordance with the following:
 - 1) Every workday on which one or more of the following conditions exist will be considered a “bad weather day”:
 - i) Total precipitation (as rain equivalent) occurring between 7:00 p.m. on the preceding day (regardless of whether such preceding day is a workday) through 7:00 p.m. on the workday in question equals or exceeds **[threshold precipitation quantity]** of precipitation (as rain equivalent, based on the snow/rain conversion indicated in the table entitled Foreseeable Bad Weather Days; such table is hereby incorporated in this SC-4.05.C by reference.
 - ii) Ambient outdoor air temperature at 11:00 a.m. is equal to or less than the following low temperature threshold: **[temperature]** degrees Fahrenheit; or, at 3:00 p.m. the ambient outdoor temperature is equal to or greater than the following high temperature threshold: **[temperature]** degrees Fahrenheit.
 - 2) Determination of actual bad weather days during performance of the Work will be based on the weather records measured and recorded by **[name of the entity operating the weather station]** weather monitoring station at **[location of the weather monitoring station]**.
 - 3) Contractor shall anticipate the number of foreseeable bad weather days per month indicated in the table in Exhibit **[exhibit number]**—Foreseeable Bad Weather Days.
 - 4) In each month, every bad weather day exceeding the number of foreseeable bad weather days established in the table in Exhibit **[exhibit number]**—Foreseeable Bad Weather Days will be considered as “abnormal weather conditions.” The existence of abnormal weather conditions will not relieve Contractor of the obligation to demonstrate and document that delays caused by abnormal weather are specific to the planned work activities or that such activities thus delayed were on Contractor’s then-current Progress Schedule’s critical path for the Project.

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	Date of Report	Technical Data
		[Identify Technical Data]

- F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely: **[If there are no such drawings, so indicate in the table.]**

Drawings Title	Date of Drawings	Technical Data
		[Identify Technical Data]

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

5.06 Hazardous Environmental Conditions

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

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

Report Title	Date of Report	Technical Data
		[Identify Technical Data]

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

Drawings Title	Date of Drawings	Technical Data
		[Identify Technical Data]

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

SC-6.01 – Disregard EJCDC Guidance Notes – Performance and Payment Bonds, Note 1. Performance and Payment Bonds are required for WEP projects.

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).

SC-6.01 – EJCDC Guidance Notes – “Other Bonds,” Warranty Bond, Note 1. RD does not require a Warranty Bond, and RD will not accept a Warranty Bond in place of a Performance and Payment Bond. The decision to include a Warranty Bond is made by the Owner and their counsel. Please refer to EJCDC for guidance.

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

1. 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 **[number—either 2, 3, or other]** years after Substantial Completion.
2. After Substantial Completion, Contractor shall furnish a warranty bond issued in the form of EJCDC® C-612, Warranty Bond (2018). The warranty bond must be in a bond amount of **[number—either 10, 15, or other]** percent of the final Contract Price. The warranty bond period will extend to a date **[number—either 2, 3, or other]** years after Substantial Completion of the Work. Contractor shall deliver the fully executed warranty bond to Owner prior to or with the final application for payment, and in any event no later than 11 months after Substantial Completion.
3. The warranty bond must be issued by the same surety that issues the performance bond required under Paragraph 6.01.A of the General Conditions.

6.02 *Insurance—General Provisions*

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

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

SC-6.02 Add the following paragraph immediately after Paragraph 6.02.H.2 of the General Conditions:

3. For the following Subcontractors, Suppliers, or categories of Subcontractor or Supplier, Contractor shall require the following specified insurance, with policy limits as stated:

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:
- 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
Jones Act (if applicable)	
Bodily injury by accident—each accident	\$500,000
Bodily injury by disease—aggregate	\$500,000
Employer's Liability	
Each accident	\$100,000
Each employee	\$100,000
Policy limit	\$500,000
Stop-gap Liability Coverage	
For work performed in monopolistic states, stop-gap liability coverage must be endorsed to either the worker's compensation or commercial general liability policy with a minimum limit of:	\$500,000

- F. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:
1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
 2. damages insured by reasonably available personal injury liability coverage, and
 3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- G. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage.

- a. Such insurance must be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
 4. Underground, explosion, and collapse coverage.
 5. Personal injury coverage.
 6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
 7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
 2. Any exclusion for water intrusion or water damage.
 3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
 4. Any exclusion of coverage relating to earth subsidence or movement.
 5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).
 6. Any limitation or exclusion based on the nature of Contractor's work.
 7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.
- I. *Commercial General Liability—Minimum Policy Limits*

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

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

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

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

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	\$5,000,000
General Aggregate	\$5,000,000

- 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 **\$[specify amount]** 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	\$2,000,000
Annual Aggregate	\$2,000,000

- O. *Railroad Protective Liability Insurance:* Prior to commencing any Work within 50 feet of railroad-owned and controlled property, Contractor shall (1) endorse its commercial general liability policy with ISO CG 24 17, removing the contractual liability exclusion for work within 50 feet of a railroad, (2) purchase and maintain railroad protective liability insurance meeting the following requirements, (3) furnish a copy of the endorsement to Owner, and (4) submit a copy of the railroad protective policy and other railroad-required documentation to the railroad, and notify Owner of such submittal.

Railroad Protective Liability Insurance	Policy limits of not less than:
Each Claim	\$2,000,000
Aggregate	\$2,000,000

- P. *Unmanned Aerial Vehicle Liability Insurance:* If Contractor uses unmanned aerial vehicles (UAV—commonly *referred* to as drones) at the Site or in support of any aspect of the Work, Contractor shall obtain UAV liability insurance in the amounts stated; name Owner, Engineer, and all individuals and entities identified in the Supplementary Conditions as additional insureds; and provide a certificate to Owner confirming Contractor's compliance with this requirement. Such insurance will provide coverage for property damage, bodily injury or death, and invasion of privacy.

Unmanned Aerial Vehicle Liability Insurance	Policy limits of not less than:
Each Claim	\$2,000,000
General Aggregate	\$2,000,000

- Q. *Other Required Insurance:* **[Here list additional types and amounts of insurance that Contractor is required to carry.]**

6.04 *Builder's Risk and Other Property Insurance*

SC-6.04 Delete Paragraph 6.04.A and insert the following in its place:

- A. Owner shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such

deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.

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

F. *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 \$[amount].
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 \$[amount].
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." In addition to Owner, Contractor, and Subcontractors of every tier, include as insureds the following:
 - a. **[Here list by legal name (not category, role, or classification) other persons or entities to be included on the builder's risk policy as named insureds. It is generally recommended to list the insured's full legal/contractual name, address, contact person, telephone, and e-mail address. Include only persons or entities that have property at the Site that is to be insured by the builder's risk insurance. If applicable, separately identify any mortgagee or lender required to be named as a loss payee.]**
11. include, in addition to the Contract Price amount, the value of the following equipment and materials to be installed by the Contractor but furnished by the Owner or third parties:
 - a. **[Here list or provide cross-reference to specific items of Owner-furnished (or third-party furnished) equipment, and purchase value; do not list items whose value is already included in the Contract Price.]**
12. 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 \$[amount].
13. In addition to the coverage sublimits stated above, the following coverages are also subject to sublimits, as follows:
 - a. **[Here list a specific coverage, or cause of loss, that has been determined to be likely to be subject to a sublimit. If not applicable, then delete Paragraph SC-6.04.F.13 in its entirety.]** If this coverage is subject to a sublimit, such sublimit will be a minimum of \$[amount].

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

- G. *Coverage for Completion Delays:* The builder's risk policy will include, for the benefit of Owner, loss of revenue and soft cost coverage for losses arising from delays in completion that result from covered physical losses or damage. Such coverage will include, without limitation, fixed expenses and debt service for a minimum of 12 months with a maximum deductible of 30 days, compensation for loss of net revenues, rental costs, and attorneys' fees and engineering or other consultants' fees, if not otherwise covered.

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

- H. *Builder's Risk and Other Property Insurance Deductibles:* The purchaser of any required builder's risk, installation floater, or other property insurance will be responsible for costs not covered because of the application of a policy deductible.

1. The builder's risk policy (or if applicable the installation floater) will be subject to a deductible amount of no more than \$[number] for direct physical loss in any one occurrence.

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

A. *Installation Floater*

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

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.03 *Labor; Working Hours*

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

1. Regular working hours will be **[Here insert schedule of regular working hours]**.
2. Owner's legal holidays are **[Here insert list of legal holidays]**.

SC-7.03 Amend the first and second sentences of Paragraph 7.03.C to state "...all Work at the Site must be performed during regular working hours, **[day of the week]** through **[day of the week]**. Contractor will not perform Work on a **[day of the week]**, **[day of the week]**, or any legal holiday."

SC-7.03 Delete Paragraph 7.03.C in its entirety, and insert the following:

- C. In the absence of any Laws or Regulations to the contrary, Contractor may perform the Work on holidays, during any or all hours of the day, and on any or all days of the week, at Contractor's sole discretion.

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

- D. **[Contractor] [Owner] [choose one and delete the other]** shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

SC-7.03 Add the following new subparagraph immediately after Paragraph SC-7.03.D:

1. For purposes of administering the foregoing requirement, additional overtime costs are defined as **[Here insert parameters for compensated overtime hours]**.

SC-7.04.D – Add the following new paragraph immediately after Paragraph 7.04.C:

D. All products must meet Domestic Preference requirements.

SC-7.04.E – Add the following new paragraph immediately after Paragraph 7.04.D:

E. For projects utilizing a *De Minimis* waiver, Contractor shall maintain an itemized list of nondomestically produced components and ensure that the cost is less than 5% of total project cost for project up to a maximum of \$1,000,000.

SC-7.05.A – Amend the third sentence of paragraph by striking out the following words:

Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or-equal” item is permitted,

SC-7.05.A.1.a.3 – Amend the last sentence of Paragraph a.3 by striking out “and;” and adding a period at the end of Paragraph a.3.

SC-7.05.A.1.a.4 – Delete paragraph in its entirety and insert “Deleted.”

SC-7.05.B – Add the following at the end of paragraph:

Contractor shall include a Manufacturer's Certification or waiver for compliance with Domestic Preference requirements and supporting data, as applicable. Refer to Sample Language for Manufacturer's Certification provided in these Contract Documents.

SC-7.06.A.3.a.2 – Remove “and” from the end of paragraph.

SC-7.06.A.3.a.3 – Add “; and” to the end of paragraph.

SC-7.06.A.3.a.4 – Add the following new paragraph immediately after Paragraph 7.06.A.3.a.3:

4. Comply with Domestic Preference requirements by providing Manufacturer's Certification or waiver, as applicable. Refer to Sample Language for Manufacturers' Certification provided in these Contract Documents.

SC-7.07.A – Amend by adding the following to the end of the paragraph:

The total amount of work subcontracted by the Contractor shall not exceed fifty percent of the Contract price without prior approval from the Owner, Engineer and Agency.

SC-7.07.B – Delete paragraph in its entirety and insert "Deleted".

SC-7.07.E – Delete the second sentence of paragraph and insert the following in its place:

Owner may not require that Contractor use a specific replacement.

7.10 Taxes

SC-7.10 Deleted

SC-7.12.A Amend paragraph by adding the following after "written interpretations and clarifications,":

Manufacturers' Certifications,

7.13 Safety and Protection

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

The following Owner safety programs are applicable to the Work: [Here expressly identify by title and/or date, any such Owner safety programs. If Owner's safety programs are included in or addressed in the Specifications, SC-7.13 may be used to provide a cross-reference to the Specification section].

SC-7.16.A.1.c – Amend paragraph by deleting the last period and adding:

, including Manufacturer's Certification, or waiver for any item in the submittal subject to Domestic Preference requirements. Refer to the Sample Language for Manufacturers' Certification provided in these Contract Documents.

SC-7.16.C.9 – Add new paragraph immediately after Paragraph 7.16.C.8:

9. Engineer's review and approval of a Shop Drawing or Sample shall include review of Manufacturers' Certifications and any waivers in order to document compliance with Domestic Preference requirements, as applicable.

SC-7.17.F – Add new paragraph immediately after Paragraph 7.17.E:

F. Contractor shall certify upon Substantial Completion that all Work and Materials have complied with Domestic Preference requirements. Contractor shall provide Certification to Owner and Engineer. Refer to the Sample Language for Contractor’s Certification provided in these Contract Documents.

ARTICLE 8—OTHER WORK AT THE SITE

8.02 *Coordination*

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

- C. Owner intends to contract with others for the performance of other work at or adjacent to the Site.
 - 1. **[Here identify individual or entirety]** shall have authority and responsibility for coordination of the various contractors and work forces at the Site;
 - 2. The following specific matters are to be covered by such authority and responsibility: **[Here itemize such matters];**
 - 3. The extent of such authority and responsibilities is: **[Here provide the extent].**

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. Owner’s Site Representative will be **[here identify individual or entity]**. The authority and responsibilities of Owner’s Site Representative follow: **[Here describe the duties and activities of the Owner’s Site Representative.]**

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 suggested Supplementary Conditions in this Article.~~

SC-11.02.C – Add new paragraph immediately after Paragraph 11.02.B:

C. The Engineer or Owner shall contact the Agency for concurrence on each Change Order prior to issuance. All Contract Change Orders must be concurred on (signed) by Agency before they are effective.

SC-11.03.A.2 - Add new Paragraph 11.03.A.2 immediately after Paragraph 11.03.A, which shall be renamed Paragraph 11.03.A.1:

2. The Engineer or Owner shall contact the Agency for concurrence on each Work Change Directive prior to issuance. Once authorized by Owner, a copy of each Work Change Directive shall be provided by Engineer to the Agency.

SC-11.05.B – Add the following at the end of this paragraph:

For Owner-authorized changes in the Work, the Contractor will provide the Manufacturer's Certification, or waiver, for materials subject to Domestic Preference requirements except when sole-source is specified, in which case the Engineer will provide the Manufacturer's Certification, or waiver.

SC-11.09.B.2.c – Add new paragraph immediately after Paragraph 11.09.B.2.b:

c. For change orders involving materials subject to Domestic Preference requirements, Contractor shall include a Manufacturer's Certification or waiver, as applicable. Refer to the Sample Language for Manufacturer's Certification provided in these Contract Documents.

ARTICLE 12—CLAIMS

No suggested Supplementary Conditions in this Article.

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

13.01 *Cost of the Work*

SC-13.01 Supplement Paragraph 13.01.B.5.c.(2) by adding the following sentence:

The equipment rental rate book that governs the included costs for the rental of machinery and equipment owned by Contractor (or a related entity) under the Cost of the Work provisions of this Contract is the most current edition of **[name of equipment rental rate book]**.

SC-13.01 Supplement Paragraph 13.01.C.2 by adding the following definition of small tools and hand tools:

- a. For purposes of this paragraph, "small tools and hand tools" means any tool or equipment whose current price if it were purchased new at retail would be less than \$500. **[or insert other threshold price.]**

SC-13.02.C – Delete paragraph in its entirety and insert "Deleted".

13.03 *Unit Price Work*

SC-13.03.E – Delete paragraph in its entirety and replace with SC 13.03.E as shown in the EJCDC C-800 Supplementary Conditions.

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 [number] 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 [number] 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 suggested Supplementary Conditions in this Article.~~

SC-14.03.G – Add new paragraph immediately after Paragraph 14.03.F:

G. Installation of materials that are non-compliant with Domestic Preference requirements shall be considered defective work. Contractor should ensure that Engineer has an approved Manufacturer's Certification, or waiver, prior to any domestic preference compliant item being delivered to the project site.

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

15.01 *Progress Payments*

SC-15.01.B.4 – Add the following language at the end of paragraph:

No payments will be made that would deplete the retainage, place in escrow any funds that are required for retainage or invest the retainage for the benefit of the Contractor.

SC-15.01.B.5 – Add new paragraph immediately after Paragraph 15.01.B.4:

5. The Application for Payment form to be used on this Project is EJCDC® C-620. The Agency must approve all Applications for Payment before payment is made.

SC-15.01.B.6 – Add new paragraph immediately after Paragraph 15.01.B.5:

6. By submitting an Application for Payment, based in whole or in part on furnishing equipment or materials, Contractor certifies that such equipment and materials are compliant with Domestic Preference requirements. Manufacturer's Certification for

material(s) satisfy these requirements. Refer to the Sample Language for Manufacturer's Certification provided in these Contract Documents.

SC-15.01.C.2.d – Add the following new paragraph immediately after Paragraph 15.01.C.2.c:

d. The materials presented for payment in an Application for Payment comply with Domestic Preference requirements.

SC-15.01.D.1 – Delete paragraph in its entirety and insert the following in its place:

The Application for Payment with Engineer's recommendations will be presented to the Owner and Agency for consideration. If both the Owner and Agency find the Application for Payment acceptable, the recommended amount less any reduction under the provisions of Paragraph 15.01.E will become due twenty (20) days after the Application for Payment is presented to the Owner, and the Owner will make payment to the Contractor.

SC-15.01 Add the following new Paragraph 15.01.F:

- F. For contracts in which the Contract Price is based on the Cost of Work, if Owner determines that progress payments made to date substantially exceed the actual progress of the Work (as measured by reference to the Schedule of Values), or present a potential conflict with the Guaranteed Maximum Price, then Owner may require that Contractor prepare and submit a plan for the remaining anticipated Applications for Payment that will bring payments and progress into closer alignment and take into account the Guaranteed Maximum Price (if any), through reductions in billings, increases in retainage, or other equitable measures. Owner will review the plan, discuss any necessary modifications, and implement the plan as modified for all remaining Applications for Payment.

SC-15.02.A – Amend paragraph by striking out the following text: "7 days after".

15.03 *Substantial Completion*

SC-15.03.A – Modify by adding the following after the last sentence:

Contractor shall also submit the Contractor's Certification of Compliance certifying that to the best of the Contractor's knowledge and belief all Iron and Steel products, Manufactured Products, and Construction Materials proposed in the Shop Drawings, Change Orders, and Partial Payment Estimates, and those installed for the Project, comply with Domestic Preference requirements.

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.

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 suggested Supplementary Conditions in this Article.

ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES

17.02 *Arbitration*

SC-17.02 Add the following new paragraph immediately after Paragraph 17.01.

17.02 *Arbitration*

- A. All matters subject to final resolution under this Article will be settled by arbitration administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules (subject to the conditions and limitations of this Paragraph SC-17.02). Any controversy or claim in the amount of \$100,000 or less will be settled in accordance with the American Arbitration Association's supplemental rules for Fixed Time and Cost Construction Arbitration. This agreement to arbitrate will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitration administrator, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in Article 17, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event will any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations.
- C. The arbitrator(s) must be licensed engineers, contractors, attorneys, or construction managers. Hearings will take place pursuant to the standard procedures of the Construction Arbitration Rules that contemplate in-person hearings. The arbitrators will have no authority to award punitive or other damages not measured by the prevailing party's actual damages, except as may be required by statute or the Contract. Any award in an arbitration initiated under this clause will be limited to monetary damages and include no injunction or direction to any party other than the direction to pay a monetary amount.
- D. The Arbitrators will have the authority to allocate the costs of the arbitration process among the parties, but will only have the authority to allocate attorneys' fees if a specific Law or Regulation or this Contract permits them to do so.

- E. The award of the arbitrators must be accompanied by a reasoned written opinion and a concise breakdown of the award. The written opinion will cite the Contract provisions deemed applicable and relied on in making the award.
- F. The parties agree that failure or refusal of a party to pay its required share of the deposits for arbitrator compensation or administrative charges will constitute a waiver by that party to present evidence or cross-examine witness. In such event, the other party shall be required to present evidence and legal argument as the arbitrator(s) may require for the making of an award. Such waiver will not allow for a default judgment against the non-paying party in the absence of evidence presented as provided for above.
- G. No arbitration arising out of or relating to the Contract will include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:
 - 1. the inclusion of such other individual or entity will allow complete relief to be afforded among those who are already parties to the arbitration;
 - 2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration, and which will arise in such proceedings;
 - 3. such other individual or entity is subject to arbitration under a contract with either Owner or Contractor, or consents to being joined in the arbitration; and
 - 4. the consolidation or joinder is in compliance with the arbitration administrator's procedural rules.
- H. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- I. Except as may be required by Laws or Regulations, neither party nor an arbitrator may disclose the existence, content, or results of any arbitration hereunder without the prior written consent of both parties, with the exception of any disclosure required by Laws and Regulations or the Contract. To the extent any disclosure is allowed pursuant to the exception, the disclosure must be strictly and narrowly limited to maintain confidentiality to the extent possible.

17.03 *Attorneys' Fees*

SC-17.03 Add the following new paragraph immediately after Paragraph 17.02. [Note: If there is no Paragraph 17.02, because neither arbitration nor any other dispute resolution process has been specified here in the Supplementary Conditions, then revise this to state "Add the following new Paragraph immediately after Paragraph 17.01" and revise the numbering accordingly].

17.03 *Attorneys' Fees*

- A. For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration

panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

ARTICLE 18—MISCELLANEOUS

18.08 *Assignment of Contract*

SC-18.08 Add the following new paragraph immediately after Paragraph 18.08.A:

- B. The contract dated **[date]** between Owner as “buyer” and **[identify seller]** as “seller” for procurement of goods and special services (“procurement contract”) **[is hereby] [will be]** assigned to Contractor by Owner, and Contractor **[accepts] [will accept]** such assignment. A form documenting the assignment is attached as an exhibit to this Contract.
 - 1. This assignment will occur on the **[Effective Date of the Contract]**, and will relieve the Owner as “buyer” from all further obligations and liabilities under the procurement contract.
 - 2. Upon assignment, the “seller” will be a Subcontractor or Supplier of the Contractor, and Contractor will be responsible for seller’s performance, acts, and omissions, as set forth in Paragraph 7.07 of the General Conditions just as Contractor is responsible for all other Subcontractors and Suppliers.
 - 3. Notwithstanding this assignment, all performance guarantees and warranties required by the procurement contract will continue to run for the benefit of the Owner and, in addition, for the benefit of the Contractor.
 - 4. Except as noted in the procurement contract, all rights, duties and obligations of Engineer to “buyer” and “seller” under the procurement contract will cease **[upon the assignment to Contractor]**.

SC-18.11 – Add new paragraph immediately after Paragraph 18.10:

18.11 *Tribal Sovereignty*

A. No provision of this Agreement will be construed by any of the signatories as abridging or debilitating any sovereign powers of the [insert name of Tribe] Tribe; affecting the trustbeneficiary relationship between the Secretary of the Interior, Tribe, and Indian landowner(s); or interfering with the government-to-government relationship between the United States and the Tribe.

SC-19 – Add the following new Article 19 immediately after Article 18:

Article 19 - FEDERAL REQUIREMENTS

19.01 *Agency Not a Party*

A. This Contract is expected to be funded in part with funds provided by Agency. Neither Agency, nor any of its departments, entities, or employees, is a party to this Contract.

19.02 *Contract Approval*

A. Owner and Contractor will furnish Owner's attorney such evidence as required so that Owner's attorney can complete and execute the "Certificate of Owner's Attorney" before Owner submits the executed Contract Documents to Agency for approval. Refer to Certificate of Owner's Attorney and Agency Concurrence provided in these Contract Documents.

B. Agency concurrence is required on both the Bid and the Contract before the Contract is effective.

19.03 *Conflict of Interest*

A. Contractor may not knowingly contract with a Supplier or Manufacturer if the individual or entity who prepared the Drawings and Specifications has a corporate or financial affiliation with the Supplier or Manufacturer. Owner's officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest or other interest in or a tangible personal benefit from the Contractor. Owner's officers, employees, or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from Contractor or subcontractors.

19.04 *Gratuities*

A. If Owner finds after a notice and hearing that Contractor, or any of Contractor's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of Owner or Agency in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, Owner may, by written notice to Contractor, terminate this Contract. Owner may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which Owner bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract.

B. In the event this Contract is terminated as provided in paragraph 19.04.A, Owner may pursue the same remedies against Contractor as it could pursue in the event of a breach of this Contract by Contractor. As a penalty, in addition to any other damages to which it may be entitled by law, Owner may pursue exemplary damages in an amount (as determined by Owner) which shall not be less than three nor more than ten times the costs Contractor incurs in providing any such gratuities to any such officer or employee.

19.05 *Small, Minority and Women's Businesses*

A. If Contractor intends to let any subcontracts for a portion of the work, Contractor will take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible. Affirmative steps will include:

1. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
2. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
4. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises;
5. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

19.06 *Anti-Kickback*

A. Contractor shall comply with the Copeland Anti-Kickback Act (40 USC 3145) as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Buildings or Public Works Financed in Whole or in Part by Loans or Grants of the United States"). The Act provides that Contractor or subcontractor shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public facilities, to give up any part of the compensation to which they are otherwise entitled. Owner shall report all suspected or reported violations to Agency.

19.07 *Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended*

A. Contractor to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). Violations must be reported to the federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

19.08 *Equal Employment Opportunity*

A. The Contract is considered a federally assisted construction contract. Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 FR 12319, 12935, 3 CFR Part, 1964-1965

Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

19.09 *Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)*

A. Contractors that apply or bid for an award exceeding \$100,000 must file the required certification (RD Instruction 1940-Q Exhibit A-1). The Contractor certifies to the Owner and every subcontractor certifies to the Contractor that it will not and has not used federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining the Contract if it is covered by 31 U.S.C. 1352. The Contractor and every subcontractor must also disclose any lobbying with non-federal funds that takes place in connection with obtaining any federal award. Such disclosures are forwarded from tier to tier up to the Owner. Necessary certification and disclosure forms shall be provided by Owner.

19.10 Environmental Requirements

A. When constructing a Project involving trenching and/or other related earth excavations, Contractor shall comply with the following environmental conditions:

1. Wetlands – When disposing of excess, spoil, or other Construction Materials on public or private property, Contractor shall not fill in or otherwise convert wetlands.

2. Floodplains – When disposing of excess, spoil, or other Construction Materials on public or private property, Contractor shall not fill in or otherwise convert 100-year floodplain areas (Standard Flood Hazard Area) delineated on the latest Federal Emergency Management Agency Floodplain Maps, or other appropriate maps, e.g., alluvial soils on NRCS Soil Survey Maps.

3. Historic Preservation - Applicants shall ensure that Contractors maintain a copy of the following inadvertent discovery plan onsite for review:

a. If during the course of any ground disturbance related to any Project, any post review discovery, including but not limited to, any artifacts, foundations, or other indications of past human occupation of the area are uncovered, shall be protected by complying with 36 CFR § 800.13(b)(3) and (c) and shall include the following:

i. All Work, including vehicular traffic, shall immediately stop within a 50 ft. radius around the area of discovery. The Contractor shall ensure barriers are established to protect the area of discovery and notify the Engineer to contact the appropriate RD personnel. The Engineer shall engage a Secretary of the Interior (SOI) qualified professional archeologist to quickly assess the nature and scope of the

discovery; implement interim measures to protect the discovery from looting and vandalism; and establish broader barriers if further historic and/or precontact properties, can reasonably be expected to occur.

ii. The RD personnel shall notify the appropriate RD environmental staff member, the Federal Preservation Officer (FPO), and State Historic Preservation Office (SHPO) immediately. Indian tribe(s) or Native Hawaiian Organization (NHOs) that have an interest in the area of discovery shall be contacted immediately. The SHPO may require additional tribes or NHOs who may have an interest in the area of discovery also be contacted. The notification shall include an assessment of the discovery provided by the SOI qualified professional archeologist.

iii. When the discovery contains burial sites or human remains, the Contractor shall immediately notify the appropriate RD personnel who will contact the RD environmental staff member, FPO, and the SHPO. The relevant law enforcement authorities shall be immediately contacted by onsite personnel to reduce delay times, in accordance with tribal, state, or local laws including 36 CFR Part 800.13; 43 CFR Part 10, Subpart B; and the Advisory Council on Historic Preservation's Policy Statement Regarding treatment of Burial Sites, Human Remains, or Funerary Objects (February 23, 2007).

iv. When the discovery contains burial sites or human remains, all construction activities, including vehicular traffic shall stop within a 100 ft. radius of the discovery and barriers shall be established. The evaluation of human remains shall be conducted at the site of discovery by a SOI qualified professional. Remains that have been removed from their primary context and where that context may be in question may be retained in a secure location, pending further decisions on treatment and disposition. RD may expand this radius based on the SOI professional's assessment of the discovery and establish broader barriers if further subsurface burial sites, or human remains can reasonably be expected to occur. RD, in consultation with the SHPO and interested tribes or NHOs, shall develop a plan for the treatment of native human remains.

v. Work may continue in other areas of the undertaking where no historic properties, burial sites, or human remains are present. If the inadvertent discovery appears to be a consequence of illegal activity such as looting, the onsite personnel shall contact the appropriate legal authorities immediately if the landowner has not already done so.

vi. Work may not resume in the area of the discovery until a notice to proceed has been issued by RD. RD shall not issue the notice to proceed until it has determined that the appropriate local protocols and consulting parties have been consulted.

vii. Inadvertent discoveries on federal and tribal land shall follow the processes required by the federal or tribal entity.

4. Endangered Species – Contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of Contractor, Contractor will immediately report this evidence to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the U.S. Fish and Wildlife Service.

5. Mitigation Measures – The following environmental mitigation measures are required on this Project: *[Insert mitigation measures from the Letter of Conditions here]*.

19.11 *Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708)*

A. Where applicable, for contracts awarded by the Owner in excess of \$100,000 that involve the employment of mechanics or laborers, the Contractor will comply with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, the Contractor will compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic will be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

19.12 *Debarment and Suspension (Executive Orders 12549 and 12689)*

A. A contract award (see 2 CFR 180.220) must not be made to parties listed on the governmentwide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), “Debarment and Suspension.” SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

19.13 *Procurement of recovered materials*

A. The Contractor will comply with 2 CFR Part 200.322, "Procurement of recovered materials."

19.14 *Domestic Preference*

A. Build America, Buy America Act (BABAA). All Iron and Steel Products, Manufactured Products, and Construction Materials used in this project must comply with the Build America, Buy America Act (BABAA) requirements mandated by Title IX of the Infrastructure Investment and Jobs Act (IIJA), Pub. L. 117-58, §§ 70901-70953. Aggregates such as stone, sand, or gravel do not apply to BABAA.

B. The following waivers apply to this Contract:

1. *BABAA De Minimis, Small Grants and Minor Components*
2. *[add project specific waivers as applicable].*

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	Contactors 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 [number] or later			
DWG	Autodesk® AutoCAD .dwg format Version [number]			
DOC	Microsoft® Word .docx format Version [number]			
EXC	Microsoft® Excel .xls or .xml format Version [number]			
DB	Microsoft® Access .mdb format Version [number]			

EXHIBIT B—FORESEEABLE BAD WEATHER DAYS

Month	Number of Foreseeable Bad Weather Days in Month Based on Precipitation as Rain Equivalent (inches) (1)	Ambient Outdoor Air Temperature (degrees F)	
		Number of Foreseeable Bad Weather Days in Month Based on Low Temperature (at 11:00 a.m.)	Number of Foreseeable Bad Weather Days in Month Based on High Temperature (at 3:00 p.m.)
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			
Notes: 1. Two inches of sleet equal one inch of rain. Five inches of wet, heavy snow equal one inch of rain. Fifteen inches of “dry” powder snow equals one inch of rain.			

EXHIBIT C—GEOTECHNICAL BASELINE REPORT SUPPLEMENT TO THE SUPPLEMENTARY CONDITIONS

1.01 *Definitions*

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

1. *Geotechnical Baseline Report (GBR)*—The interpretive report prepared by or for Owner regarding subsurface conditions at the Site, and containing specific baseline geotechnical conditions that may be anticipated or relied upon for bidding and contract administration purposes, subject to the controlling provisions of the Contract, including the GBR's own terms. The GBR is a Contract Document.
2. *Geotechnical Data Report (GDR)*—The factual report that collects and presents data regarding actual subsurface conditions at or adjacent to the Site, including Technical Data and other geotechnical data, prepared by or for Owner in support of the Geotechnical Baseline Report. The GDR's content may include logs of borings, trenches, and other site investigations, recorded measurements of subsurface water levels, the results of field and laboratory testing, and descriptions of the investigative and testing programs. The GDR does not include an interpretation of the data. If opinions, or interpretive or speculative non-factual comments or statements appear in a document that is labeled a GDR, such opinions, comments, or statements are not operative parts of the GDR and do not have contractual standing. Subject to that exception, the GDR is a Contract Document.

5.03 *Subsurface and Physical Conditions*

SC-5.03 Delete Paragraph 5.03 in its entirety and replace with the following:

5.03 *Subsurface and Physical Conditions*

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

1. those reports of explorations and tests of subsurface conditions at or adjacent to the Site (other than any Geotechnical Data Report or Geotechnical Baseline Report) that contain Technical Data. Such reports are as follows:
 - a. *Report Title*: **[Exact title of the document]**
 - b. *Date of Report*: **[Date report was issued]**
 - c. *Technical Data in report upon which Contractor may rely*: **[Identify Technical Data (for example, "Boring Log, Test Site 3") and specify page number or other reference where Technical Data is located within the report. List multiple Technical Data line items per entry when appropriate.]**
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. Such drawings are as follows:
 - a. *Drawings Title*: **[Exact title of the drawings]**
 - b. *Date of Drawings*: **[Date drawings were issued]**

- c. *Technical Data in drawings upon which Contractor may rely:* **[Identify Technical Data (for example, “Plan View of Rock Outcroppings”) in drawings, or state “All information in drawing” if entire content is Technical Data entitled to reliance; and specify drawing number, page number, or other reference where the Technical Data is located. List multiple Technical Data line items per entry when appropriate.]**
 3. Contractor may examine copies of reports and drawings identified immediately above that were not included with the Bidding Documents at **[location]** during regular business hours, or may request copies from Engineer, at the cost of reproduction.
- 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 SC-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 Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in 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; or
 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 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. *Geotechnical Baseline Report*
 1. This Contract contains a Geotechnical Baseline Report (“GBR”), identified as follows: **[Example: Geotechnical Baseline Report for Northwest Interceptor, dated February 12, 2013, prepared by ABC Geotechnical Engineers, Inc., Sacramento, California]**. This Contract also contains a Geotechnical Data Report (GDR), identified as follows: **[Example: Geotechnical Data Report for Northwest Interceptor, dated June 15, 2012, prepared by ABC Geotechnical Engineers, Inc., Sacramento, California]**.
 2. The GBR and GDR are incorporated as Contract Documents. The GBR and GDR are to be used in conjunction with other Contract Documents, including the Drawings and

Specifications. If there is a conflict between the terms of the GBR and the GDR, the GBR's terms prevail.

3. The GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations (referred to here in the Supplementary Conditions as "Baseline Conditions"). These may include ground, geological, groundwater, and other subsurface geotechnical conditions, and baselines of anticipated Underground Facilities or subsurface structures.
4. The Baseline Conditions will be used to assist in the administration of the Contract's differing site conditions clause at locations where subsurface conditions have been baselined. If a condition is baselined in the GBR, then only the pertinent Baseline Conditions will be used to determine whether there is a differing site condition; and no other indication of that condition in the Contract Documents or Technical Data, or of a condition that describes, quantifies, or measures a similar characteristic of the subsurface, will be used for the differing site condition determination.
5. The Baseline Conditions will not be used to make differing site conditions determinations at locations that have not been baselined in the GBR, or at any location with respect to subsurface conditions that the Baseline Conditions do not address. If Underground Facilities or Hazardous Environmental Conditions are expressly addressed in the Baseline Conditions, then comparison to such Baseline Conditions will be the primary means of determining (a) whether an Underground Facility was shown or indicated with reasonable accuracy, as provided in Paragraph 5.05 of the General Conditions, or (b) whether a Hazardous Environmental Condition was shown or indicated in the Contract Documents as indicated in Paragraph 5.06.H of the General Conditions. As indicated in Paragraph SC-5.04 below, the GDR will be the primary resource for differing site conditions determinations in cases in which the GBR is inapplicable.
6. The descriptions of subsurface conditions provided in the GBR are based on geotechnical investigations, laboratory tests, interpretation, interpolation, extrapolation, and analyses. Neither Owner, Engineer, nor any geotechnical or other consultant warrants or guarantees that actual subsurface conditions will be as described in the GBR, nor is the GBR intended to warrant or guarantee the use of specific means or methods of construction.
7. The behavior of the ground during construction depends substantially upon the Contractor's selected means, methods, techniques, sequences, and procedures of construction. If ground behavior conditions are baselined in the GBR, they are based on stated assumptions regarding construction means and methods.
8. The GBR will not reduce or relieve Contractor of its responsibility for the planning, selection, and implementation of safety precautions and programs incident to Contractor's means, methods, techniques, sequences, and procedures of construction, or to the Work.

5.04 *Differing Subsurface or Physical Conditions*

SC-5.04 Delete Paragraph 5.04 in its entirety and replace with the following:

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice:* If Contractor believes that any subsurface condition that is uncovered or revealed at the Site:
1. differs materially from conditions shown or indicated in the GBR; or
 2. differs materially from conditions shown or indicated in the GDR, to the extent the GBR is inapplicable; or
 3. differs materially from conditions shown or indicated in Contract Documents other than the GBR or GDR, to the extent the GBR and GDR are inapplicable; or
 4. to the extent the GBR and GDR are inapplicable, is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
 5. to the extent the GBR and GDR are inapplicable, is of such a nature as to require a change in the Drawings or Specifications; or
 6. to the extent the GBR and GDR are inapplicable, 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 conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph SC-5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption or continuation 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 or continuation 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 SC-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 of the General Conditions; 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; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph SC-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 must 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 of the General Conditions governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 of the General Conditions governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of

Paragraphs SC-5.03 and SC-5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

SECTION C-801

RUS-MANDATED ENGINEER'S SUPPLEMENTARY CONDITIONS

SC 1.01.A.8 Add the following language at the end of last sentence of Paragraph 1.01.A.8:

The Change Order form to be used on this Project is EJCDC C-941. Agency approval is required before Change Orders are effective.

SC 1.01.A.48 Add the following language at the end of the last sentence of Paragraph 1.01.A.48:

A Work Change Directive cannot change Contract Price or Contract Times without a subsequent Change Order.

SC 1.01.A.49 Add the following new Paragraph after Paragraph 1.01.A.48:

Abnormal Weather Conditions - Conditions of extreme or unusual weather for a given region, elevation, or season as determined by Engineer. Extreme or unusual weather that is typical for a given region, elevation, or season should not be considered Abnormal Weather Conditions.

SC 1.01.A.50 Add the following new Paragraph after Paragraph 1.01.A.49:

Agency - The Project is financed in whole or in part by USDA Rural Utilities Service pursuant to the Consolidated Farm and Rural Development Act (7 USC Section 1921 et seq.). The Rural Utilities Service programs are administered through the USDA Rural Development offices; therefore, the Agency for these documents is USDA Rural Development.

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

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

SC 2.06.B (Non-mandatory). Guidance Note: If the parties do not intend to develop electronic or digital transmittal protocols, then Paragraph 2.06B of the General Conditions may be deleted. Use the following Supplementary Condition in such case:

SC- 2.06.B Delete Paragraph 2.06.B and replace it with the term [Deleted].

Guidance Note, continued: If the use of electronic data, electronic media, or electronic project monitoring is planned for this Project, then the parties may develop a protocol with the assistance of the Engineer or Consensus DOCS form 200.2 may be added to the Construction Contract as an Exhibit. If Consensus DOCS form 200,2 will be used, then include the following Supplementary Condition:

SC-2.06.B Add the following language to the end of 2.06.B:

Special requirements for electronic data apply to this Project. See attached Exhibit entitled

"Electronic Communications Protocol Addendum," Consensus DOCS form 200.2.

SC 4.01.A Amend the last sentence of Paragraph 4.01.A by striking out the following words:

In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

SC 4.05.C.2 Amend Paragraph 4.05.C.2 by striking out the following text: "abnormal weather conditions;" and inserting the following text:

Abnormal Weather Conditions;

SC 5.03 Guidance Note: Amend Paragraph 5.03 using one of the suggested Paragraphs SC 5.03 in EJCDC C-800, concerning reports and drawings of conditions at the Site, and any Technical Data in the reports and drawings on whose accuracy the Contractor may rely.

SC 5.06 Guidance Note: Amend Paragraph 5.06 using one of the suggested Paragraphs SC 5.06 from EJCDC C-800, concerning reports and drawings regarding Hazardous Environmental Conditions at the Site, and any Technical Data in those reports and drawings on whose accuracy the Contractor may rely.

SC 6.03 Guidance Note: Amend Paragraph 6.03 identifying specific insurance coverage requirements using guidance from EJCDC C-800.

SC 7.04.A Amend the third sentence of Paragraph 7.04.A by striking out the following words:

Unless the specification or description contains or is followed by words reading that no like, equivalent, or 'or-equal' item is permitted.

SC 7.04.A.1 Amend the last sentence of Paragraph a.3 by striking out "and;" and adding a period at the end of Paragraph a.3.

SC 7.04.A.1 Delete paragraph 7.04.A.l.a.4 in its entirety and insert the following in its place:
[Deleted]

SC 7.06.A Amend Paragraph 7.06.A by adding the following text to the end of the Paragraph:

The Contractor shall not award work valued at more than fifty percent of the Contract Price to Subcontractors), without prior written approval of the Owner.

SC 7.06.B Delete paragraph 7.06.B in its entirety and insert the following in its place:
[Deleted]

SC 7.06.E Amend the second sentence of Paragraph 7.06.E by striking out "Owner may also require Contractor to retain specific replacements; provided, however, that".

SC 10.03 Guidance Note: Amend Paragraph 10.03 using one of the two alternatives presented in C-800's section on SC 10.03 (either the Engineer will provide Resident Project Representative services on the Project, with specific authority and responsibilities, or Engineer will not provide Resident Project Representative services).

SC 11.07.C Add the following new Paragraph after Paragraph 11.07.B:

All Contract Change Orders must be concurred in by Agency before they are effective.

SC 13.02.C Delete Paragraph 13.02.C in its entirety and insert the following in its place:

[Deleted]

SC 15.01.B Amend the second sentence of Paragraph 15.01.B.1 by striking out the following text; "a bill of sale, invoice, or other."

SC 15.01.B.3 Add the following language at the end of paragraph 15.01.B.3:

No payments will be made that would deplete the retainage, place in escrow any funds that are required for retainage, or invest the retainage for the benefit of the Contractor.

SC 15.01.B.4 Add the following new Paragraph after Paragraph 15.01.B.3:

The Application for Payment form to be used on this Project is EJCDC C-620. The Agency must approve all Applications for Payment before payment is made.

SC 15.01.D.1 Delete Paragraph 15.01.D.1 in its entirety and insert the following in its place:

The Application for Payment with Engineer's recommendations will be presented to the Owner and Agency for consideration. If both the Owner and Agency find the Application for Payment acceptable, the recommended amount less any reduction under the provisions of Paragraph 15.01.E will become due twenty (20) days after the Application for Payment is presented to the Owner, and the Owner will make payment to the Contractor.

SC 15.02.A Amend Paragraph 15.02.A by striking out the following text: "no later than seven days after the time of payment by Owner" and insert "no later than the time of payment by Owner."

SC 18.09 Add the following new paragraph after Paragraph 18.08:

Tribal Sovereignty. No provision of this Agreement will be construed by any of the signatories as abridging or debilitating any sovereign powers of the {insert name of Tribe} Tribe; affecting the trust-beneficiary relationship between the Secretary of the Interior, Tribe, and Indian landowner(s); or interfering with the government-to-government relationship between the United States and the Tribe.

SC 19 Add Article 19 titled "FEDERAL REQUIREMENTS" D SC 19.01 Add the following

language as Paragraph 19.01 with the title "Agency Not a Party":

A. This Contract is expected to be funded in part with funds provided by Agency. Neither

Agency, nor any of its departments, entities, or employees is a party to this Contract.

SC 19.02 Add the following sections after Article 19.01 with the title "Contract Approval":

- A. Owner and Contractor will furnish Owner's attorney such evidence as required so that Owner's attorney can complete and execute the following "Certificate of Owner's Attorney" (Attachment GC-A) before Owner submits the executed Contract Documents to Agency for approval.
- B. Concurrence by Agency in the award of the Contract is required before the Contract is effective.

SC 19.03 Add the following language after Article 19.02.B with the title "Conflict of Interest":

- A. Contractor may not knowingly contract with a supplier or manufacturer if the individual or entity who prepared the plans and specifications has a corporate or financial affiliation with the supplier or manufacturer. Owner's officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest in Contractor. Owner's officers, employees, or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from Contractor or subcontractors.

SC 19.04 Add the following language after Article 19.03.A with the title "Gratuities":

- A. If Owner finds after a notice and hearing that Contractor, or any of Contractor's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of Owner or Agency in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, Owner may, by written notice to Contractor, terminate this Contract. Owner may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which Owner bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract.
- B. In the event this Contract is terminated as provided in paragraph 19.04.A, Owner may pursue the same remedies against Contractor as it could pursue in the event of a breach of this Contract by Contractor. As a penalty, in addition to any other damages to which it may be entitled by law. Owner may pursue exemplary damages in an amount (as determined by Owner) which shall not be less than three nor more than ten times the costs Contractor incurs in providing any such gratuities to any such officer or employee.

SC 19.05 Add the following language after Article 19.04.B with the title "Audit and Access to Records":

- A. Owner, Agency, the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the Contractor which are pertinent to the Agreement, for the purpose of making audits, examinations, excerpts, and transcriptions. Engineer shall maintain all required records for three years after final payment is made and all other pending matters are closed.

SC 19.06 Add the following language after Article 19.05.A with the title "Small, Minority and Women's Businesses":

- A. If Contractor intends to let any subcontracts for a portion of the work, Contractor shall take affirmative steps to assure that small, minority and women's businesses are used when possible as sources of supplies, equipment, construction, and services. Affirmative steps shall consist of: (1) including qualified small, minority and women's businesses on solicitation lists; (2) assuring that small, minority and women's businesses are solicited whenever they are potential sources; (3) dividing total requirements when economically feasible, into small tasks or quantities to permit maximum participation of small, minority, and women's businesses; (4) establishing delivery schedules, where the requirements of the work permit, which will encourage participation by small, minority and women's businesses; (5) using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce; (6) requiring each party to a subcontract to take the affirmative steps of this section; and (7) Contractor is encouraged to procure goods and services from labor surplus area firms.

SC 19.07 Add the following after Article 19.06.A with the title "Anti-Kickback":

- A. Contractor shall comply with the Copeland Anti-Kickback Act (18 USC 874 and 40 USC 276c) as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Buildings or Public Works Financed in Whole or in Part by Loans or Grants of the United States"). The Act provides that Contractor or subcontractor shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public facilities, to give up any part of the compensation to which they are otherwise entitled. Owner shall report all suspected or reported violations to Agency.

SC 19.08 Add the following after Article 19.07.A with the title "Clean Air and Pollution Control Acts":

- A. If this Contract exceeds \$100,000, compliance with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h) and 42 USC 7401et. seq.), section 508 of the Clean Water Act (33 U.S.C. 1368) and Federal Water Pollution Control Act (33 USC 1251 et seq.), Executive Order 11738, and Environmental Protection Agency regulations is required. Contractor will report violations to the Agency and the Regional Office of the EPA.

SC 19.09 Add the following after Article 19.08 with the title "State Energy Policy":

- A. Contractor shall comply with the Energy Policy and Conservation Act (P.L. 94-163). Mandatory standards and policies relating to energy efficiency, contained in any applicable State Energy Conservation Plan, shall be utilized.

SC 19.10 Add the following after Article 19.09 with the title "Equal Opportunity Requirements":

- A. If this Contract exceeds \$10,000, Contractor shall comply with Executive Order 11246, "Equal Employment Opportunity," as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and as supplemented by regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

- B. Contractor's compliance with Executive Order 11246 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative active obligations required by the Standard Federal Equal Employment Opportunity Construction Contract Specifications, as set forth in 41 CFR Part 60-4 and its efforts to meet the goals established for the geographical area where the Contract is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and Contractor shall make a good faith effort to employ minorities and women evenly on each of

its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting Contractor's goals shall be a violation of the Contract, the Executive Order, and the regulations in 41 CFR part 60-4. Compliance with the goals will be measured against the total work hours performed.

- C. Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the Contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the Contract is to be performed.

SC 19.11 Add the following after Article 19.10.C with the title "Restrictions on Lobbying":

- A. Contractor and each subcontractor shall comply with Restrictions on Lobbying (Public Law 101-121, Section 319) as supplemented by applicable Agency regulations. This Law applies to the recipients of contracts and subcontracts that exceed \$100,000 at any tier under a Federal loan that exceeds \$150,000 or a Federal grant that exceeds \$100,000. If applicable, Contractor must complete a certification form on lobbying activities related to a specific Federal loan or grant that is a funding source for this Contract. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. 1352. Each tier shall disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Certifications and disclosures are forwarded from tier to tier up to the Owner. Necessary certification and disclosure forms shall be provided by Owner.

SC 19.12 Add the following after Article 19.11.A with the title "Environmental requirements":

When constructing a Project involving trenching and/or other related earth excavations, Contractor shall comply with the following environmental conditions:

- A. Wetlands - When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert wetlands.
- B. Floodplains - When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert 100-year floodplain areas (Standard Flood Hazard Area) delineated on the latest Federal Emergency Management Agency Floodplain Maps, or other appropriate maps, e.g., alluvial soils on NRCS Soil Survey

Maps.

- C. Historic Preservation - Any excavation by Contractor that uncovers an historical or archaeological artifact or human remains shall be immediately reported to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the State Historic Preservation Officer (SHPO).
- D. Endangered Species - Contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of Contractor, Contractor will immediately report this evidence to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the U.S. Fish and Wildlife Service.
- E. Mitigation Measures - The following environmental mitigation measures are required on this Project: {Insert mitigation measures here}.

SECTION C-802

ENGINEER'S SPECIAL CONDITIONS

1. DESIGNATION OF OWNER AND ENGINEER

All references to the OWNER in SPECIFICATIONS, CONTRACT DOCUMENTS and DRAWINGS shall mean **Hyden-Leslie Co. Water District**.

All references to the ENGINEER in the specifications, CONTRACT DOCUMENTS and DRAWINGS shall mean **Nesbitt Engineering, Inc.**

2. AVAILABLE FUNDS

2.1 The BIDDER'S attention is invited to the financing of this project which is by means of **Abandoned Mine Lands**.

2.2 In the event the total cost of the construction and appurtenant WORK should exceed the amount of money available, the OWNER in making awards of CONTRACT to the successful BIDDER, may reject certain items of WORK or reduce the quantities of BID items so as to award CONTRACT within the limits of available funds. In making an award of CONTRACT to a successful BIDDER, no CONTRACTOR will be allowed any claim for loss of any anticipated profits involving any items of WORK that have been reduced or eliminated by the OWNER. Successful BIDDERS will be determined before consideration of reductions or additions to the original BID.

3. TIME OF COMPLETION

The time allowed for completion of this CONTRACT is as follows:

Two Hundred Ten (210) Calendar Days

The time allowed for completion shall begin at midnight, local time, ten (10) calendar days from the date on which the OWNER, or its authorized representative instructs the CONTRACTOR in writing to start WORK. In case of awarding more than one CONTRACT to a CONTRACTOR, periods of construction are not additive, but will run concurrently. The same applies to divisions within a CONTRACT.

4. WEATHER DAYS

4.1 The CONTRACT completion time stipulated above includes an allowance for an average number of inclement weather days as follows:

	J	F	M	A	M	J	J	A	S	O	N	D
PRECIPITATION	8	12	11	8	9	11	11	7	3	7	6	8
FREEZE TEMP.	4	3	1	0	0	0	0	0	0	0	0	9

The number of days shown above are an average recorded over the last three years for each month's recorded weather conditions for the **JACKSON** Weather Station and provided by the University of Kentucky Agricultural Weather Center. When number of days (including Saturdays, Sundays, and Holidays) of precipitation in excess of 0.1" per day or maximum daily temperatures of 32° F exceed those shown above in any month, the CONTRACTOR shall be entitled to an equal number of additional days for CONTRACT completion.

- 4.2 If, in the ENGINEER'S opinion, sustained bad weather conditions prevent satisfactory performance of the WORK, the ENGINEER may suspend operations for an extended period until weather conditions are favorable. In this event, CONTRACT completion time shall be extended by an equal number of days. Upon suspension of the WORK by the ENGINEER, the CONTRACTOR shall properly protect his WORK during the suspension period.

5. **LIQUIDATED DAMAGES**

It is understood that time is the essence of this CONTRACT, and that the OWNER will sustain damages, monetary and otherwise, in the event of delay in completion of the WORK hereby CONTRACTED.

Therefore, if the CONTRACTOR shall neglect, fail or refuse to complete the WORK within the time herein specified, or any proper extension thereof granted by the OWNER, then the CONTRACTOR does hereby agree, as a part consideration for the awarding of this CONTRACT, to pay to the OWNER the amount specified in the CONTRACT, not as a penalty but as liquidated damages for such breach of CONTRACT as hereinafter set forth, for each and every calendar day the CONTRACTOR shall be in default after the time stipulated in the CONTRACT for completing the WORK.

The said amount is fixed and agreed upon by and between the CONTRACTOR and the OWNER because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER would in such event sustain, and said amount is agreed to be the amount of damages which the OWNER should sustain and said amount shall be retained from time to time by the OWNER from current periodical estimates.

Liquidated damages are fixed at the following amount per calendar day of overrun beyond the date set for completion or authorized extension thereof for the CONTRACT: **\$750.00 Per Calendar Day**

6. **INSURANCE**

The minimum amount of insurance to be furnished by the CONTRACTOR shall be in accordance with the more stringent requirements of Paragraph 21 of the RD General Conditions and this Section 5. Said insurance shall be for the joint protection of the CONTRACTOR, OWNER, and ENGINEER. Insurance against all damage from blasting shall be included in the policies.

All policies written for and applicable to the CONTRACT of which this specification is a part shall provide for a minimum of thirty (30) days advance written notice by certified mail of cancellation or any material change. Notice shall be given both to the OWNER and the ENGINEER. The minimum amounts as found in the STANDARD GENERAL CONDITIONS section.

Nesbitt Engineering Inc shall be listed as additionally insured on the certificate.

7. **PERFORMANCE AND PAYMENT BONDS**

The CONTRACTOR shall furnish separate performance and payment BONDS (forms included elsewhere in these Specifications) issued by an approved bonding company, in an amount at least equal to one-hundred percent (100%) of the CONTRACT PRICE, as security for the faithful performance of this CONTRACT and for the payment of persons performing labor and furnishing materials in connection with this CONTRACT. These BONDS shall be executed by a surety authorized to do business in the Commonwealth of Kentucky and be approved and listed on the U.S. Treasury Listing of Approved Sureties.

100% Performance Bond and 100% Payment Bond for contracts over \$100,000. Single Payment and Performance Bonds may be used for contracts under \$100,000. Performance Bond must be valid for one year beyond date of acceptance of the completed project.

A Performance Bond and a Payment Bond on any other form than the ones attached will not be acceptable. The Surety Bond will ensure payment of all unemployment contributions required under the Unemployment Insurance laws of the Commonwealth of Kentucky and of the Federal Government.

8. **METHOD OF BIDDING**

The method of bidding under this CONTRACT shall be by unit prices as shown on the Bid Schedule.

9. **PERMISSION TO USE PROPERTY OTHER THAN THAT PROVIDED BY OWNER**

Should the CONTRACTOR desire or elect to use, pass over and/or encroach on private property other than that provided by the OWNER, either by fee simple title or right-of-way for a specific purpose, the CONTRACTOR shall obtain such rights

and permission from the legal owner of said private property at his own expense and risk.

10. **ROCK SOUNDING**

Excavation is unclassified. The CONTRACTOR shall be responsible for the determination of the amount of rock excavation required.

11. **OWNER FURNISHED EQUIPMENT AND MATERIALS**

There will be **NO** OWNER furnished equipment or materials for installation in this CONTRACT.

12. **SUBCONTRACTOR LISTING**

In the event the CONTRACTOR contemplates subletting WORK on the CONTRACT, he shall list the SUBCONTRACTOR names and addresses on the attachment provided with the BID form.

Failure on the part of the bidding CONTRACTOR to list SUBCONTRACTORS or write the WORD "None" (if no SUBCONTRACTOR is to be used) may, at the option of the OWNER be cause for rejection of the CONTRACTOR'S BID. SUBCONTRACTOR, as listed by the CONTRACTOR on his bidding form, may not be changed without approval of the OWNER.

13. **SCHEDULING OF CONSTRUCTION ACTIVITIES**

The CONTRACTOR shall, in writing, closely schedule all construction activities of the WORK with a representative of the OWNER specifically designated to provide the customers of the OWNER a minimum five-working-day notification of the impending construction activities of the CONTRACTOR. The CONTRACTOR and the representative of the OWNER shall meet on a daily basis to review the completion progress of previously scheduled construction activities and to estimate specific locations of the CONTRACTOR'S construction activity for the subsequent five (5) working day period. The CONTRACTOR shall perform no unscheduled construction activities unless otherwise directed by the OWNER.

The CONTRACTOR shall schedule and complete all work in accordance with limitations noted in the correspondences from the United States Department of the Interior, Department of Fish and Wildlife Resources, the Kentucky Heritage Council, and the Kentucky Nature Preserves Commission (KNPC) immediately following this section.

Where the WORK requires construction activities adjacent to existing treatment or pumping facilities, the CONTRACTOR shall not interrupt the operation of these facilities and shall provide the OWNER'S operations staff continuous, safe access to such parts of the affected facilities.

The CONTRACTOR will comply with OSHA (P.L. 91-596), the CONTRACT WORK hours and the Safety Standards Act (P.L. 91-54).

14. RESPONSIBILITY REGARDING EXISTING UTILITIES AND STRUCTURES

- 14.1 The existence and location of underground utilities indicated on the PLANS are not guaranteed and shall be investigated and verified in the field by the CONTRACTOR before starting WORK. Excavation in the vicinity of existing structures and utilities shall be carefully done by hand labor.
- 14.2 The CONTRACTOR shall be held responsible for any damage to, and for maintenance and protection of, existing utilities and structures.

15. ACCIDENTS

The CONTRACTOR must promptly report, in writing, to the ENGINEER all accidents whatsoever arising out of, or in connection with, the performance of the WORK, whether on, or adjacent to, the site which caused death, personal injury, or property damages, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the ENGINEER and the OWNER.

16. FINAL PAYMENT

- 16.1 Within thirty (30) days after final inspection and acceptance of the WORK by the ENGINEER and the OWNER, the final estimate for all WORK done, including all retained percentage, shall be compiled by the ENGINEER and furnished to the OWNER. Upon the latter's approval, either in whole or in part, the amount of money thus found due the CONTRACTOR, after all previous payments and other claims, if any are deducted, will be certified for payment, but before final payment is made to any CONTRACTOR on any OWNER or portion thereof, the CONTRACTOR will be required to satisfy the OWNER to the effect that all claims for labor done on the CONTRACT and all material put into the WORK have been fully paid or satisfactorily secured; and the OWNER shall be held harmless by the CONTRACTOR and the SURETY on his BOND from the payment of any money paid under the belief that said claims for labor and materials are not to be prejudiced by any mistaken payment. The acceptance by the CONTRACTOR of payment of the said final estimate shall operate as and shall be a release to the OWNER.

17. RIGHTS OF WAY

- 17.1 Rights of way and easements as designed for the bid plans shall be provided by the OWNER.

18. PROTECTION OF THE PROPERTY OF LANDOWNERS

- 18.1 The CONTRACTOR and all his employees shall exercise care and consideration in traveling over the lands of private property owners from whom rights-of-way and easements were obtained
- 18.2 The CONTRACTOR should likewise use existing roads as much as possible to transport pipe, other materials, and workmen to and from the job.
- 18.3 Carelessness on the part of the CONTRACTOR or any of his employees in leaving gates open, parking cars, trucks or vehicles in such a way as to interfere with farming operations will not be tolerated.
- 18.4 The CONTRACTOR shall deliver materials to the site of the WORK and so conduct his operations in such a manner as to cause no damage to trees, buildings, outbuildings, and other property of landowners.
- 18.5 Trees, fences, poles, and all other property shall be protected unless their removal is authorized by the ENGINEER. Any damaged property shall be restored to as near original condition as possible by the CONTRACTOR.
- 18.6 Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with tree dressing.

19. TEMPORARY UTILITIES

CONTRACTORS shall provide all utilities, including water, needed during construction.

20. CONTRACTOR'S RESPONSIBILITY FOR MATERIALS

- 20.1 Responsibility for Materials Furnished by CONTRACTOR: The CONTRACTOR shall be responsible for all material furnished by him. All such material which is defective in manufacture or has been damaged in transit or in delivery shall be replaced by the CONTRACTOR at his expense.
- 20.2 Responsibility for Materials Furnished by OWNER: The CONTRACTOR'S responsibility for material furnished by the OWNER shall begin upon CONTRACTOR'S acceptance at the point of delivery to him. All such material shall be examined and material defective in manufacture, or damaged in shipment, and/or otherwise damaged, shall be rejected by the CONTRACTOR at the time and place of delivery to him and replaced by the OWNER. Material furnished by the OWNER which is accepted by the CONTRACTOR, but which is discovered prior to acceptance of the WORK (1) to be defective in manufacture shall be replaced by the

OWNER, (2) to have been damaged before or after acceptance by the CONTRACTOR, shall be replaced by the CONTRACTOR. Once accepted by the CONTRACTOR at the point of delivery to him, all defective and/or damaged material discovered prior to final acceptance of the WORK shall be removed by the CONTRACTOR. In such case, the CONTRACTOR shall furnish all labor, equipment and material incidental to replacement and necessary for the completion of the WORK to the satisfaction of the ENGINEER.

- 20.3 Responsibility for Safe Storage: The CONTRACTOR shall be responsible for the safe storage of all material furnished to or by him and accepted by him until it has been incorporated in the completed project.

21. **MINIMUM WAGE RATES**

Federal wage rates are applicable on this project.

22. **PROJECT SIGNS**

Two (2) project signs shall be provided by the CONTRACTOR as described at the end of the supplemental General Conditions section. The sign layout shall be approved by the ENGINEER and shall be placed where directed by the ENGINEER in the field.

23. **Certificate of Good Standing from the Secretary of State's (SOS) Office -**
A printed copy from the web site of the SOS (<http://www.sos.state.ky.us/corporate2/entityname.asp>), which indicates the corporation/partnership, has a Standing of **Good** shall be submitted when requested.

24. **Pipe Cover** - Per the Kentucky Transportation Cabinets (KYTC) Encroachment Permit, all lines constructed within State Right-of-Way (ROW), shall have a minimum cover of 30" above the top of the pipe. In the State ROW and at the ditch a minimum cover of 42" above the top of the pipe at the ditch line. The boring pit shall be constructed according to KYTC requirements. In areas off the KYTC ROW the minimum cover shall be thirty inches (30") unless specifically shown otherwise on the plan sheets.

25. **Blasting** – No blasting will be allowed on this project.

26. **Erosion Control** – the Contractor shall follow industry standards for erosion controls in regard to minimizing siltation and soil erosion during construction.

27. **Encroachment Permit Bond** – The successful CONTRACTOR SHALL obtain the encroachment bond at no additional expense to the project. If required.

28. **Obtaining Permits** – The successful CONTRACTOR SHALL obtain, and/or verify that they have been obtained, any and all permits (state, federal and local) required for the construction of this project. A copy of any permit obtained must be provided to the engineer. Permits that may be required; Section 404 permit

from the Corps of Engineers or a KPDES Storm Water General Permit, NOI. It is required when the project disturbs more than 1 acre. The contractor must complete and submit the NOI at least 48 hours prior to the start of construction.

29. **Compliance Requirements** - Bidders must comply with Title VI of the Civil Rights Act of 1964, the Anti-Kickback Act, Non segregated facilities order 32FR 7439, and the Contract Work Hours Standards Act. This project will be in compliance with, and bidders must comply with Executive Order No. 11246 (EEO) as amended, prohibiting discrimination in employment regarding race, creed, color, sex or national origin. Contractors/subcontractors will comply with 41 CFR 60-4, (affirmative action), to ensure equal opportunity to females and minorities and will apply the time tables and goal set forth in 41 CFR 60-4. Bidders will make positive efforts to use small, minority, women owned and disadvantaged businesses. Provisions for timely periodic payments and for limiting retainage 40 CFR 31.36.
30. **Change Orders** - Change orders to the construction contract must comply with DOW Procurement Guidance for Construction and Equipment Contracts. This contract requires cost, pricing, and certification for change orders exceeding \$100,000 as required by DOW Procurement Guidance for Construction and Equipment Contracts.
31. **Trench Width** – The trench width shall be as shown in the Standard Details, except in rock. In rock the minimum distance from the pipe OD to the trench wall shall be Twelve (12) inches. **Continuous trenching machines shall not be used on this project.**
32. **Occupational Tax/License** - The CONTRACTOR shall verify all requirements and make all necessary payments with the local/county treasurer.
33. **Existing services** – The contractor shall keep existing services in service and reconnect the service to the owner when approved.
34. **Service lines crossing a waterway shall be drilled so that the waterline is anchored in solid rock.**

END OF SECTION

AML PROJECT SIGN

SIGN UP FOR SERVICE TODAY WITH THE HYDEN-LESLIE
CO. WATER DISTRICT

Cutshin WL Replacement – Phase 1 AML WSP

Hyden-Leslie Co. Water District
356 Wendover Rd, Hyden, KY 41749



Andy Beshear
Governor



L.J. Turner, Manager, Hyden-Leslie Co. Water District, KY

Tel. No. 606-672-2791

Engineer: Nesbitt Engineering, Inc., Lexington, KY

Tel. No. 859-233-3111

Contractor: XYZ Contractors, Inc.

Tel. No. XXX-XXX-XXXX

Commissioners:

Kevin Cook

Todd Horton

Dwight Lewis

Ronnie Gay

Teddy Couch

Kentucky Energy & Environment Cabinet

Rebecca Goodman - Secretary

Gordon Sloan - Commissioner

Justin Adams – Director

U.S. Department of Interior

Deb Haaland - Secretary



This project is funded by the Kentucky Division of Abandoned Mine Lands (AML) as
a result of the Infrastructure Investment and Jobs Act

Equal Opportunity Employer

Tel. No. 502-564-2141

Instructions**Notice of Intent (NOI) for Storm Water Discharges Associated with Industrial Activity
To Be Covered Under The KPDES General Permit****WHO MUST FILE A NOTICE OF INTENT (NOI) FORM**

Federal law at 40 CFR Part 122 prohibits point source discharges of stormwater associated with industrial activity to a water body of the Commonwealth of Kentucky without a Kentucky Pollutant Discharge Elimination System (KPDES) permit. The operator of an industrial activity that has such a storm water discharge must submit a NOI to obtain coverage under the KPDES Storm Water General Permit. If you have questions about whether you need a permit under the KPDES Storm Water program, or if you need information as to whether a particular program is administered by the state agency, call the **Storm Water Contact, Industrial Section, Kentucky Division of Water at (502) 564-3410**.

WHERE TO FILE NOI FORM

NOIs must be sent to the following address:

**Section Supervisor
Inventory & Data Management Section
KPDES Branch, Division of Water
Frankfort Office Park
14 Reilly Road
Frankfort, KY 40601**

COMPLETING THE FORM

Type or print legibly in the appropriate areas only. If you have any questions regarding the completion of this form call the **Storm Water Contact, Industrial Section, at (502) 564-3410**.

SECTION I - FACILITY OPERATOR INFORMATION

Give the legal name of the person, firm, public organization, or any other entity that operates the facility or site described in this application. The name of the operator may or may not be the same as the name of the facility. The responsible party is the legal entity that controls the facility's operation, rather than the plant or site manager. Do not use a colloquial name. Enter the complete address and telephone number of the operator.

Enter the appropriate letter to indicate the legal status of the operator of the facility.

F = Federal M = Public (other than federal or state)
S = State P = Private

SECTION II - FACILITY/SITE LOCATION INFORMATION

Enter the facility's or site's official or legal name and complete street address, including city, state, and ZIP code.

SECTION III - SITE ACTIVITY INFORMATION

If the storm water discharges to a municipal separate storm sewer system (MS4), enter the name of the operator of the MS4 (e.g., municipality name, county name) and the receiving water of the discharge from the MS4. (A MS4 is defined as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that is owned or operated by a state, city, town, borough, county, parish, district, association, or other public body which is designed or used for collecting or conveying storm water.)

If the facility discharges storm water directly to receiving water(s), enter the name of the receiving water.

Indicate whether or not the owner or operator of the facility has existing quantitative data that represent the characteristics and concentration of pollutants in storm water discharges. If data is available submit with this form.

List, in descending order of significance, up to four 4-digit standard industrial classification (SIC) codes that best describe the principal products or services provided at the facility or site identified in Section II of this application.

If the facility listed in Section II has participated in Part 1 of an approved storm water group application and a group number has been assigned, enter the group application number in the space provided.

If there are other KPDES permits presently issued for the facility or site listed in Section II, list the permit numbers.

SECTION IV - ADDITIONAL INFORMATION REQUIRED FOR CONSTRUCTION ACTIVITIES ONLY

Construction activities must complete Section IV in addition of Sections I through III. Only construction activities need to complete Section IV.

Enter the project start date and the estimated completion date for the entire development plan.

Provide an estimate of the total number of acres of the site on which soil will be disturbed (round to the nearest acre).

Indicate whether the storm water pollution prevention plan for the site is in compliance with approved state and/or local sediment and erosion plans, permits, or storm water management plans.

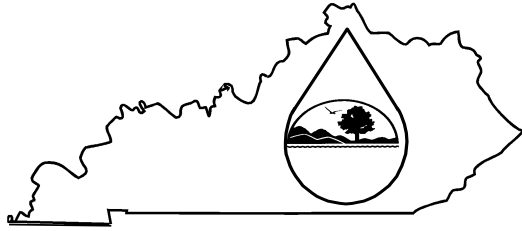
SECTION V - CERTIFICATION

Federal statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

For a corporation: by a responsible corporate officer, which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

For a partnership or sole proprietorship: by a general partner or the proprietor; or

For a municipality, state, Federal, or other public facility: by either a principal executive officer or ranking elected official.

KPDES FORM NOI-SW

Kentucky Pollutant Discharge Elimination System
(KPDES)

**Notice of Intent (NOI)
for Storm Water Discharges
Associated with Industrial Activity Under the
KPDES General Permit**

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form intends to be authorized by a KPDES permit issued for storm water discharges associated with industrial activity. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit.

ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM (See Instructions on back)

I. Facility Operator Information

Name:		Phone:	
Address:		Status of Owner/Operator:	
City, State, Zip Code:			

II. Facility/Site Location Information

Name:			
Address:			
City, State, Zip Code:			
County:			
Site Latitude: (degrees/minutes/seconds)		Site Longitude: (degrees/minutes/seconds)	

III. Site Activity Information

MS4 Operator Name:							
Receiving Water Body:							
Are there existing quantitative data?	Yes ☐ If Yes, submit with this form. No ☐						
SIC or Designated Activity Code Primary		2nd		3rd		4th	
If this facility is a member of a Group Application, enter Group Application Number:							
If you have other existing KPDES Permits, enter Permit Numbers:							

IV. Additional Information Required FOR CONSTRUCTION ACTIVITIES ONLY

Project Start Date:		Completion Date:	
Estimated Area to be disturbed (in acres):			
Is the Storm Water Pollution Prevention Plan in Compliance with State and/or Local Sediment and Erosion Plans?	Yes ☐ No ☐		

V. Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed or Typed Name:		
Signature:	Date:	

Section 00820

FEDERAL WAGE DETERMINATION

Federal wage rates will apply to this project.

"General Decision Number: KY20250060 08/01/2025

Superseded General Decision Number: KY20240060

State: Kentucky

Construction Type: Heavy

Counties: Bell, Breathitt, Carter, Clay, Elliott, Floyd, Harlan, Jackson, Knott, Lawrence, Lee, Leslie, Letcher, Magoffin, Martin, Morgan, Owsley, Perry and Wolfe Counties in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

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

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/03/2025
1	05/16/2025
2	07/11/2025
3	08/01/2025

CARP0064-007 04/01/2025

	Rates	Fringes
CARPENTER (Form Work Only).....	\$ 33.89	24.06

ELEC0369-004 09/04/2024

	Rates	Fringes
LINE CONSTRUCTION		
Equipment Operator.....	\$ 39.15	26%+7.40
Groundman.....	\$ 25.77	26%+7.40
Lineman.....	\$ 43.84	26%+7.40

ENGI0181-011 07/01/2025

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 41.55	19.60
GROUP 2.....	\$ 38.69	19.60
GROUP 4.....	\$ 38.37	19.60

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Bulldozer; Crane; Drill; Grader/Blade; Mechanic; Scraper

GROUP 2 - Bobcat/Skid Steer/Skid Loader; Forklift

GROUP 4 - Oiler

Operators on cranes with booms 150 feet and over (including

jib) shall receive \$1.00 above Group 1 rate; 250 feet and over including jib shall receive \$1.50 above Class 1 rate. Combination Rate: All crane operators operating cranes, where the length of the boom in combination with the length of the piling leads equal or exceeds 150 feet, shall receive \$1.00 above the Group 1 rate.

Employees assigned to work below ground level are to be paid 10% above basic wage rate. This does not apply to open cut work.

IRON0782-010 08/01/2024

	Rates	Fringes
IRONWORKER (Reinforcing & Structural)		
Projects over		
\$20,000,000.00.....	\$ 35.75	26.34
Projects under		
\$20,000,000.00.....	\$ 34.01	24.83

* LAB00189-014 07/01/2025

	Rates	Fringes
LABORER		
Concrete Saw (Hand		
Held/Walk Behind).....	\$ 27.12	19.66
Concrete Worker.....	\$ 26.87	19.66

* LAB01445-001 07/01/2025

	Rates	Fringes
LABORER		
Airtrack Driller.....	\$ 27.77	19.66

SUKY2011-016 06/25/2014

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 21.60	10.35
ELECTRICIAN.....	\$ 32.35	2.18
LABORER: Common or General.....	\$ 21.36	9.39
LABORER: Flagger.....	\$ 18.31	8.89
LABORER: Pipelayer.....	\$ 20.15	8.92

OPERATOR:
Backhoe/Excavator/Trackhoe.....\$ 25.97 10.25

OPERATOR: Loader.....\$ 30.35 0.00

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

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

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

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union

whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE:

UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

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

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

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

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

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

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the

decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

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

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

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

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END OF GENERAL DECISION"



**SUBRECIPIENT REPORT OF COMPLIANCE
WITH DAVIS-BACON LABOR STANDARDS PROVISIONS
FOR FEDERALLY ASSISTED CONTRACTS**

This form is to be submitted with each request for reimbursement of funding by the subrecipient and as requested by the Energy and Environment Cabinet during the project.

SUBRECIPIENT NAME:	
CONTRACT NUMBER:	
PROJECT DESCRIPTION:	
BILLING PERIOD:	TO

Subrecipient Statement:

I confirm to the best of my knowledge and belief that we are in compliance with the requirements of 29 CFR 5.5(a)(1), as referenced in the following requirements of the Davis-Bacon Act and the grant agreement between the Department of Interior (DOI) and the Commonwealth of Kentucky.

Signature (Subrecipient Representative)

Title

Date

Obtaining Wage Determinations

(a) Subrecipients shall obtain the wage determination for the locality in which a covered activity subject to the Davis-Bacon Act (DBA) will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DBA. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the subrecipient shall monitor <https://sam.gov/content/wage-determinations> weekly to ensure that the wage determination contained in the solicitation remains current. The subrecipients shall amend the solicitation if Department of Labor (DOL) issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the subrecipient may document that there is not reasonable time to notify interested contractors of the modification and place supporting documentation into the award/project file to be retained.

(ii) If the subrecipient does not award the contract within 90 days of the closure of the solicitation, any modifications or superseding wage determinations contained in the solicitation shall be effective unless the Energy and Environment Cabinet, at the request of the subrecipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The subrecipient shall monitor <https://sam.gov/content/wage-determinations> on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(b) If the subrecipient carries out activity subject to DBA by issuing a task order, work assignment or similar instrument to an existing contractor rather than by publishing a solicitation, the subrecipient shall insert the

appropriate DOL wage determination from <https://sam.gov/content/wage-determinations> into the ordering instrument.

(c) Subrecipients shall review all subcontracts subject to DBA entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a subrecipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the subrecipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the subrecipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The subrecipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

Contract and Subcontract Provisions

(a) (3)(i) As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week.

Compliance Verification

(a) The subrecipient shall periodically interview a sufficient number of employees entitled to DBA prevailing wages to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from DOL.

(b) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DBA posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, the subrecipient should conduct interviews with a representative group of covered employees within two weeks of each contractor or subcontractor's submission of its initial weekly payroll data. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DBA. Subrecipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c) The subrecipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DBA posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable the subrecipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data. Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DBA. In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The subrecipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Subrecipients must immediately report potential violations of the DBA prevailing wage requirements to the appropriate DOL Wage and Hour local office listed at <https://www.dol.gov/agencies/whd/contact/local-offices>.

SECTION 00825

APPROVAL LETTERS & PERMITS

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

WORK CHANGE DIRECTIVE

Prepared By



Endorsed By



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National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314-2794
(703) 684-2882
www.nspe.org

American Council of Engineering Companies
1015 15th Street N.W., Washington, DC 20005
(202) 347-7474
www.acec.org

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400
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www.asce.org

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of Work Change Directive]

Owner:

Owner's Project No.:

Engineer:

Engineer's Project No.:

Contractor:

Contractor's Project No.:

Project:

Contract Name:

Date Issued:

Effective Date of Work Change Directive:

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

Description:

[Description of the change to the Work]

Attachments:

[List documents related to the change to the Work]

Purpose for the Work Change Directive:

[Describe the purpose for the change to the Work]

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

Notes to User—Check one or both of the following

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

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

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

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

Basis of estimated change in Contract Price:

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

Recommended by Engineer

Authorized by Owner

By:

Title:

Date:

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CHANGE ORDER

Prepared By



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CHANGE ORDER NO.: [Number of Change Order]

Owner:

Engineer:

Contractor:

Project:

Contract Name:

Date Issued:

Owner's Project No.:

Engineer's Project No.:

Contractor's Project No.:

Effective Date of Change Order:

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

Description:

[Description of the change]

Attachments:

[List documents related to the change]

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

Recommended by Engineer (if required)

Authorized by Owner

By: _____

Title: _____

Date: _____

Authorized by Owner

Approved by Funding Agency (if applicable)

By: _____

Title: _____

Date: _____

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FIELD ORDER

Prepared By



Endorsed By



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FIELD ORDER NO.: [Number of Field Order]

Owner:

Owner's Project No.:

Engineer:

Engineer's Project No.:

Contractor:

Contractor's Project No.:

Project:

Contract Name:

Date Issued:

Effective Date of Field Order:

Contractor is hereby directed to promptly perform the Work described in this Field Order, issued in accordance with Paragraph 11.04 of the General Conditions, 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 Section(s):

Drawing(s) / Details (s):

Description:

[Description of the change to the Work]

Attachments:

[List documents supporting change]

Issued by Engineer

By: _____

Title: _____

Date: _____



nesbitt engineering, inc.
providing proven solutions since 1976

227 North Upper Street
Lexington, KY 40507-1016

Technical Specifications

**Cutshin Water Line Replacement Project – Phase 1
Hyden-Leslie County Water District
Hyden, Kentucky**

August 2025

SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.01 SCOPE OF WORK COVERED BY THE CONTRACT

- A. These SPECIFICATIONS and the accompanying DRAWINGS describe the WORK to be done and the materials to be furnished for construction of the **Cutshin Water Line Replacement Project – Phase 1**
- B. The proposed WORK is located in **Leslie County** at the locations shown on the drawings.
- C. Contract WORK in general includes these major items:
 - 1. **Replacement of approximately 14,400 LF of water line & installation of approximately 10,220 LF of new water line & other appurtenances near Cutshin, KY.**
- D. **Special Project Notes:**
 - Valves shall have all control line fittings and rigid tubing made of stainless steel.
 - The contractor will be billed for water usage at a rate equivalent to the Hyden-Leslie County Water District leak adjustment rate of \$6.96/1000 gallons. The volume of usage shall be determined by the City.
 - The contractor shall be responsible for notifying the owner to perform water sampling during the project. The contractor shall be responsible for a \$500.00 fee per sampling event, payable to the owner. A sampling event shall be defined as a three (3) bottle sample technique typically used when a line or line segment is tested for Chlorine and Coliforms and E Coli. Resampling of a line shall result in an additional \$500.00 fee. All lines shall be tested and sampled prior to being placed into service.
 - No blasting shall occur during construction of this project.
 - The contractor must keep water service to the District's customers at all times during construction.
 - Contractor is responsible for ensuring all service lines connected to the existing water distribution system are re-connected to the new water distribution network. Said service lines and water meters are to be replaced with new service line and water meters as part of this contract.
 - Water meter location and quantities shown on the plans are approximations and may not represent the total number of water meters that shall be replaced.

- **Contractor is to locate existing water line and is responsible for keeping existing water line in service at all times.**

1.02 RELATED REQUIREMENTS

- A. Refer to the CONTRACT AGREEMENT for a listing of the CONTRACT DOCUMENTS.
- B. Refer to Section 00700, paragraph 25 for coordination with other contractors.

1.03 WORK SEQUENCE

- A. This project includes WORK that must be properly sequenced and collection system and all other utilities. Sequencing information in this Section is intended to identify constraints with respect to maintenance of existing service, and to assist the CONTRACTOR in planning the WORK. This information does not relieve the CONTRACTOR from his responsibility to complete the WORK on time.
- B. All existing water services must remain active during construction and residential and commercial traffic flow shall be maintained during construction.

Temporary pumping and piping facilities for rerouting the flows shall be provided by the CONTRACTOR as required to maintain service.

- C. The CONTRACTOR shall plan, schedule and accomplish the WORK of this Contract to avoid interruption of system service. Should any such interruptions become necessary, the CONTRACTOR shall notify the OWNER and ENGINEER in writing of such need as far ahead of the interruption as possible, but in no case less than one (1) week. The CONTRACTOR must state in his notification of need to interrupt the existing system at least the following:
 - 1. Construction sequence to minimize the interruption time and propose time-of-day that WORK would be accomplished.
 - 2. Expected length of time of the interruption.
 - 3. Alternate procedures in the event the expected time is exceeded.
 - 4. List of all equipment and material that must be on hand to complete the WORK.
- D. The ENGINEER shall review the CONTRACTOR'S written notification, and the ENGINEER and OWNER must concur that the proposed interruption is acceptable prior to commencement of the interruption

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all necessary labor, machinery, tools, apparatus, equipment, materials, service, other necessary supplies and perform all work including all excavation and backfilling (without additional compensation, except where specifically set out in these specifications) at the unit or lump sum bid price for the items or work described under PART 2 of this section.

1.02 PROGRESS AND PAYMENTS SCHEDULES

- A. Within fifteen (15) days after the date of formal execution of the AGREEMENT, the Contractor shall prepare and submit to the Engineer, for approval, a construction schedule which depicts the Contractor's plan for completing the contract requirements and show work placement in dollars versus contract time. The Contractor's construction schedule must be approved by the Engineer before any payments will be made on this contract.
- B. Within fifteen (15) days after the date of formal execution of the CONTRACT AGREEMENT, the Contractor shall prepare and submit to the Engineer, for approval, a periodic estimate which depicts the Contractor's cost for completing the contract requirements and show by major unit of the project work, the Contractor's dollar value for the material and the labor (two separate amounts) to be used as a basis for the periodic payments. The Contractor's periodic estimate must be approved by the Engineer before any payments will be made on this contract.
- C. The Engineer's decision as to sufficiency and completeness of the Contractor's construction schedule and periodic estimate will be final.
- D. The Contractor must make current, to the satisfaction of the Engineer, the construction schedule and periodic estimate each time he requests a payment on this contract.
- E. The Contractor's construction schedule and periodic estimate must be maintained at the construction site available for inspection and shall be revised to incorporate approved change orders as they occur.
- F. When the Contractor requests a payment on this contract, it must be on the approved periodic estimate and be current. Further, the current periodic estimate and construction schedule (both updated and revised) shall be submitted for review and approval by the Engineer before

monthly payments will be made by the Owner. The Contractor shall submit six (6) current copies of each (periodic estimate and construction schedule) when requesting payment.

1.03 CONDITIONS FOR PAYMENT

- A. The Owner will make payments for acceptable work in place and materials properly stored on-site. The value of payment shall be as established on the approved construction schedule and periodic estimate, EXCEPT the Owner will retain ten percent (10%) of the work in place and a percentage as hereinafter listed for items properly stored or untested.
- B. No payment will be made for stored materials unless a proper invoice from the supplier is attached to the pay request. Further, no item whose value is less than \$1,000.00 will be considered as stored materials for pay purposes.
- C. Payment for pipeline items shall be limited to eighty percent (80%) of the bid price until the pipeline items have been tested and accepted by the Engineer.
- D. Payment for equipment items shall be limited to eighty-five percent (85%) of their scheduled value (materials portion only) until they are set in place. Eighty-five percent (85%) payment for stored materials and equipment shall be contingent on proper on-site storage as recommended by the manufacturer or required by the Engineer.
- E. Payment for equipment items set in-place shall be limited to ninety percent (90%) of their scheduled value until they are ready for operation and have been certified by the manufacturer. Ninety percent (90%) payment for installed equipment shall be contingent on proper routine maintenance of the equipment in accordance with the manufacturer's recommendations.
- F. Payment for equipment items set in place and ready for operation shall be limited to ninety-five percent (95%) of their scheduled value until all acceptance tests have been completed and the required manufacturer's pre-startup operator's training has been completed.
- G. Payment for the labor portion of equipment items will be subject only to the degree of completeness and the appropriate retainage.
- H. The Owner may reduce the percent of retainage once the project has achieved satisfactory progress and is at the fifty percent (50%) mark. If the percent of retainage is reduced, the dollar amount of retainage for work-in-place will not be reduced but will remain constant following the fifty percent (50%) constructed status. The retainage on the equipment items shall be determined as defined hereinbefore.
- I. Additionally, the Owner may reinstate the retainage to a full ten percent (10%) of the scheduled value of work-in-place and material items should

the Owner, at its discretion, determine that the Contractor is not making satisfactory progress or there is other specific cause for such withholding.

1.04 CLAIMS FOR EXTRA WORK

- A. If the Contractor claims that any instructions by Drawings or otherwise involve extra cost, he shall give the Engineer written notice of said claim within ten (10) days after the receipt of such instructions, and in any event before proceeding to execute the work, stating clearly and in detail the basis of his claim or claims. No such claim shall be valid unless so made.
- B. Claims for additional compensation for extra work, due to alleged errors in spot elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work than would reasonably be estimated from the Drawings and/or topographical maps issued.
- C. Any discrepancies which may be discovered between actual conditions and those represented by the topographical maps and/or Drawings shall at once be reported to the Engineer, and work shall not proceed, except at the Contractor's risk, until written instructions have been received by him from the Engineer.
- D. If, on the basis of the available evidence, the Engineer determines that an adjustment of the Contract Price or time is justifiable, the procedure shall then be as provided herein for "Changes in the Work".
- E. By execution of this Contract, the Contractor warrants that he has visited the site of the proposed work and fully acquainted himself with the existing site conditions relating to construction and labor, and that he fully understands the facilities, difficulties, and restrictions attending the execution of the work under this Contract. The Contractor further warrants that he has thoroughly examined and is familiar with the Drawings, Specifications and all other documents comprising the Contract. The Contractor further warrants that by execution of this Contract his failure when he was bidding on this Contract to receive or examine any form, instrument or document, or to visit the site and acquaint himself with conditions there existing, in no way relieves him from any obligation under the Contract, and the Contractor agrees that the Owner shall be justified in rejecting any claim based on facts regarding which he should have been on notice as a result thereof.

1.05 DETERMINATION OF THE VALUE OF EXTRA (ADDITIONAL) OR OMITTED WORK

- A. The value of extra (additional) or omitted work shall be determined in one or more of the following ways:
 - 1. On the basis of the actual cost of all the items of labor (including

on-the-job supervision), materials, and use of equipment, plus a maximum 15 percent for added work or a minimum 15 percent for deleted work which shall cover the Contractor's general supervision, overhead and profit. In case of subcontracts, the 15 percent (maximum for added work and minimum for deleted work) is interpreted to mean the subcontractor's supervision, overhead and profit, and an additional 5 percent (maximum for added work and minimum for deleted work) may then be added to such costs to cover the General Contractor's supervision, overhead and profit. The cost of labor shall include required insurance, taxes and fringe benefits. Equipment costs shall be based on current rental rates in the areas where the work is being performed but, in no case shall such costs be greater than the current rates published by the Associated Equipment Distributors, Chicago, Illinois.

2. By estimate and acceptance in a lump sum.
 3. By unit prices named in the Contract or subsequently agreed upon.
- B. Provided, however, that the cost or estimated cost of all extra (additional) work shall be determined in advance of authorization by the Engineer and approved by the Owner.
- C. All extra (additional) work shall be executed under the conditions of the original Contract. Any claim for extension of time shall be adjusted according to the proportionate increase or decrease in the final total cost of the work unless negotiated on another basis.
- D. Except for over-runs in contract unit price items, no extra (additional) work shall be done except upon a written Field Order Directive, or Change Order from the Engineer, and no claim on the part of the Contractor for pay for extra (additional) work shall be recognized unless so ordered in writing by the Engineer.

PART 2 – PRODUCTS

2.01 WATER LINES (BID ITEMS #1 THRU #4)

Payment for **Water lines** will be made at the contract unit price per linear foot in place, which shall include compensation for all labor, material and equipment required for furnishing and installing pipe; excavation (including rock excavation); dewatering; bedding material; laying; jointing; pipe anchoring; erosion control measures; temporary trench shoring; sheeting and bracing; initial and final backfill, seed and straw of all areas disturbed during construction activities; tracer wire; waterline markers; hydrostatic testing, flushing, disinfecting, and

dechlorinating; and any utility relocation if necessary. Incidental to the construction of the waterline shall be crushed stone, asphalt, or concrete surface replacement (in kind), replacement or repair to drainage ditches, rip rap ditches, curb and gutter, and sidewalks.

All tie-ins to the existing water line shall be incidental to the installation of the water line. Contractor is to uncover & verify tie-in sizes before installation of gate valve & box.

Miscellaneous fittings required to complete the installation as shown on the drawings shall be incorporated into the unit price per linear foot of pipe. Such fittings include but are not limited to elbows, tees, wyes and mechanical restraint.

2.02 STEEL CASING PIPE, BORE & JACK (BID ITEM #5)

Payment for **Steel Casing Pipe, Jack & Bore** will be made at the contract unit price per linear foot, which shall include compensation for all labor, material and equipment required for furnishing and installing the **jack & bore, casing pipe** (size & material specified), and **carrier pipe** for the equivalent length as the casing (LF specified); casing spacers; casing pipe end seals; tree removal; clearing and grubbing; excavation (including rock excavation); excavation (including rock excavation) of starter and receiver pits; dewatering; crushed stone bedding material; laying; jointing; pipe anchoring; materials; erosion control measures; temporary trench shoring; sheeting and bracing; initial and final backfill; hauling cleanup; seed and straw of all areas disturbed during construction activities; tracer wire; marker posts; terminal for tracer wire; testing of the completed carrier pipe; fittings; and any existing utility relocation if necessary. This item shall also include pipe anchors at each end of the bore to prevent the creep or contraction of the bore pipe. Incidental to the installation of the casing pipe and bore and jack shall be crushed stone, asphalt or concrete surface replacement (in kind), replacement or repair to drainage ditches, culverts (in kind), rip rap ditches, curb and gutter, gate valve concrete collar, fences, and sidewalks. Note that this work includes payment for the carrier pipe and its installation. Leak detection shall be included in the unit price if indicated on the plans.

Note that this work includes payment for the carrier pipe and its installation.

Miscellaneous fittings required to complete the installation as shown on the drawings shall be incorporated into the unit price. Such fittings include but are not limited to adapters, elbows, tees, wyes and mechanical restraint.

2.03 ROAD, CREEK, ENTRANCE, OR UTILITY CROSSING CASING PIPE INCLUDING CARRIER PIPE (OPEN CUT) (BID ITEM #6)

Payment for the **Road, Creek, Entrance, or Utility Crossing Casing Pipe (Open Cut)** will be made at the contract unit price per linear foot in place, which shall include compensation for all labor, material and equipment required for furnishing and installing the casing pipe (size & material specified) and **carrier**

pipe for the equivalent length as the casing (LF specified); tree removal, clearing and grubbing, excavation (including rock excavation); dewatering; bedding material; laying; jointing; pipe anchoring; erosion control measures; temporary trench shoring; sheeting and bracing; initial and final backfill, hauling, cleanup, seed and straw of all areas disturbed during construction activities; tracer wire; terminal for tracer wire; testing of the completed carrier pipe and fittings; and existing utility relocation if necessary. Incidental to the installation of the casing pipe shall be crushed stone, asphalt, or concrete surface replacement (in kind), replacement or repair to drainage ditches, rip rap ditches, curb and gutter, fences, and sidewalks.

Note that this work includes payment for the carrier pipe and its installation.

Miscellaneous fittings required to complete the installation as shown on the drawings shall be incorporated into the unit price. Such fittings include but are not limited to as adapters, elbows, tees, wyes and mechanical restraint. Contractor shall notify OWNER and the Owner of the Utility to be crossed or any utility that lacks separation and requires casing pipe, 72 hours prior to any construction activities on this pay item.

2.04 DIRECTIONAL DRILL (BID ITEMS #7 THRU #15)

Payment for **Directional Drill** will be made at the contract lump sum price, which shall include compensation for all labor, material and equipment required for furnishing and installing pipe, excavation (including rock excavation), dewatering, bedding material, laying, jointing, pipe anchoring, erosion control measures, temporary trench shoring, sheeting and bracing, and initial and final backfill, seed and straw of all areas disturbed during construction activities, tracer wire; waterline markers; testing of the completed lines, and any utility relocation if necessary.

Miscellaneous fittings required to complete the installation as shown on the drawings shall be incorporated into the unit price. Such fittings include but are not limited to adapters, elbows, tees, wyes and mechanical restraint.

2.05 GATE VALVE & BOXES (BID ITEMS #16 THRU #18)

Payment for the **Gate Valves & Boxes** will be made at the contract unit price per assembly, which shall include compensation for all labor, material and equipment required for furnishing and installing Gate Valve & Box; excavation (including rock excavation); dewatering; bedding material; laying; jointing; pipe anchoring; erosion control measures; temporary trench shoring; sheeting and bracing; initial and final backfill, seed and straw of all areas disturbed during construction activities; tracer wire; terminal for tracer wire; testing of the completed valves; and fittings. Incidental to the installation of the Gate Valve & Box shall be valve box, crushed stone, asphalt, or concrete surface replacement (in kind), replacement or repair to drainage ditches, rip rap ditches, curb and gutter, gate valve concrete collar and sidewalks.

Miscellaneous fittings required to complete the installation as shown on the

drawings shall be incorporated into the unit price. Such fittings include but are not limited to adapters, elbows, tees, wyes and mechanical restraint.

2.06 FLUSHING HYDRANT ASSEMBLY (BID ITEMS #19 & #20)

Payment for the **Flushing Hydrant Assembly** will be made at the contract unit price per assembly, which shall include compensation for all labor, material and equipment required for furnishing and installing hydrant, valve & box; excavation (including rock excavation); dewatering; bedding material; laying; jointing; pipe anchoring; erosion control measures; temporary trench shoring; sheeting and bracing; initial and final backfill, seed and straw of all areas disturbed during construction activities; tracer wire; marker posts; terminal for tracer wire; testing of the completed lines; and any utility relocation if necessary. Incidental to the installation of the hydrant assembly shall be valve box, crushed stone, asphalt, or concrete surface replacement (in kind), replacement or repair to drainage ditches, rip rap ditches, curb and gutter, gate valve concrete collar and sidewalks.

Miscellaneous fittings required to complete the installation as shown on the drawings shall be incorporated into the unit price. Such fittings include but are not limited to adapters, elbows, tees, wyes and mechanical restraint.

2.07 COMBINATION AIR RELEASE VALVE (BID ITEM #21)

Payment for the **Combination Air Release Valve (CARV)** assembly will be made at the contract unit price per assembly, which shall include compensation for all labor, material and equipment required for furnishing and installing CARV & box; excavation (including rock excavation); dewatering; bedding material; laying; jointing; pipe anchoring; erosion control measures; temporary trench shoring; sheeting and bracing; initial and final backfill, seed and straw of all areas disturbed during construction activities; tracer wire; terminal for tracer wire; and any utility relocation if necessary. Incidental to the installation of the air release valve shall be valve box, crushed stone, asphalt, or concrete surface replacement (in kind), replacement or repair to drainage ditches, rip rap ditches, curb and gutter, gate valve concrete collar and sidewalks.

2.08 LEAK DETECTION ASSEMBLY (BID ITEMS #22 & #23)

Payment for the **Leak Detection Assembly** will be made at the contract unit price per assembly, which shall include compensation for all labor, material and equipment required for furnishing and installing meter, valves & boxes; excavation (including rock excavation); dewatering; bedding material; laying; jointing; pipe anchoring; erosion control measures; temporary trench shoring; sheeting and bracing; initial and final backfill, seed and straw of all areas disturbed during construction activities; tracer wire; marker posts; terminal for tracer wire; testing of the completed lines; and any utility relocation if necessary. Incidental to the installation of the leak detection assembly shall be meters, valve boxes, crushed stone, asphalt, or concrete surface replacement (in kind), replacement or repair to drainage ditches, rip rap ditches, curb and gutter, gate valve concrete collar and sidewalks.

Miscellaneous fittings required to complete the installation as shown on the drawings shall be incorporated into the unit price. Such fittings include but are not limited to adapters, elbows, tees, wyes and mechanical restraint.

2.09 MASTER METERS & PRESSURE REDUCING VALVES & VAULTS (BID ITEMS #24 THRU #26)

Payment for the **Master Meters & Pressure Reducing Valves & Vaults** assembly will be made at the contract lump sum price, which shall include compensation for all labor, material and equipment required for furnishing and installing Master Meters & PRVs & vaults as shown on detail sheets included in plan set; excavation (including rock excavation); site work; tree removal; installing piping; valves; dewatering; bedding material; laying; jointing; pipe anchoring; erosion control measures; temporary trench shoring; sheeting and bracing; initial and final backfill, seed and straw of all areas disturbed during construction activities; tracer wire; marker posts; terminal for tracer wire; testing of the completed lines; and any utility relocation if necessary. Incidental to the installation of the Master Meter & PRV vaults shall be valve boxes, crushed stone, asphalt, or concrete surface replacement (in kind), replacement or repair to drainage ditches, rip rap ditches, curb and gutter, gate valve concrete collar and sidewalks.

Miscellaneous fittings required to complete the installation as shown on the drawings shall be incorporated into the unit price. Such fittings include but are not limited to as adapters, elbows, tees, wyes and mechanical restraint.

2.10 5/8" x 3/4" METERS (KAMSTRUP FLOWIQ 2200 WITH ACOUSTIC LEAK DETECTION) WITH RADIO READ (BID ITEM #27)

Payment for the **Meters** will be made at the contract unit price per assembly, which shall include compensation for furnishing and installation of the new meters.

2.11 TANDEM SETTER & TUB WITH IPRV (INSTALLED) (BID ITEM #28)

Payment for the **Tandem Setter & Tub with IPRV** will be made at the contract unit price per assembly, which shall include compensation for all labor, material and equipment required for furnishing and installing, new meter tub, new tub lid, new copper setter, individual pressure reducing valve (when required), etc.; excavation (including rock excavation); dewatering; bedding material; laying; jointing; pipe anchoring; erosion control measures; temporary trench shoring; initial and final backfill, seed and straw of all areas disturbed during construction activities. Incidental to the installation shall be necessary fittings, any work required to make installation complete, crushed stone, asphalt, or concrete surface replacement (in kind), replacement or repair to drainage ditches, rip rap ditches, curb and gutter and sidewalks.

New water meter tubs shall be installed per local utility ordinances.

2.12 SERVICE TUBING (BID ITEM #29)

Payment for **Service Tubing** will be made at the contract unit price per linear foot in place, which shall include compensation for all labor, material and equipment required for furnishing and installing pipe; excavation (including rock excavation); dewatering; bedding material; laying; jointing; pipe anchoring; erosion control measures; temporary trench shoring; sheeting and bracing; initial and final backfill, seed and straw of all areas disturbed during construction activities; reconnection to existing yoke; testing of the completed lines; and any utility relocation if necessary. Incidental to the installation of the service tubing shall be crushed stone, asphalt, or concrete surface replacement (in kind), replacement or repair to drainage ditches, rip rap ditches, curb and gutter, and sidewalks.

Miscellaneous fittings required to complete the installation as shown on the drawings shall be incorporated into the unit price per linear foot of pipe. Such fittings include but are not limited to as service saddle, elbows, tees, wyes and mechanical restraint.

2.13 REMOVE ABANDONED FLUSHING HYDRANT ASSEMBLIES & VALVE BOXES (BID ITEM #30)

Payment for the **Removal of Abandoned Flushing Hydrants & Valve Boxes** will be made at the contract lump sum price, which shall include compensation for all labor, material and equipment required for the removal of flushing hydrants & valve boxes and replacement or repair to asphalt, or concrete surface, drainage ditches, rip rap ditches, curb and gutter, and sidewalks. Hydrants shall be removed a minimum of 20" below the finish grade. Valve boxes shall include the upper half and lid. All materials shall be properly disposed of by contractor.

PART 3 QUANTITIES OF ESTIMATE

- A. Wherever the estimated quantities of work to be done and materials to be furnished under this contract are shown in any of the documents, including the Bid Proposal, they are given for use in comparing bids and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the work contemplated by this contract, and such increase or diminution shall not give cause for claims or liability for damages. The Engineer will not be financially responsible for any omissions from the Contract Documents and therefore not included by the Contractor in his proposal.
- B. Aerial photographs utilized for plan sheets in the Contract Documents are indicated at an approximate scale and shall not be scaled for quantity take-offs. The quantities listed in the bid schedule are given for use in comparing bids and may not be the actual quantities to be installed. It is

the Contractor's responsibility to field verify the bid item quantities to be installed prior to the ordering of materials. Payment on unit price contracts are based on actual quantities installed. The Owner or Engineer will not be financially responsible for any shortage of the bid items or overrun of bid items ordered for the quantities.

- C. The actual quantities of all materials to be used for this project shall be field verified prior to the Contractor ordering the necessary materials. The quantity listed in the bid schedule is given for use in comparing bids and may increase or diminish as may be deemed necessary or as directed by the Owner. Any such increase or diminution shall not give cause for claims or liability for damages. The Engineer or Owner will not be financially responsible for any charges incurred for restocking of materials ordered.

- END OF SECTION -

SECTION 01060

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 LABOR REGULATIONS ON KENTUCKY PUBLIC WORKS PROJECTS

- A. All Public Works Project submitted for BIDS and constructed by a Public Authority in the State of Kentucky are subject to the provisions of the Kentucky Revised Statutes, Chapter 337, entitled Wages and Hours as may be amended from time to time.

CONTRACTORS are hereby advised that both State and Federal labor wage decisions are applicable to this contract. This does not guarantee nor infer that employees may be obtained for these rates. Should the CONTRACTOR choose or find it necessary to pay higher wage rates, the OWNER will not be liable for such higher rates.

1.02 ACCESS TO WORK

- A. The representative of the OWNER, the ENGINEER, the U.S. Environmental Protection Agency, the Kentucky Division of Water, OSHA and related agencies shall have access to the WORK wherever it is in preparation or progress, and the CONTRACTOR shall provide proper facilities for such access and inspection.

1.03 LOCAL GOVERNMENT REQUIREMENTS

- A. The CONTRACTOR and all SUBCONTRACTORS and SUPPLIERS shall fully comply with all local government requirements.
- B. Construction debris must be disposed in accordance with the local Solid Waste Management Plan, and with DWM regulatory requirement.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 GENERAL

1.01 PRE-CONSTRUCTION CONFERENCES

- A. Prior to commencing the work, a pre-construction conference will be held and representatives of the following organizations shall have at least one (1) representative in attendance:

OWNER, ENGINEER, CONTRACTOR, major Subcontractors, and representatives of the appropriate State and Federal agencies as they choose.

- B. The pre-construction conference will be for the purpose of reviewing procedures to be followed concerning the orderly flow of required paperwork; coordination of the various parties involved with the project, review of shop drawing submittals, contract time, liquidated damages, payment estimates, change orders, and other items to the parties involved.

1.02 PROGRESS MEETINGS

- A. A progress meeting will be held once each month to review progress of the work, discuss problems encountered or foreseen, coordinate for the following month with the OWNER, and answer any questions as they arise.
- B. The organizations listed under 1.01 above shall have at least one representative in attendance at each meeting.

1.03 SCHEDULE UPDATE MEETINGS

- A. Schedule update meetings shall be in accordance with schedule requirements in Division 1, Section 01310.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. This section specifies the general methods and requirements of submissions applicable to the following WORK-related submittals:

1. General Procedures for Submittals
2. Construction Schedule
3. Schedule of Values and Payments
4. Schedule of SHOP DRAWING Submittals
5. SHOP DRAWINGS, Product Data, Samples and O&M Instructions
6. Construction Photographs
7. Test Reports
8. Manufacturer's Certificates
9. Manufacturer's Instructions
10. Contractor's Responsibility
11. Submission Requirements
12. Resubmission Requirements

Additional general submissions requirements are contained in paragraphs 5.1 through 5.7 of the General Conditions. The CONTRACTOR is responsible for the submittal of all weekly payrolls, monthly utilization and other required forms and reports, including reports and forms from his SUBCONTRACTORS. The prompt submittal of all required reports and forms will help to insure the timely processing of pay request. Detailed submittal requirements will be specified in the technical SPECIFICATIONS sections.

1.02 GENERAL PROCEDURES FOR SUBMITTALS

A. Coordination of Submittal Times:

The CONTRACTOR shall prepare and transmit each submittal sufficiently in advance of performing the related WORK or other applicable activities, or within the time specified in the individual

WORK section of the SPECIFICATIONS, so that the installation will not be delayed by processing times including disapproval and re-submittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery and similar sequenced activities. No extension of time will be authorized because of the WORK.

1.03 CONSTRUCTION SCHEDULE

- A. In addition to the progress schedule requirements specified in Article 3 of the General Conditions, the CONTRACTOR shall, within ten (10) days after the NOTICE TO PROCEED provide and submit to the ENGINEER for review the schedule he plans to maintain in order to successfully construct the WORK within the time allotted. The schedule shall account for all WORK of the CONTRACTOR and his SUBCONTRACTORS.
- B. The CONTRACTOR shall update the schedule information monthly and submit the update information to the ENGINEER at the same time the pay estimate is prepared. The schedule shall contain all of the items of the periodic estimate and pay schedule.
- C. The CONTRACTOR bears full responsibility for scheduling all phases and stages of the WORK including his SUBCONTRACTOR WORK to insure its successful prosecution and completion within the time specified in accordance with all provisions of these SPECIFICATIONS.
- D. Refer to Section 01310 for additional requirements.

1.04 SCHEDULE OF VALUES AND PAYMENTS

- A. Within the (10) days after award of the Contract the CONTRACTOR shall submit to the OWNER in triplicate, a breakdown of the pay items, including a schedule of values and a schedule of payments. This breakdown shall be subject to approval by the OWNER, and when so approved shall become the basis for determining progress payments and for negotiation of CHANGE ORDERS, if required.

1.05 SCHEDULE OF SHOP DRAWING SUBMITTALS

- A. The CONTRACTOR shall, within ten (10) days after the NOTICE TO PROCEED provide and submit to the ENGINEER for review a SCHEDULE OF SHOP DRAWING SUBMITTALS. The schedule shall account for all materials used by the CONTRACTOR and his SUBCONTRACTORS.
- B. The schedule shall be organized to reflect the respective specification division under which it applies.

1.06 SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND O & M INSTRUCTIONS

- A. Shop Drawings

1. SHOP DRAWINGS, as defined in the General Conditions, and as specified in the technical SPECIFICATIONS include, but are not necessarily limited to custom-prepared data such as fabrication and erection/installation DRAWINGS, scheduled information, setting diagrams, actual shop WORK manufacturing instructions, custom templates, special wiring diagrams, coordination DRAWINGS, individual system of equipment inspection and test reports including performance curves and certifications, as applicable to the WORK.
2. All details on SHOP DRAWINGS submitted for review shall show clearly the relation of the various parts to the main member and lines of the structure, and where correct fabrication of the WORK depends upon field measurements, such measurements shall be made and noted on the SHOP DRAWINGS before being submitted for review by the ENGINEER.
3. Unless otherwise specified, the CONTRACTOR is not required to resubmit SHOP DRAWINGS on existing equipment. The CONTRACTOR shall, however, be responsible for obtaining all SHOP DRAWINGS and/or other information from the manufacturer necessary to complete the installation and startup of existing equipment.

B. Product Data

1. Product data as specified in individual sections, include, but are not necessarily limited to, standard prepared data for manufactured products (sometimes referred to as catalog data), such as the manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommended spare parts listing, and printed product warranties, as applicable to the WORK.

C. Samples

1. Samples specified in individual sections, included, but are not necessarily limited to, physical examples of the WORK such as sections of manufactured or fabricated WORK, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effects, graphic symbols, and units of WORK to be used by the ENGINEER or OWNER for independent inspection and testing, as applicable to the WORK.

D. Operation and Maintenance Instructions

1. O&M instructions shall conform to Article 5 of the General Conditions (Section 00710) and the particular requirements of the individual sections.
2. Refer to Section 01785 for additional requirements.

1.07 CONSTRUCTION PHOTOGRAPHS

A. Miscellaneous photographs as directed by the ENGINEER or OWNER.

1. Photographs are required on this PROJECT and are the responsibility of the CONTRACTOR. Photographs shall be 3" x 5" color snapshots taken with a standard 35mm camera, or a digital camera with 5 MP minimum. CONTRACTOR shall be responsible for the taking, development, labeling and organizing of the photographs. All photographs shall be identified as to location, date and subject matter. Photographs shall be arranged in a photo album(s) by location, subject matter and date taken. Upon completion of the project, the CONTRACTOR shall supply the OWNER with the negatives or digital photo files. The later, if provided, shall be supplied on CD media in .jpg format.
2. Upon completion of the project, the CONTRACTOR shall provide a two (2) professional-quality 8 x 10 color aerial photographs. Prior to photographing, the CONTRACTOR shall confirm with the ENGINEER that the site is ready. The photo shall also be provided in digital format (.jpg) on CD media.
3. The CONTRACTOR, before final payment is made, shall deliver one (1) set of photographic prints and negatives/.jpg's to the OWNER, one (1) set of prints to the ENGINEER, and one aerial photograph to each. Both sets of prints shall be arranged in a photo album(s) and labeled as outlined above.
4. No pay item has been set up for the photographs. The CONTRACTOR shall allow for a minimum of 200 - 3" x 5" color photographs (taken and arranged as outlined above) in his BID.

1.08 TEST REPORTS

- A. Submit for the Architect/Engineer's knowledge as contract administrator or for the Owner.
- B. Submit test reports for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.09 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification sections, submit certification by the manufacturer, installation/application subcontractor, or the Contractor to Architect/Engineer, in quantities specified for Product Data.
- B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect/Engineer.

1.10 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Architect/Engineer for delivery to owner in quantities specified for Product Data.

1.11 CONTRACTOR'S RESPONSIBILITY

- A. The CONTRACTOR shall review SHOP DRAWINGS, product data and samples prior to submission to determine and verify the following:
 - 1. Field measurements
 - 2. Field construction criteria
 - 3. Catalog numbers and similar data
 - 4. Conformance with the SPECIFICATIONS
- B. All SHOP DRAWINGS submitted by SUBCONTRACTORS for review shall be sent directly to the CONTRACTOR for preliminary checking. The CONTRACTOR shall be responsible for their submission at the proper time so as to prevent delays in delivery of materials.
- C. The CONTRACTOR shall check all SUBCONTRACTOR'S SHOP DRAWINGS regarding measurements, size of members, materials, and details to satisfy himself that they conform to the intent of the DRAWINGS and SPECIFICATIONS. DRAWINGS found to be inaccurate or otherwise in error shall be returned to the SUBCONTRACTORS for correction before submission thereof.
- D. Each shop drawing, WORKING drawing, sample and catalog data submitted by the CONTRACTOR shall have affixed to it a certification statement, signed by the CONTRACTOR. The certification shall state that the CONTRACTOR represents that he has determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and has checked and coordinated each item with other applicable review SHOP DRAWINGS and all Contract requirements.

- E. The CONTRACTOR shall notify the OWNER in writing, at the time of submittal, of any deviations in the submittals from the requirements of the CONTRACT DOCUMENTS.
- F. The CONTRACTOR should include the notation "Critical Path" on critical path submittals.
- G. The review of SHOP DRAWINGS, samples or catalog data by the ENGINEER shall not relieve the CONTRACTOR from his responsibility with regard to the fulfillment of the terms of the Contract.
- H. No portion of the WORK requiring a shop drawing, WORKING drawing, sample or catalog data shall be started nor shall any materials be fabricated or installed prior to the review or qualified review SHOP DRAWINGS and data shall be at the CONTRACTOR'S risk. The OWNER will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.
- I. PROJECT WORK, materials, fabrication, and installation shall conform with reviewed SHOP DRAWINGS, WORKING DRAWINGS, applicable samples, and catalog data.

1.12 SUBMISSION REQUIREMENTS

- A. The CONTRACTOR shall make submittals promptly in accordance with the accepted schedule, and in such sequence as to cause no delay in the WORK or in the WORK of any other CONTRACTOR.
- B. Number of submittals required:
 - 1. SHOP DRAWINGS: Submit six (6) copies.
 - 2. Operation and Maintenance Instructions: Submit six (6) copies.
- C. Submittals shall contain:
 - 1. The date of submission and the dates of any previous submissions.
 - 2. The PROJECT title, contract number, and submittal number.
 - 3. CONTRACTOR identification.
 - 4. The names of:
 - a. CONTRACTOR
 - b. SUPPLIER
 - c. Manufacturer

5. Identification of the product, with the specification section number.
6. Field dimensions, clearly identified as such.
7. Relation to adjacent or critical features of the WORK or materials.
8. Applicable standards, such as ASTM or Federal Specification numbers.
9. Identification of revisions on re-submittals.
10. An 8-inch x 3-inch blank space for CONTRACTOR'S and ENGINEER'S stamps.

D. Submittals shall be clear and legible. Submittals with facsimile copies will be automatically rejected.

1.13 RESUBMISSION REQUIREMENTS

A. The CONTRACTOR shall make any corrections or changes in the submittals required by the ENGINEER and resubmit until accepted, in accordance with the following:

1. SHOP DRAWINGS and Product Data:
 - a. Revise initial DRAWINGS or data, and resubmit as specified for the initial submittal.
 - b. Indicate any changes which have been made other than those requested by the ENGINEER.
2. Samples:
 - a. Submit new samples as required for initial submittal.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01310
PROGRESS SCHEDULES

PART 1 GENERAL

1.01 GENERAL

A. Scheduling Responsibilities

1. In order to provide a definitive basis for determining job progress, a construction schedule of a type approved by the OWNER will be used to monitor the PROJECT.
2. The CONTRACTOR shall be responsible for preparing the schedule and updating on a monthly basis. It shall at all times remain the CONTRACTOR'S responsibility to schedule and direct his forces in a manner that will allow for the completion of the WORK within the contractual period.

B. Construction Hours

1. No WORK shall be done between 8:00 p.m. and 7:00 a.m. nor on Sundays or legal holiday without the written permission of the OWNER. However, emergency work may be done without prior written permission.
2. If the CONTRACTOR, for his convenience and at no additional cost to the OWNER, should desire to carry on his WORK at night or outside the regular hours, he shall submit a written request to the ENGINEER and shall allow nine (9) days for satisfactory arrangements to be made for inspecting the WORK in progress. If permission is granted, the CONTRACTOR shall light the different parts of the PROJECT as required to comply with all applicable Federal, State and local regulations. The CONTRACTOR shall also revise his schedule as appropriate at the next monthly schedule update meeting to reflect the changes in working hours.

C. Progress of the WORK

1. The WORK shall be started within ten (10) days following the NOTICE TO PROCEED and shall be executed with such progress as may be required to prevent delay to other CONTRACTORS or to the general completion of the PROJECT. The WORK shall be executed at such times and in or on such parts of the PROJECT, and with such forces, material and equipment, to assure completion of the WORK in the time established by the Contract.
2. The CONTRACTOR agrees that whenever it becomes apparent from the current monthly Schedule update that delays have resulted and, hence, that the Contract completion date will not be met or when so directed by

the OWNER, he will take some or all of the following actions at no additional cost to the OWNER.

- (a) Increase construction manpower in such quantities and crafts as will substantially eliminate the backlog of WORK.
- (b) Increase the number of working hours per shift, shifts per working day or days per week, the amount of construction equipment, or any combination of the foregoing to substantially eliminate the backlog of WORK.
- (c) Reschedule activities to achieve maximum practical concurrence of accomplishment of activities, and comply with the revised schedule.
- (d) The CONTRACTOR shall submit to the OWNER or the OWNER'S representative for review a written statement of the steps he intends to take to remove or arrest the delay to the critical path in the accepted schedule. If the CONTRACTOR should fail to submit a written statement of the steps he intends to take or should fail to take such steps as required by the Contract, the OWNER may direct the level of effort in manpower (trades), equipment, and work schedule (overtime, weekend and holiday work, etc.), to be employed by the CONTRACTOR in order to remove or arrest the delay to the critical path in the accepted schedule, and the CONTRACTOR shall promptly provide such level of effort at no additional cost to the OWNER.

1.02 CONSTRUCTION SCHEDULE

A. Schedule Submissions

- 1. With ten (10) calendar days of the NOTICE TO PROCEED, the CONTRACTOR shall submit to the ENGINEER five (5) copies of his proposed schedule. The schedule will be the subject of a schedule review meeting with the CONTRACTOR, the ENGINEER and the OWNER or the OWNER'S representative within one (1) week of its submission. The CONTRACTOR will revise and resubmit schedule until it is acceptable and accepted by the OWNER or the OWNER'S representative.

1.03 SCHEDULE UPDATES

A. Monthly Meetings

- 1. A monthly Schedule Update Meeting will be held in conjunction with the applicable progress meeting at the construction site to review and update the Schedule. The Schedule Update Meetings will be chaired by the OWNER or the OWNER'S representative and attended by the CONTRACTOR and the ENGINEER. Actual progress of the previous month will be recorded and future

activities will be reviewed. The duration of activities and their logical connections may be revised as needed. Decisions made at these meetings and agreed to by all parties are binding with the exception that no contractual completion dates will be modified without formal written requests and acceptance as specified herein.

B. Conditions Requiring Revisions are as follows:

1. When a delay in completion of any WORK item or sequence of WORK items results in an extension of the PROJECT completion.
2. When delays in submittals or deliveries or work stoppages are encountered which make re-planning or rescheduling of the WORK necessary.
3. When the schedule does not represent the actual prosecution and progress of the PROJECT.

1.04 CONTRACT COMPLETION TIME

A. Causes for Extensions

1. The Contract completion time will be adjusted only for cause specified in this Contract. In the event the CONTRACTOR requests an extension of any Contract completion date, he shall furnish such justification and supporting evidence as the OWNER or the OWNER'S representative may deem necessary for a determination as to whether the CONTRACTOR is entitled to an extension of time under the provision of this Contract. The OWNER, with the assistance of ENGINEER and OWNER'S representative, will, after receipt of such justification and supporting evidence, make findings of fact and will advise the CONTRACTOR in writing thereof.

B. Request for Time Extension

1. Each request for change in any Contract completion date shall be initially submitted to the OWNER within the time frame stated in the General Conditions. All information known to the CONTRACTOR at that time concerning the nature and extent of the delay shall be transmitted to the OWNER at that time. Within the time frame stated in the General Conditions but before the date of final payment under this Contract, all information as required above concerning the delay must be submitted to the OWNER. No time extension will be granted for requests which are not submitted within the foregoing time limits.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.01 SANITARY FACILITIES

- A. The CONTRACTOR shall construct and maintain sanitary facilities for his employees and employees of the subcontractors. The CONTRACTOR shall, at completion of the Contract Work, properly dispose of these sanitary facilities.

1.02 UTILITIES

- A. The CONTRACTOR shall be totally responsible for installation, maintenance and cost of his and his sub-contractor's telephone service.
- B. The CONTRACTOR shall install meters at all his points of use of electric, water, and natural gas utilities. The CONTRACTOR shall pay the monthly billed cost from the servicing utility for the CONTRACTOR'S use of these utilities. The CONTRACTOR shall pay any initial installation costs.
- C. If CONTRACTOR requires other utilities, he shall obtain and pay for them.

1.03 MAINTENANCE OF SERVICE IN EXISTING UTILITIES

- A. Where the existing utilities must be disturbed during construction under this Contract, their operation and function shall be maintained by the CONTRACTOR to such a degree that service to customers will be interrupted for minimum time periods only. Such disturbances and any maintenance use of these lines shall constitute no cost to the OWNER. The OWNER shall be notified of interruptions in sufficient time to prepare for them and shall agree to the hour, date, and duration of them before they are undertaken.
- B. Should shutdowns in service be in excess of the time of duration agreed upon, and such excessive shutdown time be due to the CONTRACTOR'S negligence, faulty Work and/or inability to perform, then and in that event, the CONTRACTOR shall be held liable to the OWNER for any and all damages that may accrue to the OWNER, by reason of such excessive shutdown periods.
- C. Digging through services with trenching machines will not be permitted. Upon damage to utility services, such services shall be repaired immediately and tested to the satisfaction of the ENGINEER. The CONTRACTOR shall notify all utility users of impending interruption of service and shall notify all utility users of impending interruption of service

and shall be responsible for all damage resulting from same. Payment for necessary disconnection and reconnection of utility services shall be included as a part of the CONTRACTOR'S bid and no extra compensation will be made for same.

- D. The CONTRACTOR shall at all times maintain on hand an adequate supply of repair materials and tools with which to make repair to damaged water, gas and sewer lines. Should the CONTRACTOR inadvertently damage existing utilities, he shall make immediate repair thereto and in no event shall he leave the site before such repair has been made and proven to be successful.
- E. As far as possible, the locations and sizes of existing mains are indicated on the drawings; however, exact locations, pipe materials and sizes cannot be guaranteed. It shall be the responsibility of the CONTRACTOR to locate and uncover existing lines. The CONTRACTOR shall provide all connecting fittings of the correct size and type for each connection to existing lines.

1.04 PROPERTY PROTECTION

- A. Care is to be exercised by the CONTRACTOR in all phases of construction, to prevent damage and/or injury to the OWNER'S and/or other property.
- B. The CONTRACTOR shall avoid unnecessary injury to trees and shall remove only those authorized to be removed by written consent of the OWNER. Fences, gates, and terrain damaged or disarranged by the CONTRACTOR'S forces shall be immediately restored in their original condition or better.

1.05 CONSTRUCTION WARNING SIGNS

- A. The CONTRACTOR shall provide construction warning signs for each location where he is working in the state highway right-of-way or in City or County streets. He will further provide flag men as required and shall abide by all Kentucky Transportation Cabinet, Department of Highways safety rules, including size, type and placement of construction signs.

1.06 RESIDENT OBSERVER OFFICE

- A. office is not required.

1.07 EXCAVATION

- A. No separate payment for solid rock excavation will be made under this Contract, unless specifically noted on the Bid Form. All excavation shall be considered unclassified, except in locations where solid rock excavation is paid for on a unit price basis.

1.08 ACCESS ROADWAYS

- A. The CONTRACTOR shall construct all access roadways needed during construction, and the planned access roadways for the completed project. The CONTRACTOR shall maintain access roadways continuously during the construction period.
- B. The CONTRACTOR shall maintain all existing roadways within the project site which are used for any purpose by construction operations. The degree and frequency of maintenance shall be adequate to keep existing roadways in a condition at least equal to their condition prior to construction. Road maintenance shall include dust control and sweeping.

1.09 RESPONSIBILITY FOR TRENCH SETTLEMENT

- A. The CONTRACTOR shall be responsible for any settlement caused by the construction, that occurs within one (1) year after the final acceptance of this Contract by the OWNER. Temporary fences shall be provided at no extra cost to the OWNER wherever necessary to keep livestock away from the construction area. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Damaged limbs shall be trimmed and damaged tree trunks shall be treated with wound dressing.

1.10 DAMAGE TO CROPS, LIVESTOCK AND VEGETATION

- A. The CONTRACTOR shall protect crops, livestock and vegetation against damage or injury from construction operations at all times. Crops damaged or equipment access obtained outside of the easements provided shall be the responsibility of the CONTRACTOR. Temporary fences shall be provided at no extra cost to the OWNER wherever necessary to keep livestock away from the construction area.
- B. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Damaged limbs shall be trimmed and damaged tree trunks shall be treated with wound dressing.

1.11 WASTE DISPOSAL

- A. The CONTRACTOR shall dispose of waste, including hazardous waste, off-site in accordance with all applicable laws and regulations.

1.12 CONTRACTOR'S TRAILERS AND MATERIAL STORAGE

- A. The location of the CONTRACTOR'S and Subcontractor's office, work trailers and parking areas for the project shall be subject to the OWNER'S approval.

- B. The CONTRACTOR'S and Subcontractor's material storage yards for the project shall be subject to the OWNERS approval.

1.13 JURISDICTIONAL DISPUTES

- A. It shall be the responsibility of the CONTRACTOR to pay all costs that may be required to perform any of the work shown on the Drawings or specified herein in order to avoid any work stoppages due to jurisdictional disputes. The basis for subletting work in question, if any, shall conform with precedent agreements and decisions on record with the Building and Construction Trades Department, AFL-CIO, dated June, 1973, including any amendments thereto.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01510

SURFACE WATER POLLUTION PREVENTION PLAN

PART 1 GENERAL

1.01 EROSION CONTROL MEASURES

Reference Section 2270.

All disturbed areas require erosion control. Erosion control shall consist of both natural and manmade barriers to the transport of sediment from the project area to surrounding areas not disturbed under this project.

This specification focuses on the requirement to avoid introduction of sediment into streams and other natural and manmade waterways and conveyances. A second focus is to prevent the deposition of sediment onto traffic surfaces.

A sediment pond is required to be constructed and completed prior to disturbance of the project area. All storm water run-offs from the project area will be routed to the sediment pond, where practical. Any areas not practical to route to the sediment pond shall be protected by the construction of silt fences between the disturbed area and the receiving stream. Silt fence placement shall be approved by the OWNER or his representative. Prior to beginning construction of the sediment pond, a silt fence will be constructed downstream from the downstream toe of the sediment pond to prevent silt from the construction of the embankment entering the stream.

Surface water from adjacent areas shall not be routed to the sediment pond, but rather routed around the sediment pond area.

PART 2 BEST MANAGEMENT PRACTICES

1.01 TEMPORARY BMP'S FOR

On-site storage tanks – On site storage tanks shall have a containment structure constructed around the tank. The containment structure shall be impervious to the substance stored in the tank and shall have a volume equal to 1.5 times the volume of the storage tank. Provisions shall be made to evacuate any water accumulation inside the containment structure to prevent loss of containment volume.

Stockpile areas – Stockpile areas shall have a silt fence constructed at the lower portion of the stockpile area to trap any sediment generated from the stockpile area.

Parking areas – Parking areas shall have a silt fence constructed at the lower perimeter of the parking area to trap any sediment generated from the parking area. Additionally, should the parking area be adjacent to a paved public road, a gravel pad shall be constructed at the entrance from

the public road to the parking area to prevent tracking of sediment onto the paved public road.

Equipment maintenance areas – Equipment maintenance areas shall have a silt fence constructed along the lower perimeter of the maintenance area to trap any sediment generated from the maintenance area.

Excavation areas – Excavation areas shall have a silt fence constructed at the lower perimeter of the excavation area to trap any sediment generated from the excavation area.

All temporary BMP's shall be maintained in accordance with the operations and maintenance plan until such time as permanent BMP's are constructed and completed, or until such time as the controlled area has been regraded, mulched, seeded and vegetation has been restored to the area.

1.02 PERMANENT BMP'S

Permanent BMP's shall consist of diversion ditches, sediment outfall structures, vegetation restoration and leachate containment lagoon as applicable.

1.03 OPERATIONS AND MAINTENANCE PLAN

The CONTRACTOR shall implement the following Best Management Practices (**BMP**) and shall maintain these BMP's until no longer needed or the completion of the project. The CONTRACTOR shall not remove any BMP without the agreement of the OWNER or his representative.

The CONTRACTOR shall have the sole responsibility for compliance with the requirements of the Storm Water Pollution Prevention Plan (**SWPPP**) as described in these BID DOCUMENTS, and shall be required to have a full and complete understanding of the SWPPP and the required BMP's contained in the SWPPP. It shall also be the responsibility of the CONTRACTOR to submit to the Kentucky Division of Water a completed Notice of Intent (**NOI**) prior to beginning work on this project and to submit a completed Notice of Termination (**NOT**) to the Kentucky Division of Water at the completion of this project.

Copies of the above forms are contained in this SECTION.

The required BMP's, the locations to be used, inspection frequency, and approved maintenance actions are shown in the following table.

Location	BMP	Inspection Frequency	Maintenance Action
On-site Storage Tanks	Containment Structure	1. Daily 2. After rain event	Remove captured water, check for leakage
Stockpile Areas	Silt Fence	1. Weekly 2. After rain event 3. Prior to forecast storm	Clean out surplus silt, repair fence as needed
Parking Areas	Silt Fence Gravel Entrance Pad	1. Weekly 2. After rain event	Clean out surplus silt, repair fence as needed. Add gravel to pad as needed
Equipment maintenance areas	Silt Fence	1. Weekly 2. After rain event	Remove surplus silt, repair fence as needed.
Excavation Areas	Silt Fence	1. Weekly 2. After rain event 3. Prior to forecast storm	Remove surplus silt, repair fence as needed
Project Perimeter	Diversion Ditch	1. Weekly 2. After rain event	Remove accumulated sediment, install erosion protection after completion
Perimeter, along stream buffer	Silt Fence	1. Daily 2. After rain event 3. Prior to forecast storm	Remove accumulated silt when half of depth of fence is covered, straighten posts, replace destroyed sections and spray paint date on repaired sections.
Sediment Pond	Sediment Pond	1. Weekly 2. After rain event 3. Prior to forecast storm	Remove any observed obstructions in spillway systems, remove any surplus sediment accumulation
Inlets	Inlet Protection (aka "Pigs in a Blanket")	1. Weekly 2. After rain event	Remove accumulated silt when half of depth of fence is covered, straighten and replace destroyed sections

1.04 CONTINUING EDUCATION

All personnel actively involved in this project, whether associated with the Design A/E or the General Contractor, shall be notified of this SWPPP and shall be given the opportunity to review the S.O.P. prepared by the DOE for SWPPP's.

The General Contractor (CONTRACTOR), before beginning work, shall formally review the SWPPP with his site management staff, including the site superintendent, key foremen, safety officers, designated workmen, etc., as well as with any subsequent replacements. Failure to understand the details of the SWPPP will not be accepted as an excuse for violations.

1.05 OPERATION AND MAINTENANCE GUIDELINES

The CONTRACTOR's jobsite superintendent and project manager shall familiarize themselves with the SWPPP and the requirements of the SOP developed by the DOE.

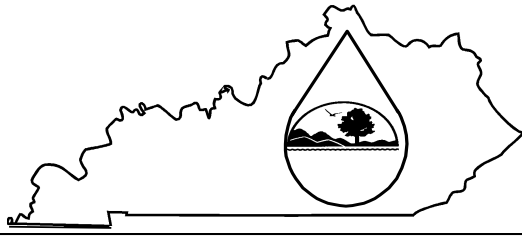
The CONTRACTOR shall assemble a Maintenance Log Book to be kept on site and accessible by DOW, Project A/E, DOE, etc. Log Book shall include the following:

- a. Copy of the NOI
- b. Copy of the General Permit
- c. Copy of the SWPPP (may be kept separate if sheet size dictates)
- d. Maintenance Log Sheets

The CONTRACTOR shall inspect all BMP's on the project at intervals as stipulated on the SWPPP or in the Log Book.

The Contractor shall promptly repair, clean out, replace, or otherwise perform required maintenance of every BMP at stipulated intervals or after a significant rain event. The CONTRACTOR shall make formal notification to the A/E of any BMP's that do not appear to be functioning properly or that may need review.

END OF SECTION

KPDES FORM NOI-SW

Kentucky Pollutant Discharge Elimination System
(KPDES)
Notice of Intent (NOI)
for Storm Water Discharges
Associated with Industrial Activity Under the
KPDES General Permit

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form intends to be authorized by a KPDES permit issued for storm water discharges associated with industrial activity. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit.

ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM (See Instructions on back)

I. Facility Operator Information

Name:		Phone:	
Address:		Status of Owner/Operator:	
City, State, Zip Code:			

II. Facility/Site Location Information

Name:			
Address:			
City, State, Zip Code:			
County:			
Site Latitude: (degrees/minutes/seconds)		Site Longitude: (degrees/minutes/seconds)	

III. Site Activity Information

MS4 Operator Name:							
Receiving Water Body:							
Are there existing quantitative data?	Yes ☐ If Yes, submit with this form. No ☐						
SIC or Designated Activity Code Primary		2nd		3rd		4th	
If this facility is a member of a Group Application, enter Group Application Number:							
If you have other existing KPDES Permits, enter Permit Numbers:							

IV. Additional Information Required FOR CONSTRUCTION ACTIVITIES ONLY

Project Start Date:		Completion Date:	
Estimated Area to be disturbed (in acres):			
Is the Storm Water Pollution Prevention Plan in Compliance with State and/or Local Sediment and Erosion Plans?	Yes ☐ No ☐		

V. Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed or Typed Name:		
Signature:	Date:	

**Kentucky Pollutant Discharge Elimination System (KPDES)
Instructions
Notice of Intent (NOI) for Storm Water Discharges Associated with Industrial Activity
To Be Covered Under The KPDES General Permit**

WHO MUST FILE A NOTICE OF INTENT (NOI) FORM

Federal law at 40 CFR Part 122 prohibits point source discharges of stormwater associated with industrial activity to a water body of the Commonwealth of Kentucky without a Kentucky Pollutant Discharge Elimination System (KPDES) permit. The operator of an industrial activity that has such a storm water discharge must submit a NOI to obtain coverage under the KPDES Storm Water General Permit. If you have questions about whether you need a permit under the KPDES Storm Water program, or if you need information as to whether a particular program is administered by the state agency, call the **Storm Water Contact, Industrial Section, Kentucky Division of Water at (502) 564-3410.**

WHERE TO FILE NOI FORM

NOIs must be sent to the following address:

**Section Supervisor
Inventory & Data Management Section
KPDES Branch, Division of Water
Frankfort Office Park
14 Reilly Road
Frankfort, KY 40601**

COMPLETING THE FORM

Type or print legibly in the appropriate areas only. If you have any questions regarding the completion of this form call the **Storm Water Contact, Industrial Section, at (502) 564-3410.**

SECTION I - FACILITY OPERATOR INFORMATION

Give the legal name of the person, firm, public organization, or any other entity that operates the facility or site described in this application. The name of the operator may or may not be the same as the name of the facility. The responsible party is the legal entity that controls the facility's operation, rather than the plant or site manager. Do not use a colloquial name. Enter the complete address and telephone number of the operator.

Enter the appropriate letter to indicate the legal status of the operator of the facility.

F = Federal M = Public (other than federal or state)
S = State P = Private

SECTION II - FACILITY/SITE LOCATION INFORMATION

Enter the facility's or site's official or legal name and complete street address, including city, state, and ZIP code.

SECTION III - SITE ACTIVITY INFORMATION

If the storm water discharges to a municipal separate storm sewer system (MS4), enter the name of the operator of the MS4 (e.g., municipality name, county name) and the receiving water of the discharge from the MS4. (A MS4 is defined as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that is owned or operated by a state, city, town, borough, county, parish, district, association, or other public body which is designed or used for collecting or conveying storm water.)

If the facility discharges storm water directly to receiving water(s), enter the name of the receiving water.

Indicate whether or not the owner or operator of the facility has existing quantitative data that represent the characteristics and concentration of pollutants in storm water discharges. If data is available submit with this form.

List, in descending order of significance, up to four 4-digit standard industrial classification (SIC) codes that best describe the principal products or services provided at the facility or site identified in Section II of this application.

If the facility listed in Section II has participated in Part 1 of an approved storm water group application and a group number has been assigned, enter the group application number in the space provided.

If there are other KPDES permits presently issued for the facility or site listed in Section II, list the permit numbers.

SECTION IV - ADDITIONAL INFORMATION REQUIRED FOR CONSTRUCTION ACTIVITIES ONLY

Construction activities must complete Section IV in addition of Sections I through III. Only construction activities need to complete Section IV.

Enter the project start date and the estimated completion date for the entire development plan.

Provide an estimate of the total number of acres of the site on which soil will be disturbed (round to the nearest acre).

Indicate whether the storm water pollution prevention plan for the site is in compliance with approved state and/or local sediment and erosion plans, permits, or storm water management plans.

SECTION V - CERTIFICATION

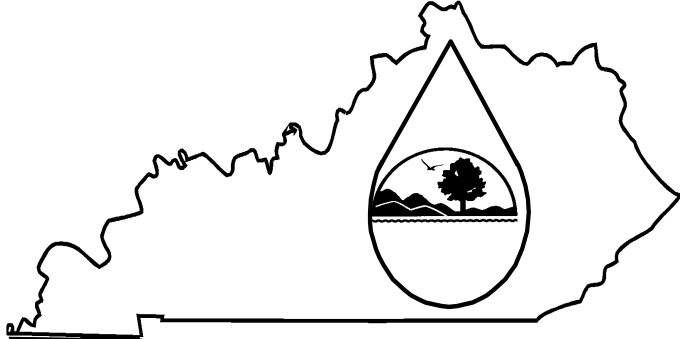
Federal statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

For a corporation: by a responsible corporate officer, which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

For a partnership or sole proprietorship: by a general partner or the proprietor; or

For a municipality, state, Federal, or other public facility: by either a principal executive officer or ranking elected official.

KPDES FORM NOT-SW

	Kentucky Pollutant Discharge Elimination System (KPDES) NOTICE OF TERMINATION (NOT) of Coverage Under the KPDES General Permit for Storm Water Discharges Associated with Industrial Activity

Submission of this Notice of Termination constitutes notice that the party identified in Section II of this form is no longer authorized to discharge storm water associated with industrial activity under the KPDES program.

ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM.
(Please see instructions on back before completing this form.)

I. PERMIT INFORMATION
KPDES Storm Water General Permit Number:
Check here if you are no longer the Operator of the Facility: ☐
Check here if the Storm Water Discharge is Being Terminated: ☐
II. FACILITY OPERATOR INFORMATION
Name:
Address:
City/State/Zip Code:
Telephone Number:
III. FACILITY/SITE LOCATION INFORMATION
Name:
Address:
City/State/Zip Code:

Certification: I certify under penalty of law that all storm water discharges associated with industrial activity from the identified facility that are authorized by a KPDES general permit have been eliminated or that I am no longer the operator of the facility or construction site. I understand that by submitting this Notice of Termination, I am no longer authorized to discharge storm water associated with industrial activity under this general permit, and that discharging pollutants in storm water associated with industrial activity of waters of the Commonwealth is unlawful under the Clean Water Act and Kentucky Regulations where the discharge is not authorized by a KPDES permit. I also understand that the submittal of this Notice of Termination does not release an operator from liability for any violations of this permit or the Kentucky Revised Statutes.

NAME (Print or Type)	TITLE
SIGNATURE	DATE

INSTRUCTIONS
NOTICE OF TERMINATION (NOT) OF COVERAGE UNDER THE KPDES GENERAL PERMIT
FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY

Who May File a Notice of Termination (NOT) Form

Permittees who are presently covered under the Kentucky Pollutant Discharge Elimination System (KPDES) General Permit for Storm Water Discharges Associated with Industrial Activity may submit a Notice of Termination (NOT) form when their facilities no longer have any storm water discharges associated with industrial activity as defined in the storm water regulations at 40 CFR 122.26 (b)(14), or when they are no longer the operator of the facilities.

For construction activities, elimination of all storm water discharges associated with industrial activity occurs when disturbed soils at the construction site have been finally stabilized and temporary erosion and sediment control measures have been removed or will be removed at an appropriate time, or that all storm water discharges associated with industrial activity from the construction site that are authorized by a KPDES general permit have otherwise been eliminated. Final stabilization means that all soil-disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles have been employed.

Where to File NOT Form

Send this form to the following address:

**Section Supervisor
Inventory & Data Management Section
KPDES Branch, Division of Water
14 Reilly Road, Frankfort Office Park
Frankfort, KY 40601**

Completing the Form

Type or print legibly in the appropriate areas and according to the instructions given for each section. If you have questions about this form, call the Storm Water Contact, Industrial Section, at (502) 564-3410.

Section I - Permit Information

Enter the existing KPDES Storm Water General Permit number assigned to the facility or site identified in Section III. If you do not know the permit number, **call the Storm Water Contact, Industrial Section at (502) 564-3410.**

Indicate your reason for submitting this Notice of Termination by checking the appropriate box:

If there has been a change of operator and you are no longer the operator of the facility or site identified in Section III, check the corresponding box.

If all storm water discharges at the facility or site identified in Section III have been terminated, check the corresponding box.

Section II - Facility Operator Information

Give the legal name of the person, firm, public organization, or any other entity that operates the facility or site described in this application. The name of the operator may or may not be the same name as the facility. The operator of the facility is the legal entity which controls the facility's operation, rather than the plant or site manager. Do not use a colloquial name. Enter the complete address and telephone number of the operator.

Section III - Facility/Site Location Information

Enter the facility's or site's official or legal name and complete address, including city, state and ZIP code. If the facility lacks a street address, indicate the state, the latitude and longitude of the facility to the nearest 15 seconds, or the quarter, section, township, and range (to the nearest quarter section) of the approximate center of the site.

Section IV - Certification

Federal statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

For a corporation: by a responsible corporate officer, which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

For a partnership or sole proprietorship: by a general partner or the proprietor; or

For a municipality, State, Federal, or other public facility: by either a principal executive

SECTION 01785

OPERATION AND MAINTENANCE (O&M) DATA

PART I GENERAL

1.01 SUMMARY

- A. Compile data and related information in manuals appropriate for OWNER'S operation and maintenance (O&M) of each item of equipment identified in other Specification sections.

1.02 QUALITY ASSURANCE A. Preparation of data shall be performed by personnel:

- A. Trained and experienced in O&M of described equipment.
- B. Familiar with requirements of this section.
- C. Skilled as technical writer to extent required to communicate essential data.
- D. Skilled as drafter competent to prepare required drawings.

1.03 FORM OF MANUALS

- A. Components:
 - 1. Size: 8-1/2 in. by 11 in., or 11 in. by 17 in. folded, with standard 3-hole punching.
 - 2. Paper: 20-lb minimum, white, for typed pages.
 - 3. Text: Manufacturer's printed data, or neatly typewritten. Handwritten data is not acceptable.
 - 4. Drawings:
 - a. Bind in with text.
 - b. Fold larger drawings and place in clear plastic pockets punched for inserting into binder. Place identification on outside of each pocket.
- B. Cover Label: Label each binder cover and spine with typed or printed

title "OPERATION AND MAINTENANCE INSTRUCTIONS" and following:

1. Project title.
2. Name(s) of applicable building(s) or structure(s) as shown on Drawings in which equipment located.
3. Name of equipment as set forth in Contract Documents.
4. Specification section number for equipment as set forth in Contract Documents.

C. Binders:

1. Commercial quality D-Ring binder with durable and cleanable plastic covers. Paperboard and laminated paperboard covers are not acceptable.
2. Do not fill binders to more than 75% of capacity.
3. When multiple binders are used for an item of equipment, organize contents into related groupings. Each binder cover shall bear identification of specific contents.

1.04 SUBMITTAL SCHEDULE

- A. Submit 4 copies of complete O&M data, bound in binders bearing identification label, for review within 30 days after time CONTRACTOR receives approved Shop Drawings and other submittals for equipment from ENGINEER.
- B. ENGINEER'S review and acceptance of O&M data will be only for conformance with requirements of this section, for form of submittal and organization of data and completeness of information provided, but not for technical content or coordination between individual suppliers of equipment or system(s).
- C. CONTRACTOR shall review O&M submittal and complete Form 1, Contractor Submittal Form, attached to this section indicating requirements of this section have been met before submitting to ENGINEER. ENGINEER will reject submittals without completed Form 1.
- D. ENGINEER will be sole judge of completeness of data.

1.05 PAYMENTS

- A. Progress payment for equipment delivered, stored or installed under these Contract Documents will not be made until O&M data is approved by ENGINEER.
- B. Progress payments for control systems packaged with equipment will not be made until O&M data incorporated into equipment and control system manual is approved by ENGINEER.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

3.01 GENERAL CONTENTS OF DATA

- A. Each manual shall contain equipment data pertaining to not more than one Specification section number indicated in Contract Documents.
- B. Title Sheet: First page in data listing following:
 - 1. Title: "OPERATION AND MAINTENANCE INSTRUCTIONS."
 - 2. Title of Project: As shown on Contract Documents.
 - 3. Name(s) of applicable building(s) or structure(s) in which equipment is located.
 - 4. Name of equipment as described in Contract Documents.
 - 5. Specification section number for equipment.
 - 6. CONTRACTOR'S name, address, and telephone number.
 - 7. Subcontractor's name, address, and telephone number if equipment is provided by Subcontractor.
 - 8. CONTRACTOR'S or Subcontractor's purchase order number, manufacturer's shop order number or other such numbers required for parts and service ordering.
 - 9. Manufacturer's name, address, and telephone number.

10. Name, address, and telephone number for local source of supply for parts and service.
- C. Equipment List: Immediately following title sheet containing following:
1. Completed Form 1, Contractor's Submittal Form.
- D. Table of Contents: Immediately following equipment list. Arrange in logical, systematic order and shall include as minimum each tabbed divider. Each page shall be numbered.
- E. Tabbed Dividers: Insert tabbed section dividers between each major section.
1. Provide title of section on each tab.
 2. Provide table of contents for each tabbed section, arranged in systematic order.
- F. Equipment Data Sheets: Provide catalog sheets showing configuration, manufacturer's specifications, models, options, and styles of equipment and major components being provided. Product data sheets will show project specific information with inapplicable information deleted by crossing out or removal. Include in tabbed section(s).
- G. Text:
1. Include only those sheets applicable to Project.
 2. Each sheet shall:
 - a. Identify specific equipment or part installed.
 - b. Identify text applicable to equipment or part installed.
 - c. Do not include inapplicable information.
- H. Drawings:
1. Supplement text with drawings to clearly illustrate following:
 - a. Equipment and components.
 - b. Relations of component parts of equipment and

systems.

c. Control and flow diagrams.

2. Actual drawings of equipment from manufacturer. "Typical" drawings are not acceptable, unless they accurately illustrate actual installation.

I. Specially written information, as required to supplement text for particular installation.

1. Provide explanation of interrelationships of equipment and components, and effects one component has on another or entire system.

2. Provide overall instructions and procedures for equipment tying in instructions and procedures for separate components into unified instructional package.

3. Provide glossary of special terms used by manufacturer.

4. Organize in consistent format under separate headings for different procedures.

5. Provide logical sequence of instructions for each procedure.

J. Copy of each warranty, bond or service contract issued.

1. Provide information sheet for OWNER'S personnel to explain following.

a. Proper procedures in event of failure or malfunction to prevent voiding warranty.

b. Instances affecting validity of warranties or bonds.

3.02 SPECIFIC DATA FOR EACH EQUIPMENT AND SYSTEMS

A. For each item of equipment and system include:

1. Completed Equipment Data Form typewritten on copy of Form 2 to Section 01785.

2. Description of equipment and component parts:

a. Function, normal operating characteristics, and limiting

conditions.

- b. Performance curves, engineering data, and tests as applicable.
- c. Complete nomenclature and commercial number of replaceable parts.
- d. Complete nameplate data.
- e. P&ID numbers for equipment as indicated on Drawings.

3. Operating Procedures:

- a. Startup, break-in, and normal operating instructions.
- b. Regulation, control, stopping, shutdown, and emergency instructions.
- c. Summer and winter operating instructions, as applicable.
- d. Special operating instructions.

4. Maintenance Procedures:

- a. Routine maintenance operations.
- b. Guide to troubleshooting.
- c. Disassembly, repair, and reassembly instructions.
- d. Alignment, adjusting, and checking instructions.

5. Servicing and Lubrication Schedule:

- a. List of lubricants required and quantity to be applied.
- b. Schedule of lubrication.
- c. Schedule for other routine maintenance.

6. Manufacturer's printed instructions regarding safety precautions for both (a) protection of personnel operating equipment and systems and (b) prevention of damage to equipment and systems.

7. Description of sequence of operation of controls.
 8. Manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
 - a. Predicted life of parts subject to wear.
 - b. Items recommended to be stocked as spare parts and quantities of same.
 9. Approved control diagrams such as ladder diagrams, instrumentation loop diagrams, and electrical schematics as appropriate.
 10. Bill of material.
 11. Other data as required under applicable Specification sections.
- B. Each electric and electronic system, as applicable to equipment such as switchgear, motor control centers, panelboards, switchboards, starters, breakers, and relays shall include:
1. Description of System and Component Parts:
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data, rating tables, and tests as applicable.
 - c. Complete nomenclature and commercial number of replaceable parts.
 - d. Complete nameplate data.
 - e. P&ID numbers for equipment as set forth on Drawings.
 2. Circuit Directories of Panelboards:
 - a. Electrical service.
 - b. Controls.
 - c. Communications.
 3. Complete instrumentation loop diagrams with tabulated listing

of components in each control circuit or loop.

3. Operating Procedures:
 - a. Routine and normal operating instructions.
 - b. Sequences required.
 - c. Special operating instructions.
 4. Maintenance Procedures:
 - a. Routine maintenance operations.
 - b. Guide to troubleshooting.
 - c. Disassembly, repair, and reassembly instructions.
 - d. Adjustment and checking instructions.
 6. Manufacturer's printed instructions regarding safety precautions for both (a) protection of personnel operating equipment and systems and (b) prevention of damage to equipment and systems.
 7. List of original manufacturer's spare parts and recommended quantities maintained in storage.
 8. Other data as required under pertinent sections of Specifications.
- C. Prepare and include additional data when need for such data becomes apparent during instruction of OWNER'S personnel or as requested by OWNER.

FORM 1 TO SECTION 01785 Page 1 of 5
CONTRACTOR SUBMITTAL FORM

TO: (Engineer) (Address) (City, State, Zip) (Attn:)		DATE:	
		SPECIFICATION SECTION TITLE:	
		SECTION NO.;	
		MANUFACTURER/ VENDOR:	
FROM: (Contractor) (Address) (City, State, Zip)		NO. OF COPIES SUBMITTED TO ENGINEER:	
		SIGNATURE OF CONTRACTOR:	

GENTLEMEN:
 We have checked the O&M manual submittal dated, __, 20_____, and have found it to be in accordance with the requirements of Specification Section 01785 as noted below.

FORMAT

Size: 8-1/2 x 11 or 11x17
 Paper: 20-lb minimum
 Text: Printed data/neatly typed
 Drawings: Standard size bound in text; in text-size labeled envelopes
 Tabbed Section Dividers
 Cover Label: Title
 Project name
 Building/structure ID
 Equipment name
 Specification section
 Binders: Plastic Cover

FORM 1 TO SECTION 01785 Page 2 of 5
CONTRACTOR SUBMITTAL FORM

Provided	Not Applicable	Page No.	
<i>GENERAL CONTENTS</i>			
			• One specification only
			• Title Page
			- Title
			- Project title
			- Building/structure ID
			- Equipment name
			- Specification section number
			- Contractor ID
			- Subcontractor ID
			- Purchase order data
			- Manufacturer ID
			- Service/parts supplier ID
			• Product List
			• Table of Contents
			• Tabbed Sections
			- Pertinent data sheets
			- Annotated as needed
			• Text
			- Pertinent to project
			- Annotated
			• Drawings
			- Illustrate product and components
			- Control and flow diagrams

FORM 1 TO SECTION 01785 Page 3 of 5
CONTRACTOR SUBMITTAL FORM

Provided	Not Applicable	Page No.	
<i>GENERAL CONTENTS</i>			
			• Special Information
			- Interrelationships of equipment and components
			- Instructions and procedures provided
			- Instructions organized in consistent format
			- Instructions in logical sequence
			- Glossary
			• Warranty, Bond, Service Contract
<i>SPECIFIC CONTENTS (EQUIPMENT/SYSTEMS ONLY)</i>			
			• Description of Unit and Components
			- Equipment functions
			- Normal operating characteristics
			- Limiting conditions
			- Performance curves
			- Engineering data
			- Test data
			- Replaceable parts list (with numbers)
			- Nameplate data
			- P&ID numbers
			• Operating Procedures
			- Startup
			- Routine/normal operation
			- Regulation and control
			- Stopping and shutdown
			- Emergency

FORM 1 TO SECTION 01785 Page 4 of 5
CONTRACTOR SUBMITTAL FORM

Provided	Not Applicable	Page No.	
<i>SPECIFIC CONTENTS (EQUIPMENT/SYSTEMSONLY)</i>			
			• Operating Procedures (continued)
			- Seasonal operation
			- Special instructions
			• Maintenance Procedures
			- Routine/normal instructions
			- Troubleshooting guide
			- Disassembly/reassembly/repair
			• Servicing and Lubrication
			- List of lubricants
			- Lubrication schedule
			- Maintenance schedule
			• Safety Precautions/Features
			• Sequence of Operation of Controls
			• Assembly Drawings
			• Parts List and Illustrations
			- Predicted life
			- Spare parts list
			• Control Diagrams/Schematics
			• Bill of Materials
			• Completed Equipment Data Form per Specification
			• Other Data as Required

FORM 1 TO SECTION 01785 Page 5 of 5
CONTRACTOR SUBMITTAL FORM

Provided	Not Applicable	Page No.	
<i>SPECIFIC CONTENTS (EQUIPMENT/SYSTEMS ONLY)</i>			
			• Description
			- Equipment functions
			- Normal operating characteristics
			- Performance curves
			- Engineering data
			- Test data
			- Replaceable parts list (with numbers)
			- Nameplate data
			- P&ID numbers
			• Panelboard Directories
			- Electrical
			- Controls
			- Communications
			• Instrumentation Loops
			- Diagrams
			- Components list each circuit/loop
			• Maintenance Procedures
			- Routine/normal instructions
			- Troubleshooting guide
			- Disassembly/reassembly
			- Adjusting and checking
			• Safety Precautions/Features
			• Spare Parts List
			• Additional Data

FORM 2 TO SECTION 01785 Page 1 of 4
EQUIPMENT DATA FORM

PROJECT NAME			
CONTRACT NO.			
CONTRACTOR			
EQUIPMENT NO.		ASSET NO.*	
DESCRIPTION		MAINT. NO.*	
LOCATION			
MANUFACTURER			
PURCHASED FROM			
VENDOR ORDER NO.		PURCHASE \$	
DATE OF PURCHASE			
LOCAL SUPPLIER			
ADDRESS			
PHONE NO.			
MODEL NO.			
NO. OF UNITS	SERIAL NOS.		
*By Owner			

FORM 2 TO SECTION 01785 Page 2 of 4
EQUIPMENT DATA FORM

NAMEPLATE DATA

ELECTRIC MOTOR		PUMP/HVACUNIT	
MANUFACTURER		MANUFACTURER	
TYPE	☐ AC ☐ DC	TYPE	
HORSEPOWER		SIZE	
RPM		CAPACITY	
VOLTAGE		PRESSURE	
AMPERAGE		ROTATION	
PHASE		IMPELLER SIZE	
FRAME		IMPELLER MATERIAL	
DRIVE/REDUCER		OTHER (I&C)	
MANUFACTURER		MANUFACTURER	
TYPE	☐ GEAR ☐ V-BELT ☐ CHAIN ☐ VARIDRIVE	TYPE	
		SIZE	
SERVICE FACTOR		CAPACITY	
RATIO		RANGE	

[illegible]

FORM 2 TO SECTION 01785 Page 4 of 4
EQUIPMENT DATA FORM

LUBRICANT/RECOMMENDED SPARE PARTS LIST

EQUIPMENT NO.		ASSET NO.*	
DESCRIPTION		MAINT.NO.*	

LUBRICANT LIST

REFERENCE SYMBOL	LUBRICANT TYPE (MILITARY STANDARD)	RECOMMENDED LUBRICANT AND MANUFACTURER
List symbols in "maintenance operation" (Page	List general lubricant type.	List specific lubricant name, viscosity, and manufacturer.

RECOMMENDED SPARE PARTS LIST

PART NO.**	DESCRIPTION	UNIT	QUANTITY	UNIT COST

ADDITIONAL DATA AND REMARKS

- By Owner
- ** Identify parts provided by this contract with two asterisks.
- Note: Attach additional sheets if necessary; identify each sheet at top with equipment number and description.

END OF SECTION

SECTION 01788
PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Maintain at site one record copy of:
 - 1. Drawings.
 - 2. Project Manual.
 - 3. Addenda.
 - 4. Change orders and other modifications to Contract.
 - 5. ENGINEER field orders, written instructions, or clarifications.
 - 6. Approved submittals.
 - 7. Field test records.
 - 8. Construction photographs.
 - 9. Associated permits.
 - 10. Certificates of inspection and approvals.

1.02 SUBMITTALS

- A. At Substantial Completion:
 - 1. Deliver one marked up set of Drawings to ENGINEER for use in preparation of record drawings.
- B. Accompany submittals with transmittal letter containing following.
 - 1. Date.
 - 2. Project title and number.
 - 3. CONTRACTOR'S name and address.
 - 4. Title of record document.
 - 5. Signature of CONTRACTOR or authorized representative.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

3.01 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in CONTRACTOR'S field office on-site apart from documents used for construction.
 - 1. Provide files and racks for storage of documents.
 - 2. Provide secure storage space for storage of samples.
- B. Maintain documents in clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- C. Make documents and samples available for inspection by ENGINEER or OWNER.
- D. Failure to properly maintain record documents may be reason to delay a portion of progress payments until records comply with Contract Documents.

3.02 RECORD DOCUMENTS

- A. Label each document "PROJECT RECORD" in neat, large printed letters.
- B. Maintain record set of Drawings and Specifications legibly annotated to show all changes are made during construction.
 - 1. Graphically depict changes by modifying or adding to plans, details, sections, elevations, or schedules.
 - 2. Make changes on each sheet affected by changes.
- C. Record information concurrently with construction progress.
 - 1. Do not conceal Work until required information is recorded.
 - 2. Record changes made by Written Amendment, Field Order, Change Order or Work Directive Change.
 - 3. Give particular attention to concealed equipment and materials that would be difficult to measure and record at later date.
- D. Drawings:

1. Graphically depict changes by modifying or adding to plans, details, sections, elevations, or schedules.
2. Make changes on each sheet affected by changes.
3. Dimensions:
 - a. Depths of various elements of foundation in relation to finish first floor datum.
 - b. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
4. Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
5. Details not on original Drawings.
6. Location and identification of exposed interior piping, including those shown schematically on Drawings.
7. Size of equipment and location including connections.
8. Electrical and Instrumentation:
 - a. Horizontal and vertical locations and size of underground cable, conduit, and duct runs dimensioned from established building lines.
 - b. Plan location and size of interior concealed and exposed feeders.
 - c. Size and location of access panels.
 - d. Variations from original Drawings.

E. Specifications:

1. Mark Specification sections to show substantial variations in actual Work performed in comparison with text of Specifications and modifications.
2. Include variations in products delivered to site and from manufacturer's installation instructions and recommendations.
3. Give particular attention to substitutions and selection of options and similar information.
4. Note related record drawing information and Product Data.

END OF SECTION

SECTION 02050
SELECTIVE DEMOLITION

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment, and incidentals required to perform all demolition and removal work as shown on the Drawings and as specified herein. All work shall be carried out in accordance with the Department of Labor:
 - 1. Occupational and Health Hazards (29 CFR - Part 1910).
 - 2. Safety and Health Regulations for Construction (29 CFR - Part 1518).
 - 3. Any applicable local ordinances or codes.
- B. None of the existing river bank slope protection hand placed rip rap may be removed. Sheet piling may be driven through the rip rap and it may be covered by the new construction; however, the rip rap is to remain in place throughout construction.
- C. Any removal work shall be carried to the limits necessary for construction of the new work, as specified hereinafter as directed by the ENGINEER.

1.02 RELATED WORK

- A. Concrete work is included in Division 3.
- B. Trench, backfilling, and compacting is included in Division 2.

1.03 SUBMITTALS

- A. Demolition and Removal Plan

The CONTRACTOR shall submit to the ENGINEER for his review and acceptance a plan for demolition and removal work, in accordance with the requirements of Division 1, Section 01300. After the contract is awarded and prior to the commencement of the work, the CONTRACTOR shall meet with the ENGINEER and OWNER and discuss the demolition and removal plan. The plan shall include a schedule for disconnection of utility services and procedures for the careful removal and disposal of materials, and coordination with other work or City activity in progress. Included in the plan must be a detailed description of the methods and equipment to be used for each operation and the sequence of operations.

- 1. Do not proceed with demolition until the ENGINEER has given

written acceptance of the demolition plan.

2. Obtain all demolition permits required, including any necessary transportation permits, and submit copies of these to the ENGINEER.
- B. The demolition plan submitted for approval shall specifically describe in detail the proposed methods and sequences of implementation of demolition work to be performed in connection with facilities, processes, and systems or parts thereof, the operation of which cannot be interrupted. The CONTRACTOR shall provide and operate at his own expense any temporary equipment, connections, bypasses, or other means necessary to assure continuous operation of facilities which in the opinion of the OWNER cannot be interrupted. Following the completion of work , any such temporary provisions shall be removed from the site to the satisfaction of the OWNER, unless otherwise directed.

1.04 PROTECTION

- A. Erect barriers, fences, guardrails, enclosures, chutes, and shoring to protect personnel, structures, and utilities remaining intact.
- B. Protection of Existing Work

Existing work to remain shall be protected from damage. Work damaged by the CONTRACTOR shall be repaired to match existing work at no additional cost to the OWNER, as directed by the ENGINEER. Provide temporary support and shoring as required for existing materials until new work is installed.
- C. Protection of Utilities

Existing utilities that are indicated or the locations of which are made known to the CONTRACTOR prior to demolition work shall be protected from damage. Damaged utilities shall be repaired as directed by the ENGINEER at no additional cost to the OWNER.
- D. Protection of Personnel

Where the safety of personnel is endangered in the area of removal work, barricades for traffic shall be used and advance notice shall be given to the ENGINEER prior to beginning any such work.
- E. Wherever piping is removed for disposition, adjacent pipe and headers that are to remain in service shall be maintained in service as reconnection is accomplished.
- F. Use of Saw Cuts and Pneumatic Hammers

Saw cuts shall be used wherever applicable. Pneumatic hammers shall only be used with the approval of the ENGINEER.

G. Use of Explosives

Use of explosives will not be allowed on this project.

H. Carry out all demolition work in accordance with the accepted demolition plan and applicable permit requirements.

PART 2 PRODUCTS

None this Section.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify that the use of the facilities and related equipment to be demolished has been discontinued.
- B. Do not commence work until conditions are acceptable to the ENGINEER.

3.02 PREPARATION

- A. Arrange for and verify termination of utility services, including removal of existing utility company appurtenances.

3.03 DEMOLITION

- A. Perform demolition in accordance with the accepted demolition plan, applicable permit requirements, and as directed by the ENGINEER.

3.04 DISPOSAL

- A. Debris and Rubbish Control: Debris and rubbish shall be removed and transported in a manner that will prevent spillage on streets or adjacent areas.
- B. Regulations: Federal, state, and local regulations regarding hauling and disposal shall be complied with.

END OF SECTION

SECTION 02110

SITE CLEARING AND GRUBBING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Furnish all labor and equipment required and perform all clearing, grubbing and stripping of topsoil complete as shown on the DRAWINGS and as specified herein.

1.02 RELATED WORK

None this section.

1.03 SUBMITTALS

None this section.

PART 2 PRODUCTS

None in this Section.

PART 3 EXECUTION

3.01 GENERAL

- A. The proposed areas designated for embankment construction, impoundments, ditches and channel changes, borrow pits, etc., (except any portions thereof that may be reserved) shall be cleared of all trees, timbers, brush, stumps, rubbish and other debris. All this material, unless otherwise specified, shall be burned or otherwise removed, as may be directed and without injury to adjoining property. Burning must be in compliance with any applicable regulations covering open burning and smoke abatement. Where clearing is to be done, all stumps and roots shall be grubbed. No debris will be allowed to be left under or in the embankments. In felling trees near structures and wire lines, necessary precaution must be exercised in order to prevent damage to wire lines, structures, the facilities of others. Payment for all clearing and grubbing shall be incidental to the prices bid for doing other work.

3.02 TREES

- A. Trees (3" caliper and larger) shall not be disturbed by construction without written permission from the OWNER, except in those areas to be cleared. Trees disturbed by construction shall be replaced by the CONTRACTOR with same size and type at no additional cost to the OWNER.

END OF SECTION

SECTION 02140

DEWATERING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Furnish all labor and equipment required to dewater all excavations. Dewatering of all excavations shall be the responsibility of the CONTRACTOR, and no additional compensation will be allowed for same unless specifically included as a BID item.

1.02 RELATED WORK

- A. Earthwork is included in Division 2, Section 02200.

1.03 SUBMITTALS

Not applicable to this CONTRACT.

PART 2 PRODUCTS

Not applicable to this CONTRACT.

PART 3 EXECUTION

3.01 GENERAL

- A. Dewatering equipment shall be of adequate size and quantity to assure maintaining proper conditions for installing pipe, concrete, backfill or other material or structure in the excavation. Dewatering shall include proper removal of any and all liquid, regardless of its source, from the excavation and the use of all practical means available to prevent surface runoff from entering any excavation. No extra payment shall be made for dewatering.
- B. No sanitary sewer shall be used for the disposal of water from trenches or other excavations. (From "10-States' Standards)

END OF SECTION

SECTION 02200

EARTHWORK

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. Extent of earthwork is indicated on the DRAWINGS.
 - 1. Preparation of sub-grade for embankments and outlet works is included as part of this WORK.
 - 2. Engineered fill course for support of concrete slabs is included as part of this WORK.
 - 3. Backfilling of structures, headwalls, channels, manholes and trenches is included as part of this WORK.
- B. Excavation for Mechanical/Electrical WORK

Excavation and backfill required in conjunction with underground mechanical and electrical appurtenances is included as WORK of this Section.
- C. Definition

“Excavation” consists of removal of material encountered to sub-grade elevations indicated and subsequent disposal of materials removed.

1.02 RELATED WORK

- A. Dewatering is included in this Division, Section 02140.
- B. Erosion and sedimentation control is included in this Division, Section 02270.
- C. Piping is included in this Division, Section 02610 and 02700.
- D. Landscaping is included in this Division, Section 02900.

1.03 QUALITY ASSURANCE

- A. Codes and Standards

Perform excavation WORK in compliance with applicable requirements of governing authorities having jurisdiction.
- B. Testing and Inspection Services

Employ, at CONTRACTOR'S expense, testing laboratory acceptable to the OWNER and the ENGINEER to perform soil testing and inspection service for quality control during earthwork operations.

1.04 SUBMITTALS

A. Test Reports

Submit following reports directly to the ENGINEER from the testing services, with copy to CONTRACTOR:

1. Test reports on borrow material.
2. Verification of each cutoff trench elevation and embankment sub-grade elevation.
3. Field density test reports, one per 3,000 S.F. per lift.
4. One optimum moisture-maximum dry density curve for each type of soil encountered, per ASTM D-698.

1.05 JOB CONDITIONS

A. Site Information

1. Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that OWNER will not be responsible for interpretation or conclusions drawn therefrom by CONTRACTOR. Data are made available for convenience of CONTRACTOR.
2. Additional test borings and other exploratory operations may be made by CONTRACTOR at no cost to OWNER.

B. Existing Utilities

Locate existing underground utilities in areas of WORK. If utilities are to remain in place, provide adequate means of protection during earthwork operations.

C. Use of Explosives

Do not bring explosives onto site or use in WORK without prior written permission from authorities having jurisdiction. Contact Kentucky Department of Mines and Minerals for information. CONTRACTOR is solely responsible for handling, storage, and use of explosive materials when their use is permitted.

D. Protection of Persons and Property

1. Barricade open excavations occurring as part of this WORK and post with warning lights.
 - a. Operate warning lights as directed by authorities having jurisdiction.
 - b. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

PART 2 PRODUCTS

2.01 SOIL MATERIALS

A. Definitions

1. Sub-base material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed slag, natural or crushed sand.
2. Backfill and fill materials: Satisfactory soil materials free of debris, waste, frozen materials, vegetable, and other deleterious matter.
3. Embankment Materials

All fill materials shall be obtained from required excavations and from the proposed borrow areas if shown on the CONTRACT DRAWINGS. The selection, blending, routing and disposition of materials shall be subject to the approval of the ENGINEER.

a. Materials - Impervious Clay Core

Core fill materials shall consist of residual overburden soils within the proposed excavation and borrow areas. These soils consist primarily of brown clays classified as CH or CL using the Unified Soil Classification System.

Fill materials shall contain no sod, organic topsoil, brush, roots or other deleterious materials. Fill material shall be rock free and shall be approved by the ENGINEER prior to fill placement.

b. Materials - Random Earth and Rock Zones

Fill material shall consist of non-organic soil or weathered rock with a maximum particle size of 12 inches. Rock materials from the borrow area shall be excavated by

ripping methods. No blasting will be allowed without written permission from the OWNER.

2.02 EMBANKMENT DRAINAGE MATERIALS

- A. No. 57 crushed stone is specified in this Division, Section 02255.
- B. Filter fabric for use with the embankment drain location at the downstream face of the impervious core, where called for in this Section, on the DRAWINGS or as determined by the ENGINEER shall be Mirafi 140N as manufactured by Celanese Corporation, New York, NY 10036, or equal.

PART 3 EXECUTION

3.01 STRIPPING AND TOPSOILING

- A. Before excavation and grading is commenced for structures, the embankment, outlet works or other WORK described hereinafter (except pipelines and manholes) or before material is removed from borrow pits, (impoundment area) the topsoil shall be removed from the areas affected and stockpiled. When final grading is accomplished, the topsoil shall be spread evenly over the disturbed area, except within the impoundment area. Rough grading shall have been carried approximately 6 inches below finished grade (except solid rock, where it shall be carried 12 inches below finished grade) and brought back up to grade with topsoil as set out herein.

3.02 EXCAVATION

- A. All excavation to be unclassified standard excavation includes excavation to sub-grade elevations indicated including excavation of earth, rock (at depth shown on DRAWINGS), bricks, wood, cinders, and other debris.
- B. Differing Site Conditions
 - 1. Should the CONTRACTOR, during the course of construction, encounter subsurface or latent physical conditions differing materially from the subsurface information provided, or unknown physical conditions of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in this CONTRACT, he shall immediately notify the ENGINEER in writing of the conditions encountered.
 - 2. Upon receipt of such notice, the ENGINEER shall promptly investigate the conditions described by the CONTRACTOR and shall advise the CONTRACTOR in writing of the decision and/or disposition of the conditions encountered.

C. Unanticipated Material

1. No classification of excavation will be made when unanticipated material is encountered in WORK:
 - a. Excavation includes excavation of pavements and other obstructions visible on ground surface; underground structures, utilities, and other items indicated to be demolished and removed; together with earth and other materials encountered that are not classified as unauthorized excavation.

D. Unauthorized excavation consists of removal of materials beyond indicated sub-grade elevations or dimensions without specific direction of ENGINEER. Unauthorized excavation, as well as remedial WORK directed by ENGINEER, shall be at CONTRACTOR'S expense.

1. Under footings or foundation bases fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to the ENGINEER.
2. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by the ENGINEER.

E. Additional Excavation

1. When excavation has reached required sub-grade elevations, notify the ENGINEER who will make an inspection of conditions.
 - a. If unsuitable bearing materials are encountered at required sub-grade elevations, carry excavations deeper and replace excavated material as directed by the ENGINEER.
 - b. Removal of unsuitable material and its replacement as directed will be paid on basis of CONTRACT conditions relative to changes in WORK using Unit Price Modification prices.

F. Stability of Excavations

1. Slope sides of excavations to comply with Federal, State and local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.
2. Maintain sides and slopes of excavations in safe condition until completion of backfilling.

G. Shoring and Bracing

Provide materials for shoring and bracing, such as sheet piling, uprights, stringers, and cross-braces, in good serviceable condition.

1. Establish requirements for trench shoring and bracing to comply with Federal, State and local codes and authorities having jurisdiction.
2. Maintain shoring and bracing in excavations regardless of time period excavation progresses.
3. Provide permanent steel sheet piling or pressure creosoted timber sheet piling wherever subsequent removal of sheet piling might permit lateral movement of soil under adjacent structures. Cut off tops as required and leave permanently in place.

H. Dewatering

1. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding PROJECT site and surrounding area.
 - a. Do not allow water to accumulate in excavation. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of sub-grades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
 - b. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavation to collecting or runoff areas. Do not use trench excavations as temporary drainage ditches.
2. Prevent impoundment of water behind embankment during construction and prior to acceptance of OWNER.
3. See this Division, Section 02140 for additional requirements.

I. Material Storage

1. Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade, and shape stockpiles for proper drainage.
 - a. Dispose of excess soil material and waste materials as herein specified.

J. Excavation for Structures

1. Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 feet and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.
2. In excavating for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other WORK.

K. Excavation for Pavements

1. Cut surface under pavements to comply with cross-sections, elevations, and grades as shown on DRAWINGS.

L. Trench Excavation

1. The CONTRACTOR shall include in his lump sum BID all trenching and backfill necessary for installation of all pipelines as planned and specified. Trenching shall include clearing and grubbing of all trash, weeds, briars, trees and stumps encountered in the trenching. The CONTRACTOR shall dispose of such material at no extra cost to the OWNER. Shrubs shall be removed, maintained and replanted in the same or adjacent location as the ENGINEER may direct. Trenching also includes such items as pipe and small creek crossings; cutting, moving or repairing damage to fences, posts, gates, and other surface structures regardless of whether shown on the DRAWINGS.
2. All existing facilities shall be protected from danger or damage while pipelines are being constructed and backfilled, and from damage due to settlement of the backfill.
3. In the event any existing structure is damaged, repair and restoration shall be made at once and backfill shall not be replaced until this is done. Restoration and repair shall be such that the damaged structure is equal to or better than its original condition and can serve its purpose as completely as before. All such restoration and repair shall be done without extra cost to the OWNER.
4. Trenches must be dug to lines and grades shown on the DRAWINGS. Hand trenching will be required in areas where machine trenching would result in undue damage to existing structures and facilities.
5. Excavation shall be open trenches.

6. Sheeting and shoring of trenches shall be provided at the expense of the CONTRACTOR where necessary to protect life, property and the new or existing structures from damage or to maintain maximum permissible trench widths at top of pipe. All necessary materials, including, but not limited to, sheeting, sheet piling, trench jacks, braces, shores and stringers, shall be used to hold trench walls. Sheeting and shoring may be withdrawn as the trenches are being backfilled, after backfill has been tamped over top of the pipe at least 18 inches. If removal before backfill is completed to surface endangers adjacent structures, such as buildings, pipelines, street paving, and sidewalks, then the sheeting and shoring shall be left in place until such danger has passed, and then pulled if practical. Voids caused by sheeting withdrawal shall be backfilled and tamped. If not withdrawn, sheeting shall be cut off at least 18 inches below final surface grade, so there is no obstruction at the ground level.
7. Where sub-grade of trench has insufficient stability to support the pipeline and hold it to its original grade, the ENGINEER may order stabilization by various means. Exclusive of dewatering normally required for construction, and instability caused by neglect of the CONTRACTOR, the necessary stabilization shall be paid for at unit price set up in the CONTRACT. In the event no particular BID price is applicable, then the payment for stabilization will be negotiated.
8. The location of the pipelines and their appurtenances as shown are those intended for the final construction. However, conditions may present themselves before or after construction on any line is started that would indicate desirable changes in location. The OWNER reserves the right to make reasonable changes in line and structure locations without extra cost, except as may be determined by extra units of materials and construction actually involved. The OWNER is under no obligation to locate pipelines, so they may be excavated by machine.
9. Tunneling may be used as an alternate to open-cut trenching, at no extra cost to the OWNER. The annular space between plates and excavation shall be either permanently placed pea gravel or sand, pumped grout (3 parts sand and 1 part Portland cement by volume) or other suitably installed material approved by the ENGINEER. Backfilling shall be kept close to the heading and completed after each day's WORK. Where grout is used for backfill, injection holes with threaded plugs shall be provided in liner plates at various levels and in sufficient number to effectively grout the void around the tunnel. A minimum of 3 grout holes shall be provided in each 8 feet of tunnel length. Grout shall be injected in the lower holes first, proceeding upward as the void is filled. Plugs shall be installed after each hole is filled and grout stops shall be provided behind plates as necessary to ensure complete filling of the void. In tunneling under buildings, the

CONTRACTOR will be responsible for all damage resulting from his operations and methods of excavation and backfilling. Boring may also be used as an alternate to tunneling or open-cut trenching, at no extra cost to the OWNER.

10. Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room. Provide 6" to 9" clearance on both sides of pipe or conduit.
 - a. Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations. Beyond building perimeter, keep bottoms of trenches sufficiently below finish grade to avoid freeze-ups.
 - b. Where rock is encountered, carry excavation 6 inches below required elevation and backfill with a 6-inch layer of crushed stone or gravel prior to installation of pipe.
 - c. For pipes or conduit 3 inches or less in nominal size and for flat-bottomed, multiple-duct conduit units, excavate to sub-base depth indicated or, if not indicated, then to 2 inches below bottom of WORK to be supported.
 - d. For pipes or conduit 6 inches or larger in nominal size, tanks, and other mechanical/electrical WORK indicated to receive sub-base, excavate to sub-base depth indicated or, if not otherwise indicated, to 6 inches below bottom of WORK to be supported.
 - e. Except as otherwise indicated, excavate for exterior water-bearing piping (water, steam, condensate, drainage) so top of piping is no less than 2 feet 6 inches below finish grade.
 - f. Grade bottoms of trenches as indicated on DRAWINGS, notching under pipe bells to provide solid bearing for entire body of pipe.
 - g. Concrete is specified in Division 3.
 - h. Do not backfill trenches until tests and inspections have been made and backfilling authorized by the ENGINEER. Use care in backfilling to avoid damage or displacement of pipe systems.
 - i. For piping or conduit less than 2 feet 6 inches below surface of roadways, provide 4-inch thick concrete base slab support. After installation and testing of piping or conduit, provide minimum 4-inch thick encasement (sides and top) of concrete prior to backfilling or placement of roadway sub-base.

M. Cold Weather Protection

1. Protect excavation bottoms against freezing when atmospheric temperature is less than 35°F (1°C).

3.03 COMPACTION

A. General

1. Control soil compaction during construction providing minimum percentage of density specified for each area classification indicated below.
 - a. Percentage of maximum density requirements: Compact soil to not less than the following percentages of maximum density for soils which exhibit a well-defined moisture density relationship (cohesive soils) determined in accordance with ASTM D698; and not less than the following percentage of relative density, determined in accordance with ASTM D2049, for soils which will not exhibit a well-defined moisture-density relationship (cohesionless soils). CONTRACTOR is responsible for providing one optimum moisture content - maximum dry density curve in accordance with the above referenced ASTM standards for each soil type encountered.
 - b. Structures, building slabs and steps, pavements: Compact top 12 inches of sub-grade and each 8 inch loose, uncompacted layer of backfill or fill material at 100 percent maximum density for cohesive material or 95 percent relative density for cohesionless material.
 - c. Lawn or unpaved areas: Compact to 6 inches of sub-grade and each 8 inch loose, uncompacted layer of backfill or fill material at 90 percent maximum density for cohesive soils and 90 percent relative density for cohesionless soils.
 - d. Walkways: Compact top 6 inches of sub-grade and each 8 inch loose, uncompacted layer of backfill or fill material at 95 percent maximum density for cohesive material or 95 percent relative density for cohesionless material.
2. Subgrade and backfill for sewers located in fill areas shall be compacted to not less than 95 percent maximum density.

B. Moisture Control

1. Where sub-grade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface or sub-grade, or layer of soil material, to prevent free water from

appearing on surface during or subsequent to compaction operations.

2. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
3. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by deicing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.

3.04 BACKFILL AND FILL

A. General

1. Place acceptable soil material in layers to required sub-grade elevations, for each area classification listed below.
 - a. In excavations, use satisfactory excavated or borrow material.
 - b. Under grassed areas, use satisfactory excavated or borrow material.
 - c. Under walks and pavements, use sub-base material, or satisfactory excavated or borrow material, or combination of both.
 - d. Under steps, use sub-base material.
 - e. Under building slabs, use engineered fill material for a minimum depth of 6 inches.
 - f. Sub-base material or satisfactory excavated or borrow material may be used below engineered fill at building slabs.
 - g. Under piping and conduit, use sub-base material where sub-base is indicated under piping or conduit; shape to fit bottom 90° of cylinder.

B. Backfill excavations as promptly as WORK permits, but not until completion of the following:

1. Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
2. Inspection, testing, approval, and recording locations of underground utilities.
3. Removal of concrete formwork.

4. Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.
5. Removal of trash and debris.
6. Permanent or temporary horizontally supported walls.

C. Ground Surface Preparation

1. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface, except as otherwise specified in Section 02200-3.05 for embankments.
2. When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, adjust moisture condition to optimum moisture content, and compact to required depth and percentage of maximum density.

D. Placement and Compaction

1. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
 - a. Before compaction, add moisture to each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
 - b. Place backfill and fill materials evenly adjacent to structures, piping, or conduit to required elevations. Take care to prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.

E. Backfilling Trenches

1. Backfilling shall be accomplished as soon as practical after pipe has been laid and jointing and alignment approved. Packing of crushed rock between joints shall be the usual procedure as the laying progresses. This is in order to avoid danger of

misalignment from slides, flooding or other causes. The ENGINEER shall be given a maximum of 24 hours for inspection before backfilling.

2. The backfill over the pipe shall be in accordance with the standard details shown on the DRAWINGS for bedding and backfilling pipe.
3. In case maximum permissible trench widths (as designated by the pipe manufacturer) are exceeded, the CONTRACTOR shall furnish crushed rock backfill to a minimum of 12 inches over the top of pipe at no extra cost to the OWNER.
4. After the foregoing cover requirements over top of the pipe have been met, rock may be used in the backfill in pieces no larger than 12 inches in any dimension and to an extent not greater than one-half the backfill materials used. If additional earth is required for backfilling, it must be obtained and placed by the CONTRACTOR at no additional cost to the OWNER. Filling with rock and earth shall proceed simultaneously, such that no voids are left in the rock. After cover requirements over top of pipe have been met, backfilling may be employed without tamping, provided caution is used in quantity per dump and uniformity of level of backfilling. Surplus material shall be uniformly ridged over trench and excess rock hauled away, with no rock over 1-1/2 inch diameter in the top 6 inches. Ridged backfill shall be confined to the width of the trench and no higher than needed for replacement of settlement of backfill. All rock over 1-1/2 inch diameter shall be broomed to remove all earth and loose rock, all immediately following backfilling.
5. In the case of street, highway, railroad, sidewalk and driveway crossings; or within any roadway paving; or about manholes, valve and meter boxes; the backfill must be mechanically tamped in not over 6 inch layers, measured loose. Alternate method of compacting backfill shall be used, if refill material is in large hard lumps (crushed rock excepted) which cannot be consolidated without leaving voids.
6. In the case of tunnels, the annular space between plates and excavation shall be either permanently placed pea gravel or sand, pumped grout (3 parts sand and 1 part Portland cement by volume) or other suitably installed material approved by the ENGINEER. Backfilling shall be kept close to the heading and completed after each day's WORK. Where grout is used for backfill, injection holes with threaded plugs shall be provided in liner plates at various levels and in sufficient number to effectively grout the void around the tunnel. A minimum of 3 grout holes shall be provided in each 3 feet of tunnel length. Grout shall be injected in the lower holes first, proceeding upward as the void is filled. Plugs shall be installed after each hole is filled and grout

stops shall be provided behind plates as necessary to ensure complete filling of the void.

7. Where traffic on streets, driveways, railroads, sidewalks and highways requires temporary surfacing, backfilling shall be terminated 4 inches below original ground level and 4 inches to 6 inches of dense graded aggregate shall be placed on the trench. Backfills shall be maintained easily passable to traffic at original ground level, until acceptance of PROJECT or replacement of paving or sidewalks.
8. Excavated materials from trenches and tunnels in excess of that required for backfill shall be disposed of on the plant lot, as directed by the ENGINEER.
9. The CONTRACTOR shall protect all sewer, gas, electric, telephone, water, and drain pipes or conduits from damage while pipelines are being constructed and backfilled, and from danger due to settlement of trench backfill.
10. No extra payment shall be made for backfilling of any kind, except as specified herein before. Backfilling shall be included as a part of the Unit Price BID. No extra payment will be made to the CONTRACTOR for supplying outside materials for backfill.
11. On completion of the PROJECT, all backfills shall be dressed; holes filled; and surplus material hauled away. All permanent walks, street paving, roadway, etc., shall be restored and seeding and sodding performed as required.

3.05 EMBANKMENTS

A. Borrow Excavation

Should insufficient quantities of suitable soil fill material for construction of the embankment be located within the designated areas, where shown on the PLANS, the CONTRACTOR shall obtain suitable soil material conforming to the requirements of the "Materials" SPECIFICATIONS at no additional cost to the OWNER.

Excavation areas shall be excavated and finally dressed in a manner such that no steep or unstable side slopes or other hazardous or unsightly conditions exist.

To the extent that they are needed, all suitable materials shall be used in the construction of permanent earth fill or rock fill. The suitability of materials for specific purposes will be determined by the ENGINEER. The CONTRACTOR shall not waste or otherwise dispose of suitable excavated materials.

B. Foundation Preparation

Foundations for earth fill shall be stripped of all topsoil to remove vegetation and other deleterious materials or shall be excavated as specified.

Except as otherwise specified for foundation benches, earth foundation surfaces shall be graded to remove surface irregularities and shall be scarified parallel to the axis of the fill or otherwise acceptably scored and loosened to a minimum depth of 2 inches. The moisture content of the loosened material shall be controlled as specified for the earth fill, and the surface materials of the foundation shall be compacted and bonded with the first layer of earth fill as specified for subsequent layers of earth fill.

When the original ground surface is sloping at rate of 15 percent or greater, perpendicular to the embankment axis, embankment foundation benches shall be constructed as shown on the CONTRACT DRAWINGS. Preparation of the foundation shall proceed as described in the previous paragraph.

Earth abutment surfaces shall be free of loose, uncompacted earth in excess of two inches in depth normal to the slope and shall be at such a moisture content that the earth fill can be compacted against them to effect a good bond between the fill and the abutments.

C. Fill Placement

Fill shall not be placed until the required excavation and foundation preparation have been completed and the foundation has been inspected and approved by the ENGINEER. Fill shall not be placed upon a frozen surface, nor shall snow, ice or frozen material be incorporated in the fill.

Fill shall be placed in approximately horizontal layers. The thickness of each layer before compaction shall not exceed twelve inches (12"). Materials placed by dumping in piles or windrows shall be spread uniformly to not more than the specified thickness before being compacted. Hand compacted fill, including fill compacted by manually directed power tampers, shall be placed in layers whose thickness before compaction does not exceed six inches (6").

Adjacent to pipe or structures, fill shall be placed in a manner which will prevent damage to the pipes or structures and will allow the pipes or structures to assume the loads from the fill gradually and uniformly. The height of the fill adjacent to a structure shall be increased at approximately the same rate on all sides of the structures.

Earth fill for embankments shall also be placed so as to meet the following additional requirements:

1. The distribution of materials, throughout the zone shall be essentially uniform, and the fill shall be free from voids, pockets, streaks or layers of material differing substantially in texture or gradation from the surrounding material.

2. If the surface of any layer becomes too hard and smooth for proper bond with the succeeding layer, it shall be scarified parallel to the axis of the fill to a depth of not less than 2 inches before the next layer is placed.
3. The top surfaces of embankments shall be maintained approximately level during construction, except that a crown or cross-slope of not less than 2 percent shall be maintained to insure effective drainage. If the DRAWINGS or SPECIFICATIONS require or the ENGINEER directs that fill be placed at a higher level in one part of an embankment than another, the top surface of each part shall be maintained as specified above.
4. Embankments shall be constructed in continuous layers except where openings to facilitate construction or to allow the passage of stream flow during construction are specifically authorized.
5. Embankments built at different levels as described under (3) or (4) above shall be constructed so that the slope of the bonding surfaces between embankment in place and embankment to be placed is not steeper than 3 feet horizontal to 1 foot vertical. The bonding surface of the embankment in place shall be stripped of all loose material, and shall be scarified, moistened and recompacted when the new fill is placed against it as needed to insure a good bond with the new fill and to obtain the specified moisture content and density in the junction of the in place and new fill.
6. Embankment materials shall be placed in the zones (impervious core and random earth and rock) shown on the CONTRACT DRAWINGS. Prior to fill placement in the cutoff trench, the bottom of the cut off trench shall be inspected by the ENGINEER. All fractures or joints shall be clean and filled with mortar or concrete unless otherwise directed by the ENGINEER.
7. Fill placement shall then proceed in accordance with CONTRACT PLANS AND SPECIFICATIONS and in a manner such that no steep or unstable slopes or other hazardous or unsightly conditions exist. Fill material used shall conform to requirements of the "Materials" SPECIFICATIONS previously mentioned.
8. Rocks placed in the random earth and rock zones shall be kept at least 2 feet below the embankment surface. The rock shall not be dumped into final position, but shall be distributed by blading or dozing in a manner that will ensure proper placement in the embankment so that voids, pockets and bridging will be eliminated.

D. Compaction

Each layer of fill shall be compacted as necessary to make density of the fill matrix not less than the minimum density specified. The fill matrix is defined as the portion of the fill material finer than the maximum particle size used in the compaction test method specified. Embankment fill shall be compacted to minimum field densities equal to or greater than 95 percent of maximum dry density as determined by the Standard Proctor Maximum Dry Density test method ASTM D-698. Moisture content may vary optimum, -2 percent to +1 percent as also determined by ASTM D-698.

CONTRACTOR shall provide one moisture content vs. dry density relationship curve as determined by standard test method ASTM D-698 to help determine optimum moisture content and maximum dry density for each soil type encountered during construction prior to placement in the embankment.

Fill adjacent to structures shall be compacted to a density equivalent to that of the surrounding fill by means of hand tamping or manually directed power tampers or plate vibrators. Heavy equipment shall not be operated within 2 feet of any structure. Vibrating rollers shall not be operated within 5 feet of any structure. Compaction by means of drop weights operating from a crane or hoist will not be permitted.

The passage of heavy equipment will not be allowed: (a) over cast-in place conduits prior to 14 days after placement of the concrete; (b) over cradled pre-cast conduits prior to 7 days after placement of the concrete cradle; or (c) over any type of conduit until the backfill has been placed above the top surface of the structure to a height equal to one-half of the clear span width of the structure or pipe or 2 feet, whichever is greater.

E. Testing

During the course of the WORK, the CONTRACTOR will perform such tests as are required to identify the materials, to determine compaction characteristics, to determine moisture content, and to determine density of fill in place. These tests performed by the CONTRACTOR will be used to verify that the fills conform to the requirements of the SPECIFICATIONS. Such tests are intended to provide the CONTRACTOR with the information required by him for the proper execution of the WORK.

Submittals shall be per Section 02200, paragraph 1.04 A.

F. Removal and Replacement of Defective Fill

Fill placed at densities lower than the specified minimum density or at moisture contents outside the specified acceptable range of moisture content or otherwise not conforming to the requirements of the SPECIFICATIONS shall be reworked to meet the requirements or removed and replaced by acceptable fill. The replacement fill, the

foundation, and the surfaces upon which the fill is placed shall conform to all requirements of the SPECIFICATIONS for foundation preparation, approval, placement, moisture control and compaction.

3.06 GRADING

A. General

1. Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between such points and existing grades.

B. Grading Outside Building Lines

1. All materials used for backfill around structures shall be of a quality acceptable to the ENGINEER and shall be free from large or frozen lumps, wood and other extraneous material. All spaces excavated and not occupied by footings, foundations, walls or other permanent WORK shall be refilled with earth up to the surface of the surrounding ground, unless otherwise specified, with sufficient allowance for settlement. In making the fills and terraces around the structures, the fill shall be placed in layers not exceeding 12 inches in depth and shall be kept smooth as the WORK progresses. Each layer of the fill shall be rolled with an approved type roller and/or be compacted. When it is not practicable to compact sections of the fill immediately adjacent to buildings or structures by rolling, then such sections shall be thoroughly compacted by means of mechanical tamping or hand tamping as may be required by the conditions encountered. All fills shall be placed so as to load structures symmetrically.
2. As set out herein before, rough grading shall be held below finished grade and then the topsoil which has been stockpiled shall be evenly spread over the surface. The grading shall be brought to the levels shown on the DRAWINGS or to the elevations established by the ENGINEER. Final dressing shall be accomplished by hand WORK or machine WORK, or a combination of these methods as may be necessary to produce a uniform and smooth finish to all parts of the re-grade. The surface shall be free from clods greater than 2 inches in diameter. Excavated rock (6 inches maximum size) may be placed in the fills, but it shall be thoroughly covered. Rock placed in fills shall not be closer than 12 inches from finished grade.
3. Grade areas adjacent to building lines to drain away from structures and to prevent ponding.
 - a. Finish surfaces free from irregular surface changes, and as follows:

- (1) Lawn or unpaved areas: Finish areas to receive topsoil to within not more than 0.10 ft. above or below required sub-grade elevations.
- (2) Walks: Shape surface of areas under walks to line, grade, and cross-section, with finish surface not more than 0.10 ft. above or below required sub-grade elevation.
- (3) Pavements: Shape surface of areas under pavement to line, grade, and cross-section, with finish surface not more than 0.04 ft. above or below required sub-grade elevation.

C. Grading Surface of Fill Under Building Slabs

1. Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 0.04 ft. when tested with a 10ft. straightedge.

D. Compaction

1. After grading, compact sub-grade surfaces to the depth and indicated percentage of maximum or relative density for each area classification.

3.07 PAVEMENT SUB-BASE COURSE

A. General

1. Sub-base course consists of placing sub-base material, in layers of specified thickness, over sub-grade surface to support a pavement base course.

B. Grade Control

1. During construction, maintain lines and grades including crown and cross-slope of sub-base course.

C. Shoulders

1. Place shoulders along edges of sub-base course to prevent lateral movement. Construct shoulders of acceptable soil materials, placed in such quantity to compact to thickness of each sub-base course layer. Compact and roll at least a 12 inch width of shoulder simultaneously with compacting and rolling of each layer of sub-base course.

D. Placing

1. Place sub-base course material on prepared sub-grade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting sub-base material during placement operations.
2. When a compacted sub-base course is shown to be 6 inches thick or less, place material in a single layer. When it is shown to be more than 6 inches thick, place material in equal layers, such that no single layer shall be more than 6 inches or less than 3 inches in thickness when compacted.

3.08 BUILDING SLAB ENGINEERED FILL COURSE

A. General

1. Engineered fill course consists of placement of fill material, in layers of indicated thickness, over sub-grade surface to support concrete building slabs.

B. Placing

1. Place fill material on prepared sub-grade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting material during placement operations.
2. When a compacted course is shown to be 6 inches or less, place material in a single layer. When it is shown to be more than 6 inches thick, place material in equal layers, such that no single layer shall be more than 6 inches or less than 3 inches in thickness when compacted.

3.09 FIELD QUALITY CONTROL

A. Quality Control Testing During Construction

1. Allow testing service to inspect and report to the ENGINEER on findings and approve sub-grades and fill layers before further construction WORK is performed.
 - a. Perform field density tests in accordance with ASTM D 1556 (sand cone method), ASTM D 2167 (rubber balloon method), or ASTM D 2992 (nuclear density method), as applicable.
 - b. Footing sub-grade: For each strata of soil on which footings will be placed, conduct at least one test to verify required design bearing capacities. Subsequent verification and approval of each footing sub-grade may be based on a visual comparison of each sub-grade with related tested strata, when acceptable to ENGINEER.

- c. Paved areas and building slab sub-grade: Make at least one field density test of sub-grade for every 2,000 square feet of paved area or building slab, but in no case less than three tests. In each compacted fill layer, make one field density test for every 2,000 square feet of overlaying building slab or paved area, but in no case less than three tests.
 - d. Foundation wall backfill: Take at least two field density tests, at locations and elevations as directed.
- B. If in the opinion of the ENGINEER, based on testing service reports and inspection, sub-grade or fills which have been placed are below specified density, CONTRACTOR shall provide additional compaction and testing at no additional expense to the OWNER.

3.10 MAINTENANCE

- A. Protection of Graded Areas
 - 1. Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
- B. Reconditioning Compacted Areas
 - 1. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.
- C. Settling
 - 1. Where settling is measurable or observable at excavated areas during general PROJECT warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent WORK, and eliminate evidence of restoration to greatest extent possible.

3.11 BASIS FOR PAYMENT

Payment for excavation shall be made on a unit price or a lump sum basis where a separate bid item is provided. Otherwise payment for all excavation, trenching and backfilling required for other work, such as structures, pipelines, etc., shall be made on a unit price or lump sum basis bid for that work.

END OF SECTION

SECTION 02255

CRUSHED STONE AND DENSE GRADED AGGREGATE

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish and install crushed stone for miscellaneous uses as shown on the Drawings, as called for in the Specifications, or as may be directed in writing by the ENGINEER.
- B. Sizes, types, and quality of crushed stone are specified in this Section, but its use for replacement of unsuitable material, pavement base, and similar uses is specified in detail elsewhere in the Specifications. The ENGINEER may order the use of crushed stone for purposes other than those specified in other sections, if, in his opinion, such use is advisable.

PART 2 PRODUCTS

2.01 MATERIALS

- A. When referred to in these Specifications, crushed stone shall be Number 57 graded in accordance with the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, 2000 Edition.
- B. When referred to in these Specifications, dense graded aggregate (DGA) shall be crushed stone classified by the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, 2000 Edition, and conforming to the following requirements:

Sieve Size	Percent Passing
1 Inch	100
3/4 Inch	70 - 100
3/8 Inch	50 - 80
#4	30 - 65
#30	10 - 40
#200	4 - 13

PART 3 EXECUTION

3.01 INSTALLATION

- A. Crushed stone shall be placed in uniform layers not greater than 6 inches deep and shaped by power equipment to required lines, grades, cross sections, and depths. No minimum compacted density, method of

compaction, or compaction equipment is required since a nominal amount of compaction effort with vibration can establish the desired inter-granular locking of the aggregate under controlled placement depth. Acceptable compaction can be achieved with pneumatic-tired and tracked vibratory equipment and vibratory rollers.

- B. All compaction operations shall be performed to the satisfaction of the ENGINEER.
- C. Crushed stone shall be placed in those areas as shown on the Drawings and as may be directed by the ENGINEER.

3.02 BASIS FOR PAYMENT

Payment for crushed stone or DGA shall be made on a unit price or a lump sum basis where a separate bid item is provided. Otherwise payment for crushed stone or DGA required for other work shown on the PLANS shall be made on a unit price or lump sum basis bid for that work.

END OF SECTION

No SECTION 02270

EROSION AND SEDIMENTATION CONTROL

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials and equipment required for erecting, maintaining and removing temporary erosion and sedimentation controls as shown on the Drawings and as specified herein.
- B. Temporary erosion controls include, but are not limited to grassing, mulching, seeding, watering, and reseeding on all disturbed surfaces including waste area surfaces and stockpile and borrow area surfaces; scheduling work to minimize erosion and providing interceptor ditches at those locations which will ensure that erosion during construction will be either eliminated or maintained within acceptable limits.
- C. Temporary sedimentation controls include, but are not limited to, silt dams, silt fences, traps, barriers, staked straw-bale diversions and appurtenances at the foot of sloped surfaces, which will ensure that sedimentation pollution will be either eliminated or maintained within acceptable limits.
- D. CONTRACTOR is responsible for providing and maintaining effective temporary erosion and sediment control measures during construction or until final controls become effective.
- E. The erosion and sedimentation controls where shown on the Drawings and/or specified herein are intended to provide the required environmental protection. However, should additional controls be directed by the ENGINEER, CONTRACTOR shall furnish, install and maintain additional mulching and straw-bale diversions to control erosion and sedimentation to the satisfaction of the ENGINEER at no additional cost to OWNER.
- F. Construction methods that will minimize siltation and erosion shall be employed. The CONTRACTOR shall take steps to minimize unnecessary excavation and disturbing or uprooting trees and vegetation. The CONTRACTOR is prohibited from dumping soil or debris, or pumping silt-laden water into a stream. Cleanup, grading, seeding and planting or restoration of all work areas shall begin immediately. Exposed areas shall not remain unprotected for more than seven days. (From "10-States' Standards")

1.02 RELATED WORK NOT INCLUDED

- A. Site clearing and grubbing is included in this Division, Section 02110.
- B. Dewatering is included in this Division, Section 02140

- C. Landscape work is included in this Division, Section 02900.
- D. Final erosion protection measures are included in this Division, Section 02200.

PART 2 PRODUCTS

- A. Erosion control blanket where called for in this Section, on the Drawings, or as determined by the ENGINEER, shall be AMXCO Curlex Blanket as manufactured by American Excelsior Company, Arlington, TX 76011, or equal.
- B. Rip-rap lining where called for in this Section, on the Drawings or as determined by the ENGINEER shall be Class III or Class II lining as shown on the Drawings and as specified in Section 703 of the 2000 edition of the Kentucky Department of Highways "Standard Specifications for Road and Bridge Construction."

For Class III, no less than 80 percent, by volume, of individual stones shall range in size from 1/4 to 1-1/2 cubic feet. Stones of smaller sizes are permissible for use in filling voids in the upper surface and dressing to the proper slope. In addition to the above referenced specifications, individual stone dimensions are limited to 4 inches (minimum) and 24 inches (maximum).

For Class II lining, no more than 20 percent of the finished product shall pass through square openings 5 inches by 5 inches.

- C. Filter fabric for use with rip-rap where called for in this Section, on the Drawings, or as determined by the ENGINEER, shall be Mirafi 700X as manufactured by Celanese Corporation, New York, NY 10036, or equal.
- D. Silt fence fabric where called for in this Section, on the Drawings or as determined by the ENGINEER shall be Mirafi 100X as manufactured by Celanese Corporation, New York, NY 10036, or equal.

PART 3 EXECUTION

3.01 GENERAL

- A. Erosion control practices shall be adequate to prevent erosion of all disturbed and/or all regraded areas.
- B. Earthwork procedures shall be as specified in this Division, Section 02200.

- C. Silt fences shall be located and staked in all disturbed locations and/or all regraded where erosion may occur.

3.02 TEMPORARY SEEDING

- A. This item shall consist of seeding a temporary cover of grass, or grass and small grain, on areas disturbed on the construction site, which will not be redisturbed within a 60 day period. The determination of the area to be temporarily seeded and the time of seeding shall be made by the ENGINEER.
- B. The seed mixtures to be used for temporary cover will be governed by the time of year the seeding is accomplished. The mixture of seeding shall be as follows:
 - 1. Time of Seeding - February 15 to June 1

Rye 1-1/2 bushels and rye grass 25 pounds per acre; or tall fescue 30 pounds and rye grass 20 pounds per acre.
 - 2. Time of Seeding - June 2 to August 15

Tall fescue 30 pounds and rye-grass 20 pounds per acre; or, spring oats 2 bushels and rye grass 30 pounds per acre.
 - 3. Time of Seeding - August 16 to February 14

Rye 2 bushels and rye grass 20 pounds per acre; or, tall fescue 30 pounds and rye- grass 20 pounds per acre.
 - 4. Lime will not be required for temporary seeding.
 - 5. Fertilizer at the rate of 400 pounds per acre of 10-10-10 fertilizer, or equivalent, broadcast uniformly on the area to be seeded.
 - 6. All seed shall be broadcast evenly over the area to be seeded and culti-packed or otherwise pressed into the soil. Seed and fertilizer may be mixed together and applied after the seed has been prepared.
 - 7. Mulch for temporary seeding will not be required except on those areas, in the ENGINEER'S opinion, which are too steep to hold the seed without protective cover.

3.03 RIP-RAP LINING

- A. Rip-rap lining shall be constructed to the lines and grades and at the location designated on the Drawings.

The filter fabric shall be placed at the locations shown on the Drawings. The surface to receive the fabric shall be prepared to a relatively smooth

condition free of obstructions, debris or sharp objects that may puncture the fabric. Construction equipment will not be permitted to operate directly on the fabric.

The fabric shall be placed with long dimension parallel to the channel or embankment centerline and shall be laid smooth and free of tension, stress, folds, wrinkles, or creases. If more than one strip is necessary, the strips shall overlap a minimum of 3 feet. Transverse laps shall be placed so the upstream strip laps over the downstream strip.

Fastener pins shall be installed through both strips of overlapped fabric at no less than 5 foot intervals along a line through the midpoint of the lap, and at any other locations as necessary to prevent any slippage of the fabric.

Fabric shall be covered with the rip-rap lining within 14 calendar days after placement of the fabric. Fabric not covered within this time shall be removed and replaced at the CONTRACTOR'S expense if the ENGINEER determines that damage or deterioration is evident.

The fabric shall be protected from damage due to the placement of the channel lining by limiting the height of drop of the material at no greater than 3 feet or by placing a cushioning layer of sand on top of the fabric before dumping the material, at the CONTRACTOR'S option. The CONTRACTOR shall demonstrate that the placement technique will prevent damage to the fabric.

Placement of channel lining shall begin at the toe of the channel and proceed upstream. The lining shall be placed to conform to the template shown on the Drawings. The lining need not be compacted but shall be placed upgrade in a manner to ensure that the larger rock fragments are uniformly distributed and the smaller rock fragments serve to fill the spaces between the larger rock fragments in such a manner as will result in a well keyed, densely placed, uniform layer of lining of the specified thickness. Hand placing will be required only to the extent necessary to secure the results specified above.

3.04 MAINTENANCE OF CONTROLS AND PERFORMANCE

- A. Erosion and sedimentation controls shall be inspected weekly and after significant rainstorms. Replace silt fencing which is damaged filter stone which is dislodged, erosion control blanket which is damaged, and make other necessary repairs.
- B. Should any of the temporary erosion and sediment control measures employed by the CONTRACTOR fail to produce results consistent with normal and acceptable standards of the industry. The CONTRACTOR shall immediately take whatever steps are necessary to correct the deficiency at his own expense.

- C. Remove all temporary erosion and sedimentation controls as final landscaping and grading is performed.

3.05 CONSTRUCTION ALONG OR ACROSS AN INTERMITTENT OR PERENNIAL STREAM

The following special considerations shall be given to construction along or across an intermittent or perennial stream:

- A. Development/excavation shall be performed during low flow periods to minimize disturbance.
- B. When crossing a stream, the pipe shall be laid perpendicular to the stream bank to minimize the direct impacts to the streambed.
- C. When working adjacent to a stream, soil erosion control structures shall be placed parallel to all streams to minimize entry of silt into the stream.
- D. All disturbed instream habitat shall be returned to its original condition upon completion of construction in the area.
- E. The contractor shall take every possible measure to preserve the tree canopy overhanging the stream.
- F. Streambanks shall be reseeded immediately with the stream bank seed mix described in Section 02900, following completion of the stream crossing, disturbed surfaces shall be restored to original contours, and excess materials removed to a properly confined upland area.

END OF SECTION

SECTION 02320

HORIZONTAL DIRECTIONAL DRILLING

PART 1 GENERAL

1.01 SECTION DESCRIPTION

The work specified in this section consists of furnishing and installing underground utilities using the horizontal directional drilling (HDD) method of installation, also commonly referred to as directional boring or guided horizontal boring. This work shall include all services, equipment, materials, and labor for the complete and proper installation, testing, restoration of underground utilities and environmental protection and restoration.

1.02 REFERENCES

Specification 02610 – High Density Polyethylene (HDPE) Pipe and Fittings shall be used as a reference.

1.03 QUALITY ASSURANCE

The requirements set forth in this document specify a wide range of procedural precautions necessary to insure that the very basic, essential aspects of a proper directional bore installation are adequately controlled. Strict adherence shall be required under specifically covered conditions outlined in this specification. Adherence to the specifications contained herein, or the Engineer's approval of any aspect of any directional bore operation covered by this specification, shall in no way relieve the Contractor of their ultimate responsibility for the satisfactory completion of the work authorized under the Contract.

1.04 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 drilling equipment to be used to ensure that the equipment will be adequate to complete the project.

C. MATERIALS

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.

PART 2 EQUIPMENT REQUIREMENTS

2.01 EQUIPMENT

The directional drilling equipment shall consist of a directional drilling rig of sufficient capacity to perform the bore and pullback the pipe, a drilling fluid mixing & delivery system of sufficient capacity to successfully complete the crossing, a guidance system to accurately guide boring operations and trained and competent personnel to operate the system. All equipment shall be in good, safe operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this project.

2.02 DRILLING SYSTEM

A. DRILLING RIG

The directional drilling 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 drilling 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.

B. DRILL HEAD

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

C. MUD MOTORS (if required)

Mud motors shall be of adequate power to turn the required drilling tools.

D. DRILL PIPE

Shall be constructed of high quality 4130 seamless tubing, grade D or better, with threaded box and pins. Tool joints should be hardened to 32-36 RC.

2.03 GUIDANCE SYSTEM

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 DRILLING FLUID (MUD) SYSTEM

A. MIXING SYSTEM

A self-contained, closed, drilling fluid mixing system shall be of sufficient size to mix and deliver drilling 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. The drilling fluid reservoir tank shall be sized for adequate storage of the mud. Mixing system shall continually agitate the drilling fluid during drilling operations.

B. DRILLING 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 and/or as per mixing requirements of the Manufacturer. 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. Drilling fluid shall be maintained at a viscosity sufficient to suspend cuttings and maintain the integrity of bore wall.

C. DELIVERY SYSTEM

The mud pumping system shall have a minimum capacity to supply mud in accordance with the drilling equipment pull-back rating at a constant required pressure. The delivery system shall have filters in-line to prevent solids from being pumped into the drill pipe. Connections between the pump and drill pipe shall be relatively leak-free. Used drilling fluid and drilling fluid spilled during drilling operations shall be contained and properly disposed of. A berm, minimum of 12" high, shall be maintained around drill rigs, drilling fluid mixing system, entry and exit pits and drilling fluid recycling system (if used) to prevent spills into the surrounding environment. Pumps and or vacuum truck(s) of sufficient size shall be in place to convey excess drilling fluid from containment areas to storage facilities.

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

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

C. RESTRICTIONS

Other devices or utility placement systems for providing horizontal thrust other than those previously defined in the preceding sections shall not be used unless approved by the Engineer prior to commencement of the work. Consideration for approval will be made on an individual basis for each specified location. The proposed device or system will be evaluated prior to approval or rejection on its potential ability to complete the utility placement satisfactorily without undue stoppage and to maintain line and grade within the tolerances prescribed by the particular conditions of the project.

PART 3 - EXECUTION

3.01 GENERAL

The Engineer must be notified 48 hours in advance of starting work. The Directional Bore shall not begin until the Engineer is present at the job site and agrees that proper preparations for the operation have been made. The Engineer approval for beginning the installation shall in no way relieve the Contractor of the ultimate responsibility for the satisfactory completion of the work as authorized under the Contract. It shall be the responsibility of Engineer to provide inspection personnel at such times as appropriate without causing undue hardship by reason of delay to the Contractor.

3.02 PERSONNEL REQUIREMENTS

All personnel shall be fully trained in their respective duties as part of the directional drilling crew and in safety.

3.03 DRILLING PROCEDURE

A. SITE PREPARATION

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

2. Work site as indicated on drawings, within right-of-way, shall be graded or filled to provide a level working area. No alterations beyond what is required for operations are to be made. Contractor shall confine all activities to designated work areas.

B. DRILL 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 geo-magnetic variations or anomalies.

C. ENVIRONMENTAL PROTECTION

Contractor shall place silt fence between all drilling 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 drilling 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. SAFETY

Contractor shall adhere to all applicable state, federal and local safety regulations and all operations shall be conducted in a safe manner.

E. PIPE

Pipe shall be welded/fused together in one length, if space permits. Pipe welds will be X-rayed prior to being placed in bore hole. Pipe will be placed on pipe rollers before pulling into bore hole with rollers spaced close enough to prevent excessive sagging of pipe.

F. PILOT HOLE

1. 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.
2. In the event that a drilling fluid fracture, inadvertent returns or returns loss occurs during pilot hole drilling operations, contractor shall cease drilling, wait at least 30 minutes, inject a quantity of drilling fluid with a viscosity exceeding 120 seconds as measured by a Marsh funnel and then wait another 30 minutes. If mud fracture or returns loss continues, contractor will cease operations and notify Engineer. Engineer and

contractor will discuss additional options and work will then proceed accordingly.

G. 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 drilling equipment and mud system are designed to safely handle.

H. PULL-BACK

1. 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 borehole. During pull-back operations contractor will not apply more than the maximum safe pipe pull pressure at any time.
2. In the event that pipe becomes stuck, contractor will cease pulling operations to allow any potential hydro-lock 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.

3.04 PIPE TESTING

- A.** Sections 02620 and 02715 shall be followed in its entirety following pull-back of the pipe.
1. All mains shall be swabbed.
 2. All mains shall be chlorinated.

3.05 Basis For Payment

- A.** Piping shall be paid for at the unit price bid or lump sum bid and shall include all work incidental to making a complete installation such as excavation, bedding, backfill, painting, testing, disinfection, cleanup, seeding, etc.

END OF SECTION

SECTION 02326

STEEL CASING PIPE

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Steel casing pipe shall be furnished and installed as shown on the DRAWINGS and specified herein.

1.02 RELATED WORK

- A. Erosion and sedimentation control is included in this Division, Section 02270.
- B. Piping is included in this Division, Section 02700.
- C. Landscaping is included in this Division, Section 02900.

PART 2 PRODUCTS

2.01 STEEL CASING PIPE

- A. Steel casing or jack pipe shall be plain end steel pipe with a minimum yield strength of 35,000 psi and tensile strength of 60,000 psi per API-5L Grade B material. The steel pipe supplied shall be manufactured by the seamless, electric-weld, submerged arc weld or gas metal-arc weld process as specified in API-5L. Certifications of 35,000 psi minimum yield strength shall be furnished by the CONTRACTOR.
- B. The inside diameter shall be at least 2 inches greater than the largest outside diameter of the carrier pipe, joint or couplings for carrier pipe less than 6" in diameter and at least 4" greater for carrier pipe 6" and over in diameter unless otherwise noted on the plan sheets. In all cases, the casing pipe shall be great enough to allow the carrier pipe to be removed subsequently without disturbing the casing pipe or roadbed.
- C. Casing pipe shall have minimum wall thickness as shown in the following table:

Nominal Diameter (Inch)	Nominal Thickness (Inch)	Nominal Diameter (Inch)	Nominal Thickness (Inch)
Under 10	0.188	24	0.438
10 - 12	0.250	26	0.438
14 - 16	0.281	28 - 30	0.500

PART 3 EXECUTION

3.01 TUNNELING, BORING OR JACKING

- A. Boring or jacking as specified herein shall be located as shown on DRAWINGS. All other casing pipe installations shall be open cut trench.
- B. Tunneling under paving, railroads, buildings and underground structures is included as an alternate to boring or repaving required by open cut trenching at no extra cost to the OWNER. Bore and casing pipe is also included as an alternate to tunneling. Backfilling of tunnels shall be mechanically tamped in not more than 3-inch layers and with material rendered suitable for tamping before being placed in tunnel unless otherwise shown on the DRAWINGS. No payment will be made for tunnels less than 3 feet long.
- C. In tunneling under buildings, the CONTRACTOR will held responsible for all damage by his operations and methods of excavation and backfilling.
- D. Should the CONTRACTOR elect and receive permission to tunnel and bore, other than locations designated on the DRAWINGS or required by the ENGINEER to be tunneled or bored, the entire compensation therefore shall be the same as the unit prices bid for installation in open trench, including paving replacement, but not including bore or unit prices.
- E. At locations where tunneling or boring or jacking is called for on the DRAWINGS, in addition to the unit prices for permanent tunnel, tunnel liner, temporary tunnel, boring or jacking and/or casing pipe, payment will be made for furnishing and laying carrier pipe inside the tunnel or casing pipe. No payment will be made for separate trench and backfill unit price items where permanent tunnel, tunnel liner, temporary tunnel, boring or jacking and/or casing pipe unit prices is paid.
- F. Boring or jacking under highways, railroads, sidewalks, pipelines, etc., shall be done at the locations shown on the DRAWINGS. It shall be performed by mechanical means and accurate vertical and horizontal alignment must be maintained. When shown on the DRAWINGS, casing pipe shall be used and shall be installed inside bored holes concurrently with boring, or jacking.

3.02 STEEL CASING PIPE INSTALLATION

- A. Steel casing pipe shall be of the size and wall thickness as shown on the DRAWINGS or specifications.
- B. When casing pipe is jacked, concurrent with boring, all joints shall be solidly welded. The weld shall be such that the joint shall be of such strength to withstand the forces exerted from the boring and jacking operation as well as the vertical loading imposed on the pipe after installation. The weld shall also be such that it provides a smooth, non-

obstructing joint in the interior of the pipe, which will allow easy installation of the carrier pipe without hanging or abrasion to the carrier pipe upon installation.

- C. When casing pipe is installed in open trench or permanent tunnel, it shall be bedded and backfilled as specified in Division 2. When casing pipe is installed in temporary tunnel, it shall be laid accurately to alignment of proposed pipeline and at an elevation below proposed pipeline necessary to support it at the planned elevation. Bedding and backfill for casing pipe in temporary tunnel shall be as specified in Division 2.
- D. Casing pipe in open trench, permanent tunnel and temporary tunnel shall be joined by welding such that it will not be moved out of alignment or grade and will prevent backfill material from entering joint. Where casing pipes are shown on the DRAWINGS to be equipped with vent pipes, vents shall be installed as shown on the DRAWINGS with cost of the same included in the price bid for the casing pipe unless otherwise specified.

3.03 CARRIER PIPE IN CASING PIPE INSTALLATION

A. Pipeline Spacers

Carrier pipes shall be centered inside casing pipe throughout the length of the casing pipe. Centering shall be accomplished by the installation of polyethylene pipeline spacers attached to the casing pipe in such a manner as to prevent the dislodgment of the spacers as the carrier pipe is pulled or pushed through the casing pipe. Spacers shall be of such dimensions to provide (1) full supportive load capacity of the carrier pipe and contents; (2) of such thickness to allow installation and/or removal of the pipe; and (3) to allow no greater than 1/2 inch movement of the carrier pipe within the casing pipe after the carrier pipe is installed. Installation shall be in accordance with manufacturer's recommendations.

- B. Upon completion of installation of the carrier pipe, the annular space at the ends of the cover pipe shall be sealed to prevent the entrance of groundwater, silt, etc., into the casing pipe. The seal shall be a manufactured product specially made for this purpose. The seal shall be the best seal type constructed of synthetic rubber with stainless steel banding straps. Seals may be of the "pull-on" or "wrap around" type as manufactured by Advance Products and Systems, Inc. or equal.

3.04 BASIS FOR PAYMENT

Steel Casing Pipe shall be paid for at the unit price bid or lump sum bid and shall include all work incidental to making a complete installation such as excavation, carrier pipe, bedding, backfill, painting, testing, disinfection, cleanup, seeding, etc.

END OF SECTION

SECTION 02500
BITUMINOUS PAVEMENT

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Extent of bituminous pavement paving, as applicable, is shown on the Drawings, including roads, driveways, and parking areas.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Unless noted, all specification designations refer to the Kentucky Transportation Cabinet Department of Highways Standard Specification for Road and Bridge Construction, latest edition. Appropriate portions of the referenced sections of the Specifications shall apply, but all work shall be included in lump sum bid items described herein unless otherwise specified or shown on the Drawings.
- B. Preparation of sub-base is specified in this Division, Section 02200.
- C. Crushed stone and dense graded aggregate are specified in this Division, Section 02255.

1.03 QUALITY ASSURANCE

- A. Performance: Bituminous seal coat that fails as the result of not meeting the requirements of these Specifications shall be corrected as directed by the ENGINEER at the CONTRACTOR'S expense.
- B. The design plant mix shall be submitted to the ENGINEER for review and acceptance. The submittal shall include the last date the mixture was approved by the Kentucky Transportation Cabinet Department of Highways for use on a state road project; and the location where the mixture was recently used, and the name and address of the paving contractor.

PART 2 PRODUCTS

2.01 BITUMINOUS CONCRETE SURFACE MATERIAL

- A. Aggregates shall meet the applicable requirements of Sections 804 and 805.
- B. Bituminous materials shall meet the applicable requirements of Section 806.
- C. Bituminous materials for tack coat shall be one of the following:

SS-1, SS-1h, CSS-1, CSS-1h, AE-60, RS-1, CRS-1, RC-70 or RC-250.

- D. Steel, wood, or other suitable material shall be of size and strength necessary to resist movement during bituminous placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.

2.02 BITUMINOUS SEAL COAT MATERIAL

- A. Coarse aggregate shall be Kentucky Transportation Cabinet Department of Highways Standard No. 8, graded 3/8 inch to No. 8, meeting applicable requirements of Section 805.
- B. Bituminous materials shall meet applicable requirements of Section 806.

PART 3 EXECUTION

3.01 SURFACE PREPARATION

- A. The road shall be swept with an approved mechanical sweeper and with wire hand brooms, when necessary. Special care shall be taken to clean the edges of the surface so that full width of the roadway to be treated shall be uniformly clean. Where any mud or earth exists, it shall be removed sufficiently in advance of application of bituminous material to allow the surface to become thoroughly dry.

3.02 BITUMINOUS CONCRETE PAVING

- A. Composition of Mixtures: Surface pavement mixture, meeting requirements of Sections 401.02 through 401.05 shall be used as determined by local plant mix availability. The mixture shall have been approved recently by the Kentucky Transportation Cabinet Department of Highways, used recently on a state project, and conform to the requirements below when tested in accordance with ASTM D 1559-latest revision:

Stability, minimum pounds	750
Flow, 0.01 inch	Min. 8, Max. 16
Percent air voids	Min. 3, Max. 5
Minimum voids in mineral aggregate, percent:	
3/4 inch	14
1 inch	13
Voids filled, percent	Min. 75, Max. 85

- B. Construction Methods: Construction requirements shall conform to applicable requirements of Sections 401, 402, and 407.
- C. A tack coat shall be required to bond new paving to the surface of concrete or brick pavements and bases or existing bituminous surfaces. It shall be applied at the rate of 0.8 pound (0.1 gal.) per square yard at the following range of application temperatures:

SS-1, SS-1h, CSS-1, CSS-1h, AE-60	70-160°F
RS-1, CRS-1	70-140°F
RC-70	120°F
RC-250	165°F

* These temperatures should be used unless higher temperatures are required for satisfactory coverage. Caution must be exercised to prevent fire or explosion.

- D. When SS-1, SS-1h, CSS-1, CSS-1h, or AE-60 is furnished for tack material, it shall be diluted with an equal quantity of water conforming to Section 803, shall be thoroughly mixed prior to application, and shall be applied a sufficient time in advance of the paver to ensure that all water has evaporated before the bituminous concrete mixture is placed. The application rate shall be 0.8 pound (0.1 gal.) per square yard of the diluted SS-1, SS-1h, CSS-1, CSS-1h, or AE-60.
- E. Where bituminous paving is placed against vertical surfaces such as curbs, gutters, manhole frames, valve boxes, etc., the vertical face shall be tack coated to seal the surface. Where these surfaces are inaccessible to pressure distributor, the tack coat may be brushed or broomed into place. The tack coat shall not be allowed to spill over onto any horizontal surface outside the area to be paved.
- F. Unless otherwise indicated on the Drawings or in these Specifications, the compacted thickness of the bituminous concrete paving shall be a minimum of 2 inches and the minimum ambient temperature for placing shall be 40°F. Mixing and laying temperatures shall be as follows:

Aggregates	Min. 240°F - Max. 325°F
Asphalt Cement	Min. 225°F - Max. 325°F
Mixture at Plant (measured in truck)	Min. 240°F - Max. 325°F
Mixture when Placed (measured in truck when discharging)	275° + 20°F **

** The 275°F + 20°F mixture placing temperature is based on 275°F being about the ideal temperature for obtaining optimum compaction under average conditions. However, when the distance between the asphalt plant and the job is such that specified placing temperatures are covered, insulated hauling equipment as described below are used, the minimum placing temperature shall be 225°F.

- G. Trucks for hauling bituminous mixtures shall have tight, clean, and smooth metal beds that have been sprayed with a minimum amount of soap emulsion, paraffin oil, or other approved material that is not detrimental to the mixture to prevent the mixture from adhering to the beds. All trucks shall be equipped with covers of sufficient size to completely cover the loaded material and all covers shall be securely fastened in place before the truck leaves the plant. Truck beds shall be insulated, when necessary, to maintain the specified temperature to the

point of delivery. Any truck causing excessive segregation of material by its spring suspension or other contributing factors shall be discharged from the work until such conditions are corrected.

- H. The CONTRACTOR shall have an accurate thermometer on the job at all times for verifying all temperature requirements and for taking temperature measurements whenever requested by the ENGINEER or OWNER. The CONTRACTOR shall closely control temperature and compaction requirements to achieve quality bituminous paving and related work.
- I. Bituminous paving that fails as the result of not meeting the requirements of these Specifications shall be removed and replaced as directed by the ENGINEER at the CONTRACTOR's expense.

3.03 BASIS FOR PAYMENT

Payment for Bituminous Pavement shall be made on a unit price or a lump sum basis where a separate bid item is provided.

END OF SECTION

SECTION 02515

PORTLAND CEMENT CONCRETE PAVING

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. Extent of portland cement concrete paving for driveways and walks is shown on the DRAWINGS.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Prepare sub-base as specified in this Division, Section 02200.
- B. Concrete and related materials are specified in Division 3.
- C. Bituminous pavement is specified in this Division, Section 02500.
- D. Crushed stone and dense graded aggregate are specified in this Division, Section 02255.

1.03 SUBMITTALS

- A. Furnish samples, manufacturer's product data, test reports, and materials certifications as required in referenced sections for concrete and joint fillers and sealers.

1.04 JOB CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.
- B. Utilize flagmen, barricades, warning signs and warning lights as required.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Forms: Steel, wood, or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.
- B. Use flexible spring steel forms or laminated boards to form radius bends as required.
- C. Coat forms with a non-staining form release agent that will not discolor or deface surface of concrete.

- D. Welded Wire Mesh: Welded plain cold-drawn steel wire fabric, ASTM A 185-85.
- E. Furnish in flat sheets, not rolls, unless otherwise acceptable to ENGINEER.
- F. Concrete Materials: Comply with requirements of Division 3, Section 03300, for concrete materials, admixtures, bonding material, curing materials, and others as required.
- G. Expansion Joint Materials: Comply with requirements of Division 7, Section 07900 for preformed expansion joint fillers and sealers.
- H. Anti-spalling Compound: 50% (by volume) boiled linseed oil and 50% (by volume) commercial grade kerosene or mineral spirits.

2.02 CONCRETE MIX, DESIGN AND TESTING

- A. Comply with requirements of Division 3, Section 03300 for concrete mix design, sampling and testing, and quality control, and as herein specified.
- B. Design mix to produce normal-weight concrete consisting of portland cement, aggregate, water-reducing or high-range water-reducing admixture (super plasticizer), air-entraining admixture and water to produce the following properties:
 - 1. Comprehensive Strength: 4,000 psi, minimum at 28 days.
 - 2. Slump Range: 8 inches for concrete containing HRWR admixture (super-plasticizer); 3 inches for other concrete.
 - 3. Air Content: 5% to 8%.

PART 3 EXECUTION

3.01 SURFACE PREPARATION

- A. Remove loose material from compacted sub-base surface immediately before placing concrete.
- B. Proof-roll prepared sub-base surface to check for unstable areas and need for additional compaction. Do not begin paving work until such conditions have been corrected and are ready to receive paving.

3.02 FORM CONSTRUCTION

- A. Set forms to required grades and lines, rigidly braced and secured. Install sufficient quantity of forms to allow continuous progress of WORK and so that forms can remain in place at least twenty-four (24) hours after concrete placement.

- B. Check completed form WORK for grade and alignment to following tolerances:
 - 1. Top of forms not more than 1/8 inch in 10 feet.
 - 2. Vertical face on longitudinal axis, not more than 1/4 inch in 10 feet.
- C. Clean forms after each use, and coat with form release agent as often as required to ensure separation from concrete without damage.

3.03 REINFORCEMENT

- A. Locate, place and support reinforcement as specified in Division 3, Section 03300, unless otherwise indicated.

3.04 CONCRETE PLACEMENT

- A. General: Comply with requirements of Division 3 sections for mixing and placing concrete, and as herein specified.
- B. Do not place concrete until sub-base and forms have been checked for line and grade. Moisten sub-base if required to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- C. Place concrete using methods which prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate and care to prevent dislocation of reinforcing, dowels, and joint devices.
- D. Deposit and spread concrete in a continuous operation between transverse joints, as far as possible. If interrupted for more than 1/2 hour, place a construction joint.

3.05 JOINTS

- A. General: Construct expansion, weakened-plane (contraction), and construction joints true-to-line with face perpendicular to surface of concrete. Construct transverse joints at right angles to the centerline, unless otherwise indicated.
- B. Weakened-plane (contraction) Joints (Wk-PIJt): Provide weakened-plane (contraction) joints, sectioning concrete into areas as shown on DRAWINGS. Construct weakened-plane joints for a depth equal to at least 1/4 concrete thickness, as follows:
 - 1. Tooled Joints: Form weakened-plane joints in fresh concrete by grooving top portion with a recommended cutting tool and finishing

edges with a jointer.

- C. Construction Joints (CnsJt): Place construction joints at end of placements and at locations where placement operations are stopped for a period of more than 1/2 hour, except where such placements terminate at expansion joints.
- D. Construct joint as shown or, if not shown, use standard metal keyway-section forms.
- E. Expansion Joints (ExpJt): Provide premolded joint filler for expansion joints abutting concrete curbs, catch basins, manholes, inlets, structures, walks and other fixed objects unless otherwise indicated.
- F. Locate expansion joints at 50 ft. o.c. for each pavement lane, unless otherwise indicated.
- G. Extended joint fillers full-width and depth of joint, and not less than 1/2 inch or more than 1 inch below finished surface where joint sealer is indicated. If no joint sealer, place top of joint filler flush with finished concrete surface.
- H. Furnish joint fillers in one-piece lengths for full width being placed, wherever possible. Where more than one length is required, lace or clip joint filler sections together.
- I. Protect top edge of joint filler during concrete placement with a metal cap or other temporary material. Remove protection after concrete has been placed on both sides of joint.
- J. Fillers and Sealants: Comply with the requirements of Division 7, Section 07900, for preparation of joints, materials, installation, and performance.

3.06 CONCRETE FINISHING

- A. After striking-off and consolidating concrete, smooth surface by screeding and floating. Use hand methods only where mechanical floating is not possible. Adjust floating to compact surface and produce uniform texture.
- B. After floating, test surface for trueness with a 10 foot straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.
- C. Work edges of slab, gutters, back top edge of curb and formed joints with an edging tool, and round to a 1/2 inch radius, unless otherwise indicated. Eliminate tool marks on concrete surface.
- D. After completion of floating and troweling when excess moisture or surface sheen has disappeared, complete surface finishing, as follows:
 - 1. Broom finish, by drawing a fine-hair broom across concrete

surface, perpendicular to line of traffic. Repeat operation if required to provide a fine line texture acceptable to ENGINEER.

2. On inclined slab surfaces, provide a coarse, non-slip finish by scoring surface with a stiff-bristled broom, perpendicular to line of traffic.

- E. Do not remove forms for twenty-four (24) hours after concrete has been placed. Any form removal, clean ends of joints and point up any minor honeycombed areas. Remove and replace areas or sections with major defects.

3.07 CURING

- A. Protect and cure finished concrete paving, complying with requirements of Division 3, Section 03300. Use curing and sealing compound or approved moist-curing methods.
- B. Do not use liquid membrane-forming material where anti-spalling treatment will be applied.
- C. Anti-spalling Treatment: Apply compound to concrete surfaces no sooner than twenty-eight (28) days after placement. Apply to clean, dry concrete free of oil, dirt, and other foreign materials, in two sprayed applications. First application, 60 sq. yd. per gallon. Allow complete drying between applications.

3.08 REPAIRS AND PROTECTIONS

- A. Repair or replace broken or defective concrete.
- B. Protect concrete from damage until acceptance of WORK. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface and spillage of materials as they occur.
- C. Sweep concrete pavement and wash free of stains, discolorations, dirt, and other foreign material just prior to final inspection.

END OF SECTION

SECTION 02610

GENERAL PIPING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals necessary to install and test pipe and fittings as shown on the Drawings and required by the Specifications.
- B. Piping shall be located substantially as shown. The ENGINEER reserves the right to make such modifications in locations as may be found desirable to avoid interference between pipes or for other reasons. Pipe fitting notation is for the CONTRACTOR'S convenience and does not relieve him from laying and jointing different or additional items where required without additional compensation.
- C. Wherever the word pipe or piping is used it shall mean pipe and fittings unless otherwise noted.
- D. All references to Standards/Specifications shall mean the latest revision.

1.02 RELATED WORK

- A. Trenching, backfilling and compacting are included in this Division, Section 02200.
- B. Concrete is included in Division 3, Section 03300.

1.03 DESCRIPTION OF SYSTEM

- A. Piping shall be installed substantially as shown on the Drawings so as to form a complete smooth flow path and workable system.
- B. The piping and materials specified herein are intended to be standard types of pipe for use in transporting the fluids as indicated on the Drawings. The pipe and fittings shall be designed, constructed, and installed in accordance with the best practices and methods and the manufacturer's recommendations.

1.04 QUALIFICATIONS

- A. All pipe and fittings under this section shall be furnished by manufacturers who are fully experienced, qualified, and regularly engaged in the manufacture of the materials to be furnished.

1.05 SUBMITTALS

- A. The CONTRACTOR shall submit to the ENGINEER for review in accordance with Division 1, Section 01300, complete sets of shop drawings showing layout and details of materials, joints and methods of construction and installation of the pipe, specials and fittings required.
- B. Before fabrication and/or shipping of the pipe is begun, the CONTRACTOR shall submit for approval a schedule of pipe lengths for the entire job. All pipe furnished under the Contract shall be fabricated in full accordance with the approved Drawings.

1.06 INSPECTION

- A. The manufacturer shall inspect all pipe joints for out-of-roundness and pipe ends for squareness. The manufacturer shall furnish to the ENGINEER a notarized affidavit stating all pipe meets the requirements of applicable ASTM Specifications, these Specifications, and the joint design with respect to square ends and out-of-round joint surfaces.

PART 2 PRODUCTS

2.01 DUCTILE IRON PIPE

- A. General
 - 1. Ductile iron pipe shall be centrifugally cast of ductile iron conforming to ASTM Specifications A 746 latest revision. The pipe design conditions shall be as follows:
 - a. Pressure: Minimum of 250 psi operating plus 100 psi surge allowance.
 - b. Trench Loading: Laying condition Type 4 unless otherwise specified on Drawings. Trench depth not less than 2' nor more than that shown on the Drawings.
 - c. Metal Design Strengths:

Bursting Tensile	40,000 psi
Modulus of Rupture	90,000 psi
 - 2. The manufacturing tolerances included in the nominal thickness shall not be less than specified by ANSI/AWWA C150/A21.50, latest revision.
 - 3. Minimum wall thickness shall be 0.33 inches (Class 52), or more if required for minimum operating pressure of 250 psi.
 - 4. Pipe may be furnished in 18', or 20' nominal laying lengths; and the weight of any single pipe shall not be less than the tabulated

weight by more than 5 percent for pipe 12" or smaller in diameter, nor by more than 4 percent for pipe larger than 12" in diameter.

5. The hydrostatic and acceptance tests for the physical characteristics of the pipe shall be as specified in ANSI/AWWA C151/A21.51, latest revision.
6. Any pipe not meeting the ANSI/AWWA specifications quotes above shall be rejected in accordance with the procedure outlined in the particular specification.
7. The ENGINEER shall be provided with 3 copies of a certification by the manufacturer that the pipe supplied for this Contract has been tested in accordance with the referenced specifications and is in compliance therewith.
8. The net weight, class or nominal thickness and sampling period shall be marked on each pipe. The pipe shall also be marked to show that it is ductile iron.
9. Unless otherwise noted, joints for ductile iron pipe will be "push-on" type consisting of a rubber gasket installed in a recess in the bell.
10. Ductile iron pipe must be used within 200 feet of underground petroleum storage tanks and shall have gaskets designed for this purpose such as Nitrile Butadiene (NBR), approved equal or better.

B. Lining and Coating Ductile Iron Pipe

1. All buried ductile iron pipe shall have manufacturer's outside coal tar or asphaltic base coating and a cement lining and bituminous seal coat on the inside. Cement mortar lining and bituminous seal coat inside shall conform to ANSI/AWWA C104/A21.4 latest revision.

C. Fittings for Ductile Iron Pipe-3" and larger

1. Ductile Iron fittings only shall be used with the ductile iron pipe.
2. Mechanical joint fittings shall be used with underground pipe.
3. Rubber-gasket joints shall conform to ANSI/AWWA C111/A21.11 latest revision for centrifugally cast ductile iron water pipe.
4. All Working Pressures - Fittings shall conform to ANSI/AWWA Specifications C110/A21.10 latest revision for 250 psi water working pressure plus water hammer. Ductile iron fittings shall be ductile cast iron per ASTM Specifications A536, latest revision.

5. All fittings shall be cement lined and bituminous coated per Federal Specifications WW-P-421b.
- D. Ductile Iron Pipe and Fittings - Smaller than 3"
1. Small size ductile iron pipe shall conform to ANSI Specifications A21.12 (AWWA C 112) latest revision. Fittings shall conform to ANSI Specifications A21.10 (AWWA C 110) latest revision.
 2. Pipe may be furnished with either mechanical joints or slip-on joints. Buried fittings shall be furnished with mechanical joints.
- E. Flanged Cast Iron Pipe and Flanged Coupling Adapters for Flexible Couplings
1. Non-buried ductile iron pipe and fittings shall be flanged unless otherwise specified.
 2. Flanged cast iron pipe and fittings shall have dimensions facing and drilling for ANSI Class 125 flanges (125 psi steam working pressure; 250 psi water working pressure).
 3. Where flanges are pit cast integrally with pipe in vertical position in dry sand molds, flanged pipe shall be AWWA Class "B" or latest revision of ANSI Specifications A21.2, Class 50 pipe for sewage, sludge, gas and air service and Class 150 pipe for all types of water service.
 4. Where flanged pipe is made up by threading plain end, centrifugally cast pipe, screwing on specially designed long hub flanges, and refacing across both the face of the flange and the end of pipe, flange shall be per ANSI Specification B16.1 latest revision and pipe shall be Class 150 per ANSI Specification A21.6 latest revision.
 5. Either of the foregoing methods of manufacture of flanged pipe will be acceptable, but when plain ends of flanged pipe are to fit into mechanical joint bells, then the outside diameter of the pipe shall be such that the joint can be made.
 6. CBS (rubber and cloth both sides) gaskets 1/16" in thickness shall be used in connecting flanged piping. Nuts and bolts for use in making flanged connections shall have hexagonal heads, be of proper lengths and with U.S. standard threads. The tensile strength of steel used in the bolts shall be not less than 55,000 psi.
 7. Flanged Coupling Adapters for flanged pipe shall be a mechanical joint cast to a special flanged joint using a neoprene "O-ring", in place of the usual 1/16" rubber ring gasket. The mechanical bell and special flanged joint piece shall be of high grade gray cast

iron with bolt circle, bolt size and spacing conforming to ASA B16.1 Specifications latest revision. Mechanical joint follower flange shall be of ductile or malleable iron with high strength/weight ratio design. Bolts shall be fine grained, high tensile, malleable iron with malleable iron hexagon nuts.

8. Flanged Coupling Adapters for 12" and smaller cast iron pipe shall be Smith-Blair #912; Dresser style 127; or approved equal. For pipe larger than 12", flexible couplings shall be Smith-Blair #913; Dresser style 128; or approved equal. All flexible couplings shall be furnished with anchor studs.

F. Mechanical Joint Restraints

1. Gland body, wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron material in accordance with ASTM A536.
2. Ductile iron gripping wedges shall be heat treated within a range of 370 to 470 BHN.
3. Three (3) test bars shall be incrementally poured per production shift as per Underwriter's Laboratory (U.L.) specifications and ASTM A536. Testing for tensile, yield and elongation shall be done in accordance with ASTM E8.
4. Chemical and nodularity tests shall be performed as recommended by the Ductile Iron Society, on a per ladle basis.

2.02 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

- A. PVC pipe shall comply with ASTM D01784 and shall be Type 1, Grade 1, with pressure and SDR rating as shown on the drawings or indicated in the proposal form. All PVC pipe shall conform to the latest revisions of the following specifications:

ASTM D2241 (PVC plastic pipe SDR-PR and Class T)
Commercial Standard CS 256 (pressure rated type)
National Sanitation Foundation Testing Laboratories (NSF)
- B. The name of the manufacturer of the plastic pipe to be used must be found on the current listing of Plastic Materials for Potable Water Application, published by the NSF (National Sanitation Foundation), Ann Arbor, Michigan, and must meet the requirements of the Standard Specifications for Polyvinyl Chloride (PVC) Plastic Pipe, D1785, published by ASTM (American Society for Testing and Materials).
- C. Pipe lengths shall not exceed 40 feet. Wall thickness shall be in accordance with CS-256 and ASTM D-2241. Pipe ends shall be beveled to accept the gasketed coupling. Rubber gasketing shall conform to ASTM 1869.

- D. Samples of pipe, physical and chemical data sheets shall be submitted to the ENGINEER for approval and his approval shall be obtained before pipe is purchased. The pipe shall be homogenous throughout and free from cracks, holes, foreign inclusions or other defects. The pipe shall be as uniform as commercially practical in color. Pipe shall have a ring painted around spigot ends in such a manner as to allow field checking of setting depth of pipe in the socket.
- E. Pipe must be delivered to the job site by means which will adequately support it, and not subject it to undue stresses. In particular, the load shall be so supported that the bottom rows of pipe are not damaged by crushing. Pipe shall be unloaded carefully and strung or stored as close to the final point of placement as is practical.
- F. The couplings and fittings shall be furnished by the pipe manufacturer and shall accommodate the pipe for which they are to be used. They shall have a minimum pressure rating of 200 psi. Insertion depth of the pipe in the coupling shall be controlled by an internal PVC mechanical stop in the coupling which will allow for a thermal expansion and contraction. Couplings method shall allow for half of each end of the pipe. Couplings shall permit 5 degree deflection (2-1/2 degrees each side) of the pipe without any evidence of infiltration, cracking or breaking. Couplings shall have rubber seals factory installed.
- G. Pipe markings shall include the following, marked continuously down the length:
 - Manufacturer's Name
 - Nominal Size
 - Class Pressure Rating
 - PVC 1120
 - NSF Logo, and
 - Identification Code
- H. Lubricant shall be water soluble, nontoxic, be non-objectionable in taste and odor imparted to the fluid, be non-supporting of bacteria growth and have no deteriorating effect on the PVC or rubber gaskets.

2.03 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS (SCHEDULE 80)

- A. General

Schedule 80 PVC pipe shall be as manufactured by the Celanese Piping Systems, Inc., or approved equal. To ensure installation uniformity, all piping system components shall be the products of one manufacturer.
- B. Materials
 - 1. Pipe and fittings shall be manufactured from a PVC compound which meets the requirements of Type 1, Grade 1 polyvinyl

chloride as outlined in ASTM D-1784. A Type 1, Grade 1 compound is characterized as having the highest requirements for mechanical properties and chemical resistance. Fittings shall be socket type and shall conform to the requirements of ASTM D-2467.

2. Compound from which pipe is produced shall have a design stress rating of 200 psi at 73° F., listed by the Plastics Pipe Institute (PPI).
3. Materials from which pipe and fittings are manufactured shall have been tested and approved for conveying potable water by the National Sanitation Foundation (NSF).

C. Solvent Cement

All socket type connections shall be joined with PVC solvent cement complying to ASTM D-2564. Cement shall have a minimum viscosity of 2000 cps.

D. Installation

Installation shall be in strict accordance with the manufacturer's printed instructions. Printed installation instructions shall be submitted and approved by the ENGINEER prior to shipment of the pipe.

E. Testing

1. Pressure Pipe - Refer to Paragraph 3.02 of this Division.
2. Vacuum Pipe - All pipe intended for use under partial vacuum shall be tested by subjection to 24 inches of mercury vacuum; allowing 15 minutes to stabilize and thereafter lose not more than 1% vacuum pressure per hour over a minimum 4 hour test period. This test must be met or exceed prior to final acceptance.

2.04 HIGH DENSITY POLYETHYLENE PIPE

A. General

1. High density polyethylene pipe shall be Adyl "D" polyethylene pipe manufactured by E.I. DuPont DeNemours and Co., Inc., or "Driscopipe" as manufactured by Phillips Product Co., Inc., or approved equal.

B. Materials for Polyethylene Pipe

1. The polyethylene pipe and fittings shall be made of polyethylene resins classified in ASTM D 1248 as Type III, Category 5, Grade P34 (pipe designation PE 3408 defined per ASTM D 3035 latest

revision), having specific base resin densities of 0.942 g/cc minimum and 0.955 g/cc maximum, respectively; and having melt indexes of 0.4 g/10 min. maximum and 0.15 g/0.10 min. minimum, respectively.

2. Pipe made from these resins must have a long-term strength rating of 1,600 psi or more.
3. The polyethylene resin shall contain antioxidants and shall be stabilized with carbon black against ultra-violet degradation to provide protection during processing and subsequent weather exposure.
4. The polyethylene resin compound shall have a resistance to environmental stress cracking as determined by the procedure detailed in ASTM D 16930 latest revision, Condition B with sample preparation by procedure C of not less than 200 hours.

C. Polyethylene Pipe and Fittings

1. Polyethylene pipe furnished and installed under this Contract shall be of nominal outside diameter shown on the Drawings, and shall be designed for a normal internal working pressure and earth cover over top of the pipe to suit the conditions of proposed use.
2. Each length of pipe shall be marked, at no more than 10 foot intervals, with the following information:

Nominal pipe size
Type plastic material - PE3408
Pipe pressure rating
Manufacturer's name, trademark and code

3. All pipe shall be made from virgin material. No rework compound.
4. Pipe shall be homogenous throughout, and be free of visible cracks, holes, foreign material, blisters, or other deleterious faults.
5. Fittings for the polyethylene pipe line shall be molded for fabricated from the same material as specified hereinbefore for the high density polyethylene pipe.
6. Fittings for bends 22-1/2 degrees or greater shall be provided as shown on the Drawings. For alignment changes of less than 20 degrees deflection, the pipe may be laid in curves with a radius of 80 feet or greater.
7. All run-of-the-pipe fittings shall be fusion welded into the pipe line. Tee branches shall be of the size shown on the Drawings and shall be furnished with flanged ends per ANSI B-16.1. All fittings shall be factory made.

8. Fittings shall be capable of withstanding the same pressure and loading conditions specified for the pipe.
9. Wye Branches shall be true wyes.

D. Pipe Jointing

1. Pipe to be joined by leak-proof, thermal, butt fusion joints. All fusion must be done by personnel trained by the pipe supplier using tools approved by the pipe supplier.
2. The fusion machine shall have hydraulic pressure control for fusing 2 pipe ends together; it shall include pressure fusion indicating gauges to correctly monitor fusion pressures. The machines shall be equipped with an electric or gasoline engine powered facing unit to trim irregularities from the pipe ends. The heating plate on the fusion machine shall be electrically heated and thermostatically controlled and shall contain a temperature gauge for monitoring temperature.
3. Joint strength must be equal to that of adjacent pipe as demonstrated by tensile test. In addition, results of tensile impact testing of joint should indicate a ductile rather than a brittle fracture. External appearance of fusion bead should be smooth without significant juncture groove.
4. Threaded or solvent cement joints and connections are not permitted.

E. Joining, Terminating or Adapting by Mechanical Means

1. The polyethylene pipe shall be connected to systems or fittings of other materials by means of an assembly consisting of a polyethylene flange adapter butt-fused to the pipe, a backup ring of either cast iron, steel, or high silica aluminum alloy made to ANSI B-16.1 dimensional standards (with modified pressure ratings), bolts of compatible material (insulated from the fittings where necessary) and a gasket of reinforced black rubber, asbestos-rubber compound or other material approved by the ENGINEER, cut to fit the joint. In all cases, the bolts shall be drawn up evenly and in line.
2. Termination of valves, or fittings such as tees, bonds, etc., made of other materials shall be by the flange assemblies specified hereinbefore. The pipe adjacent to these joints and to joints themselves must be rigidly supported for a distance of one pipe diameter or 1 foot, whichever is greater, beyond the flange assembly.

F. Tools and Procedures

1. Fusion jointing and other procedures necessary for correct assembly of the polyethylene pipe and fittings will be done only by personnel trained in those skills by the pipe supplier.
2. Only those tools designed for aforementioned procedures and approved by the pipe supplier shall be used for assembly of pipe and fittings to ensure proper installation.

2.05 COPPER PIPE AND FITTINGS

- A. Exterior copper pipe shall be Type K pipe (ASTM B88 latest revision), with compression fittings. Joints shall be drawn up firmly and shall be tested before backfilling and any leakage stopped.
- B. Wherever copper pipes pass through walls or floors, they shall have wrought or cast iron sleeves, for easy removal. Pipes passing through structural beams shall be placed as near as possible to the top of the beam under the floor slab.

2.06 UNDERGROUND UTILITY WARNING TAPES

- A. Non-metallic underground utility warning tapes shall be installed 12" above all buried pipe.
- B. The tape shall a pigmented polyolefin film with a printed message on one side that is impervious to all known alkalis, acids, chemical reagents and solvents found in the soil.
- C. The minimum overall thickness of the tape shall be 4.0 mils and the width shall not be less than 3" and a minimum unit length of 1000 ft/roll. The tape shall be color coded and imprinted with the message as follows:

Type of Utility	Color Code	Legends
Water	Safety Precaution Blue	Caution Buried Water Line Below
Sewer	Safety Green	Caution Buried Sewer Line Below

- D. Underground marking tape shall be "Terra Tape" as manufactured by Reef Industries, or approved equal.
- E. Installation of marking tapes shall be per manufacturer's recommendations and shall be as close to the grade as is practical for optimum protection and delectability. Allow a minimum of 18" between the tape and the line.

- F. Payment for detectable tapes shall be included in the linear foot price BID of the piping BID item(s).

2.07 DETECTABLE TRACER WIRE AND FLEXIBLE PIPELINE MARKERS

10 gauge, single strand TRACER WIRE shall be placed directly on top of all PIPE and shall be attached to the pipe at 5 ft intervals maximum. Tracer wire segments shall be 800 feet maximum and shall terminate at each air release valve manhole, or a structure the same as a valve box. Contractor shall leave three feet of coiled slack at each termination point.

A FLEXIBLE FIBER REINFORCED flat composite pipeline marker shall be installed above the pipe approximately every 2000 feet at a location designated by the ENGINEER.

The marker shall be manufactured of a fiber reinforced composite material. The reinforcement material shall be comprised of both lineal strands and horizontal mesh mats. The marker post must be flat in shape with rails on both sides. Marker shall be at least 3 3/4" wide. A 2 7/8" wide decal must fit on each side of the marker. The back side of the post shall have a rounded rib down the center and two small ribs on the sides to act as guides for the decals. Decals will be placed on both sides to ensure that a warning message can be seen from both directions.

The marker shall be capable of withstanding a minimum of 10 vehicle impacts at 55 M.P.H. with a car bumper.

The marker shall be coated with a coloring which matches the color of the post. The coating shall totally stop ultraviolet light from reaching the resin portion of the post. The coating shall not fade, peel, or blister after a minimum of 2,000 hours in a QUV Weatherometer.

Red – Electric	Orange - Communication
Yellow – Gas	Blue – Potable Water
Green – Sewer	Purple – Reclaimed water

The marker post shall remain flexible from -40° F to +140° F.

Decals shall be fade resistant and remain legible after a minimum of 2,000 hours in a QUV Weatherometer. Decal graphics shall include the international Do0Dig symbol. Decals shall be placed on both sides of the post.

Marker shall be Rhino brand, or approved equal.

PART 3 EXECUTION

3.01 LAYING PIPE IN COMMON TRENCH

- A. Pipelines, force mains and sewers laid in same trench shall, in all cases, be laid on original earth, regardless of divergence in their elevations. Pipe shall never be laid in backfill or one above the other. The CONTRACTOR shall include payment for all trenching and backfilling in his lump sum bid.

3.02 PRESSURE PIPE INSTALLATION - GENERAL

A. General

1. Pipe shall be handled with such care as necessary to prevent damage during installation. The interior of the pipe shall be kept clean and the pipe shall be installed to the lines and grades shown on the Drawings. Pipe shall be installed according to instructions and with tools recommended by the manufacturer. Whenever pipe laying is stopped, the end of the pipe shall be securely plugged or capped.
2. Ductile Iron fittings only shall be used with the PVC pipe.
3. Mechanical joint fittings shall be used with underground pipe.
4. Fittings less than 4-inches in diameter shall be of the mechanical joint type and be firmly blocked to original earth or rock to prevent water pressure from springing pipe sideward or upward. Concrete or other blocking material approved by the ENGINEER shall be placed such that it does not cover the pipe joints, nuts, and bolts.
5. Fittings 4-inches in diameter and greater shall be of the mechanical joint type and firmly restrained to prevent water pressure from springing pipe sideward or upward. The mechanical restraint shall be the Series 2000PV produced by EBAA Iron, Inc. or approved equal.
6. Pipes shall be free of all structures other than those planned. Openings and joints to concrete walls shall be constructed as shown on the Drawings.
7. Ductile iron or steel pressure pipe, 4 inch diameter or larger, entering a structure below original earth level, unsupported by original earth for a distance of more than 6 feet shall be supported by Class "2500" concrete, where depth of such support does not exceed 3 feet, and by Class "4000" concrete piers each 6 feet, where depth exceeds 3 feet. All other pressure pipe entering buildings or basins below original earth and having a cover of more than 24 inches of earth, or under roadway, shall be supported as shown in detail on the Drawings. All piers required will be paid for in accordance with the appropriate specification hereinbefore. Class "2500" concrete required will be included in the payment for furnishing and laying the particular pipe, in order to discourage excessive excavation outside the limits of structures. Pipes entering structures shall have flexible joint within 18 inches of exterior of structure, and also from point of leaving concrete support to original earth or crushed stone bedding.

B. Pressure Pipe Laying

1. Pressure pipe shall first be thoroughly cleaned at joints, then joined according to instructions and with tools recommended by the manufacturer. A copy of such instructions shall be available at all times at the site of the work.
2. All pipes must be forced and held together, or "homed" at the joints, before sealing ground level and unsupported by original earth for a distance of more than 6 feet shall be supported by concrete to original ground where depth of such support does not exceed 3 feet. When depth exceeds 3 feet, beams with piers shall be used for support.
3. Trench excavation for pipe laying must be of sufficient width to allow the proper jointing and alignment of the pipe. Trenches in earth or rock shall be dug deep enough to ensure 30" minimum cover over top of the pipe, unless otherwise indicated on the Drawings.
4. Trench line stations shall be set ahead of the trenching at least each 100 feet of pipeline. Trenches shall be dug true to alignment of stakes. Alignment of trenches or pipes in trench must not be changed to pass around obstacles such as poles, fences and other evident obstructions without the approval of the ENGINEER. Lines will be laid out to avoid obstacles as far as possible, consistent with maintenance of alignment necessary to finding the pipeline in the future and avoiding obstruction of future utilities and structures.
5. Cut pieces of pressure pipe 18" or more in length may be used in fitting to the specials and valves and fitting changes in grade and alignment. Cut ends shall be even enough to make first class joints.

C. Testing Pressure Pipe

1. Pressure and leakage tests shall be conducted in accordance with ANSI/AWWA C600.
2. The CONTRACTOR shall furnish all necessary equipment for pressure testing.
3. Inspection of pipe laying shall in no way relieve the CONTRACTOR of the responsibility for passing tests, stopping leakage, or correcting poor workmanship.
4. Underground pipelines will not be finally accepted until leakage is less than allowable by ANSI/AWWA C600. In case leakage exceeds this amount, the CONTRACTOR shall locate and repair leaks until the entire pipeline will pass the required test. All

leakage shall be stopped in exposed piping. The pumping equipment shall be disconnected during test.

5. The CONTRACTOR shall furnish meter or suction tank, pipe test plugs and bypassing piping and make all connections for conducting the above tests. The pumping equipment used shall be compressed air, centrifugal pump or other pumping equipment which will not place shock pressures on the pipeline. Power plunger pumps will not be permitted or us on closed pipe system for any purpose.

3.03 DUCTILE IRON PIPE INSTALLATION

- A. Pipe shall be handled with such care as necessary to prevent damage during installation. The interior of the pipe shall be kept clean and the pipe shall be laid to the lines and grades shown on the Drawings and/or as established by the ENGINEER.
- B. Whenever pipe laying is stopped, the end of the pipe shall be securely plugged or capped. Care should be taken to prevent flotation of pipe in the event the trench should flood.
- C. Fitting shall be firmly blocked to original earth or rock to prevent water pressure from springing pipe sideward or upward. Concrete or other blocking material shall be placed such that it does not cover the pipe joints, nuts and bolts.
- D. Pipes shall be free of all structures other than those planned. Openings and joints to concrete walls shall be constructed as shown on the Drawings. Any cast iron pipe entering a structure below original ground level and unsupported by original earth for a distance of more than 6 feet shall be supported by concrete to original ground where depth of such support does not exceed 3 feet. When depth exceeds 3 feet, beams with piers shall be used for support.
- E. All pipes entering buildings or basins below original earth level, which have less than 6 feet span between wall and original earth and having a cover of more than 24 inches of earth, or under roadway, must be adequately supported as approved by the ENGINEER or shown on the Drawings. All such supports are to be included in the contract price and no extra payment will be made for same.
- F. Pipes entering structures shall have a flexible joint within 18" of exterior of structure, or from point of leaving concrete support to original earth or rock bedding.
- G. Cast iron pipe shall be thoroughly cleaned at joints, then joined according to instructions and with tools recommended by the manufacturer.
- H. All pipes must be forced and held together, or "homed" at the joints, before sealing or bolting. Pipe must be aligned as each joint is placed, so

as to obtain straight lines and grades. Curves and changes in grades shall be laid in such a manner that maximum allowable joint deflection is not exceeded.

- I. Cut pieces of cast iron pipe 18" or more in length, may be used in connecting valves and fittings and for changes in grade and alignment. Cut ends shall be even enough to make first class joints.
- J. Sufficient excavation for bell holes will be required for tightening of bolts. No pipe shall be laid resting on rock, blocking, or other unyielding objects except where laid above ground on piers or in permanent tunnels.

3.05 HIGH DENSITY POLYETHYLENE PIPE INSTALLATION

A. General

- 1. High density polyethylene pipe shall be installed in strict accordance with the manufacturer's recommendations and these Specifications.
- 2. The CONTRACTOR shall have the manufacturer furnish all necessary technical assistance, installation instruction and jointing supervision required to ensure that the pipe is properly installed. The CONTRACTOR shall furnish the services of a technical representative of the manufacturer to supervise the joining, bedding, laying and backfilling of at least the first 200 feet of pipe.
- 3. Upon satisfactory completion of the initial jointing, bedding, laying and backfilling of the first 300 feet of pipe, the CONTRACTOR shall furnish the ENGINEER a written statement from the manufacturer's technical representative certifying that he has witnessed the work in progress and approves the techniques being used and the results obtained by the CONTRACTOR.
- 4. The manufacturer's technical representative shall have had previous experience with similar work, and be fully qualified to supervise and demonstrate proper procedures for jointing and laying the high-density polyethylene pipe.

B. Bedding

- 1. The laying condition for the high-density polyethylene pipe will be on a 6" pad of loose soil with mechanically compacted earth (to a 90 percent of maximum density as determined by Standard Proctor density test) to the centerline of the pipe.
- 2. At the CONTRACTOR'S option, he may substitute a 6" pad of No. 8 crushed stone below the bottom of the pipe and backfill to the centerline of the pie with No. 8 crushed stone.

C. Grade and Alignment

1. Polyethylene pipe shall be laid to predetermined grades and lines as indicated by the Contract Drawings. Grade lines shall be established either by means of offset grade stakes or by direct levels.

3.06 INSTALLING FLANGED OR THREADED PIPE AND FITTINGS

- A. The CONTRACTOR shall clean off all rust and dirt and paint all threads with red lead, before assembling, and the pipe shall be installed with flanges and pipes plumb and level, showing no leakage. Unions shall be included in threaded pipe runs to allow for easy removal of pipes. All valve operating devices shall be in locations and of types shown on the Drawings. They shall be accurately plumbed, leveled, supported and braced for smooth operation. Flanged joints shall be assembled with appropriate flanges, gaskets, and bolting. The clearance between flange faces shall be such that the connections can be gasketed and bolted tight without imposing undue strain on the piping system. Flange faces shall be parallel and the bores concentric; gaskets shall be centered on the flange faces so as not to project into the bore. Bolting shall be lubricated before assembly to ensure uniform bolt stressing. The flange bolts shall be drawn up and tightened in staggered sequence in order to prevent unequal gasket flange spacing. When a raised face is joined to a companion flange with a flat face, the raised face shall be machined down to a smooth matching surface and a full face gasket shall be used.

3.08 PVC PIPE INSTALLATION

PVC pipe shall be installed in accordance with the manufacturer's instructions and the "General" provisions under 3.01 and 3.02 in this Section.

3.09 STERILIZATION OF POTABLE WATER PIPE

- A. Upon completion of the work and cleaning up, and prior to final acceptance, the CONTRACTOR shall sterilize all new distribution system improvements which will be in contact with drinking water, including potable water pipe and connections thereto (including pumps and pump piping).
- B. Sterilization shall be accomplished by filling the facilities with water containing at least fifty (50) parts per million available chlorine utilizing a contact time of 24 hours. A residual of at least 25 parts per million, at the end of the 24 hour contact time, is required. No portion of the new work shall be placed in service prior to sterilization. At the end of the sterilization period, all sterilized surfaces and areas shall be thoroughly flushed with treated water and drained from the system, as directed by the OWNER.
- C. CONTRACTOR shall make an allowance in his bid to cover cost of filling the new water mains. The CONTRACTOR shall be billed for all water used for the construction and testing at a rate equal to the rate that the OWNER must pay the supplier.
- D. CONTRACTOR will be responsible for notifying the Health Department to observe sterilization test and shall be responsible for all sampling, including coordination, mailing and retesting, if required.

3.10 Testing Waterline Pipe

- 1. Pressure and leakage tests shall be conducted in accordance with ANSI/AWWA C600.
- 2. The CONTRACTOR shall furnish all necessary equipment for pressure testing.
- 3. Inspection of pipe laying shall in no way relieve the CONTRACTOR of the responsibility for passing tests, stopping leakage, or correcting poor workmanship.
- 4. The piping shall be complete, and thrust blocks shall have been in place for less than 10 days prior to be tested.
- 5. Piping shall be tested at a static pressure of 150 pounds per square inch over a period of not less than eight consecutive hours. The test will be considered successful when the pressure drop

over the test period is 5 psi or less. If the pressure drop exceeds 5 psi, repair the leaks and repeat the test. After repairs have been made the test shall be conducted, again. Piping will be accepted once pressure loss does not exceed 5 psi.

6. Underground pipelines will not be finally accepted until leakage is less than allowable by ANSI/AWWA C600. In case leakage exceeds this amount, the CONTRACTOR shall locate and repair leaks until the entire pipeline will pass the required test. All leakage shall be stopped in exposed piping. The pumping equipment shall be disconnected during test. Allowable leakage is calculated by the following:

L: Allowable leakage, gallons per hour
S: Length of pipe, feet
D: Nominal diameter, inches
P: Average test pressure, psi

$$L = \frac{(SD\sqrt{P})}{133,200}$$

7. The CONTRACTOR shall furnish meter or suction tank, pressure recorder, pressure gauges, pipe test plugs and bypassing piping and make all connections for conducting the above tests. The pumping equipment used shall be compressed air, centrifugal pump or other pumping equipment which will not place shock pressures on the pipeline. Power plunger pumps will not be permitted or used on closed pipe system for any purpose.

3.10 BASIS FOR PAYMENT

Piping shall be paid for at the unit price bid or lump sum bid and shall include all work incidental to making a complete installation such as excavation, bedding, backfill, painting, testing, disinfection, cleanup, seeding, paving, etc.

END OF SECTION

SECTION 02640

METERS, INDIVIDUAL PRESSURE REDUCING VALVES, AND SERVICE LINES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This Section describes the service meters, individual pressure reducing valves, and service lines to be provided, their materials, construction, type, and installation.
- B. All meters shown on the plan sheets shall be 5/8 inch by 3/4 inch, unless otherwise noted.
- C. All meters and appurtenances shall be compatible with the OWNERS existing Radio Read System as shown in Section 11500 of these Specifications.

PART 2 PRODUCTS

In order to provide continuity in materials the Hyden-Leslie Co. Water District requires the following materials to be used for their projects.

Saddles	Ford S70 Brass Saddle
Corp Stop	Ford 3/4" Corp Stop with Pack Joint – Model F1000-3-NL 3/4" Key Corp Stop CCXPJ CTS No Lead
Setter (Yoke)	Ford 5/8" x 3/4" Ball x Check Tandem Setter with Pack Joint – Model TVBH72-7W-44-33-NL
Lid	18" Diameter Cast Iron Flat Meter Box Lid with Pre-cut 2" Radio Read Hole, or approved equal
Meter	Kamstrup FlowIQ 2200 w/ Acoustic Leak Detection & Radio Read
IPRV	Wilkins 600XL

2.01 INDIVIDUAL PRESSURE REDUCING VALVES

- A. Individual pressure reducing valves shall be installed with service meters where shown on the plan sheets.
- B. Individual pressure reducing valves shall include a bronze strainer. Every regulator shall have an adjustable pressure range of 50 to 125 pounds per square inch. Upon installation, the outlet pressure shall be set at 65 pounds per square inch.
- C. Individual pressure reducing valves shall be installed on the inlet/supply side of the service meter using a tandem copper setter. The CONTRACTOR shall ensure the meter boxes proposed for installation

will accommodate the tandem copper setter, reducing valve and service meter.

- D. The reducing valve shall not be buried or otherwise housed outside the meter box.

2.02 METERS

A. SERVICE METER ASSEMBLY

1. Service meters to be furnished under this Contract shall be cold water rotating disc type with hermetically sealed and magnetically driven registers. Meters shall be first-line quality of the manufacturer and be in compliance with AWWA Standard C700, or latest revisions. Any type or make of meter supplied must have been manufactured and marketed in the U.S.A. for at least five (5) years. A bond may be submitted to waive this experience clause. The bond, if needed, shall be of an amount adequate for replacement of the meters and shall be held for five (5) years.
2. The main case shall be high grade waterworks bronze, with hinged, single lid cover and raised characters cast on them to indicate the direction of flow. Each meter must have the manufacturer's serial number stamped on the lid. Working pressure shall be not less than 150 pounds per square inch. Standard frost bottom meters with non-ferrous strainers snug against the main case shall be provided.
3. The measuring chamber shall be of corrosion-resistant thermoplastic material. The chamber shall be of the two piece design, equipped with a disc made of hard rubber and as near to the specific gravity of water as possible. Discs shall be of the three piece design of the thrust roller type.
4. The register shall be straight reading U.S. gallon type. The register unit shall be completely encased and hermetically sealed, and driven by permanent magnets. There shall be a test index circle, divided into 100 equal parts, and shall have a red center sweep test hand. Registers shall be guaranteed by the manufacturer for a period of at least fifteen (15) years.
5. New Service Meters shall include meter box and cover, meter, copper setter, four feet (4') of pipe and corporation stop, plus six feet (6') of pipe and adapter on the customer's side of meter. (This latter item is to prevent the customer or his plumber from disarranging or loosening the meter after the CONTRACTOR has already set the meter in its proper position.) Where the main line is in the highway right-of-way, meter shall be set as close to the right-of-way fence as practicable, but no meter on the same side of the road as the main line shall be set with more than ten feet

(10') of service line unless prior approval has been obtained from the ENGINEER or his representative.

6. Meters shall be installed at each service connection unless directed otherwise by the ENGINEER. Meter boxes shall be concrete or PVC pipe twenty-four inches (24") deep. The box shall be twenty inches (20") in diameter. Meter box cover shall be eleven and one-half inches (11 1/2") diameter by four inches (4") deep. Meters shall be five-eighths inch by three-fourths inch (5/8" x 3/4"), unless shown otherwise on the plans. Meter connections shall be made by means of copper setters having a cutoff and three-fourths inch (3/4") spud. When shown on the plans (Standard Details) an angle check valve shall be furnished on the meter outlet side of the copper setter. (The size of meter box stated is for five-eighths inch by three-fourths inch (5/8" x 3/4") meter. For larger meters, meter box size shall be in accordance with standard practice). Alternative boxes may be considered upon submittal of shop drawings and performance data.
7. Meters shall be set in a workmanlike manner with backfill neatly compacted in place. In yards, pastures and other grassed areas, top of meter box will be one-half inch (1/2") above grade, otherwise two inches (2") above grade.

2.03 SERVICE LINES

- A. Unless indicated otherwise on the plans, all service lines shall be three quarter inch (3/4-inch) 250 psi Polyethylene tubing. A generous loop of Polyethylene tubing shall be included with the length required for the meter setting. A corporation stop shall be used on each service line at the main line connection.
- B. Service lines crossing a county road or city street will be jacked beneath paved or black topped city streets or county roads, unless rock prevents using this method. Open cut shall be used on all unpaved city streets, county roads and private driveways. Black topped private driveways shall also be jacked under. In all cases where lines are under traffic, a minimum cover of thirty inches (30") shall be provided. All backfill shall be puddled or compacted by air tampers in layers no greater than six inches (6") in depth.
- C. Existing service meters shall be disconnected from existing water mains where indicated, and shall be reconnected to the new line. This work shall include up to thirty (30) lineal feet of matching type/diameter service line in the unit price bid for meter reconnection. Compression couplings with inserts shall be used to reconnect flexible (plastic) service line and sweat joints used for copper service line.

END OF SECTION

SECTION 02702

HDPE STORM DRAINAGE PIPE

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals necessary to install and test pipe and fittings as shown on the DRAWINGS and required by the SPECIFICATIONS.
- B. Piping shall be located substantially as shown. The ENGINEER reserves the right to make such modifications in locations as may be found desirable to avoid interference between pipes or for other reasons. Pipe fitting notation is for the CONTRACTOR'S convenience and does not relieve him from laying and jointing different or additional items where required without additional compensation.
- C. Wherever the word pipe or piping is used it shall mean pipe and fittings unless otherwise noted.
- D. This specification describes 12- through 30-inch (300 to 750 mm) N-12 HP Storm pipe for use in gravity flow applications.

1.02 RELATED WORK

- A. Trenching, backfilling and compacting are included in this Division, Section 02200.
- B. Concrete is included in Division 3, Section 03300.
- C. General Piping

1.03 DESCRIPTION OF SYSTEM

- A. Piping shall be installed substantially as shown on the DRAWINGS so as to form a complete smooth flow path and workable system.
- B. The piping and materials specified here in are intended to be standard types of pipe for use in transporting the fluids as indicated on the DRAWINGS. The pipe and fittings shall be designed, constructed, and installed in accordance with the best practices and methods and the manufacturer's recommendations.

1.04 QUALIFICATIONS

- A. All pipe and fittings under this section shall be furnished by manufacturers who are fully experienced, qualified, and regularly engaged in the manufacture of the materials to be furnished.

1.05 SUBMITTALS

- A. The CONTRACTOR shall submit to the ENGINEER for review in accordance with Division 1, Section 01300, complete sets of SHOP DRAWINGS showing layout and details of materials, joints and methods of construction and installation of the pipe, specials and fittings required.
- B. Before fabrication and/or shipping of the pipe is begun, the CONTRACTOR shall submit for approval a schedule of pipe lengths for the entire job. All pipe furnished under the CONTRACT shall be fabricated in full accordance with the approved DRAWINGS.
- C. Submit to the ENGINEER within 30 days after execution of the CONTRACT a list of materials to be furnished, the names of the SUPPLIERS and the approximate date of delivery of materials to the site.

1.06 INSPECTION

- A. The manufacturer shall inspect all pipe joints for out-of-roundness and pipe ends for squareness. The manufacturer shall furnish to the ENGINEER a notarized affidavit stating all pipe meets the requirements of applicable ASTM SPECIFICATIONS, these SPECIFICATIONS, and the joint design with respect to square ends and out-of-round joint surfaces.

PART 2 PRODUCTS

2.01 HIGH DENSITY POLYETHYLENE PIPE (GRAVITY SEWER APPLICATIONS)

- A. Pipe Requirements
 - 1. 12- through 30-inch (300 to 750 mm) pipe shall have a smooth interior and annular exterior corrugations.
 - 2. 12- through 30-inch (300 to 750 mm) pipe shall have a minimum pipe stiffness of 46 pii when tested in accordance with ASTM D2412.
 - 3. Manning's "n" value for use in design shall be 0.012.
- B. Joint Performance
 - 1. Pipe shall be joined with a gasketed integral bell & spigot joint.
 - 2. 12- through 30-inch (300 to 750 mm) shall be watertight according to the requirements of ASTM D3212.
 - 3. Spigot shall have two gaskets meeting the requirements of ASTM F477. Gaskets shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gaskets are free from debris. A joint lubricant available from the

manufacturer shall be used on the gasket and bell during assembly.

C. Fittings

Bell & spigot connections shall utilize a spun-on, welded or integral bell and spigot with gaskets meeting ASTM F477. Fitting joints shall meet the watertight joint performance requirements of ASTM D3212.

D. Field Pipe and Joint Performance

To assure watertightness, field performance verification may be accomplished by testing in accordance with ASTM F2487. Appropriate safety precautions must be used when field-testing any pipe material. Contact the manufacturer for recommended leakage rates.

E. Material Properties

Virgin material for pipe and fitting production shall be impact modified copolymer polypropylene conforming to the requirements of ASTM D4101.

2.02 DETECTABLE UNDERGROUND UTILITY WARNING TAPES

- A. Detectable underground utility warning tapes which can be located from the surface by a pipe detector shall be installed directly above non-metallic (PVC, polyethylene, concrete) pipe.
- B. The tape shall consist of a minimum thickness 0.35 mils solid aluminum foil encased in a protective inert plastic jacket that is impervious to all known alkalis, acids, chemical reagents and solvents found in the soil.
- C. The minimum overall thickness of the tape shall be 5.5 mils and the width shall not be less than 2" with a minimum unit weight of 2-1/2 pounds/1" x 1000'. The tape shall be color coded and imprinted with the message as follows:

Type of Utility	Color Code	Legends
Water	Safety Precaution Blue	Caution Buried Water Line Below
Sewer	Safety Green	Caution Buried Sewer Line Below

- D. Detectable underground tape shall be "Detect Tape" as manufactured by Allen Systems, or approved equal.

- E. Installation of detectable tapes shall be per manufacturer's recommendations and shall be as close to the grade as is practical for optimum protection and detectability. Allow a minimum of 18" between the tape and the line.
- F. Payment for detectable tapes shall be included in the linear foot price BID of the piping BID item(s) or as a lump sum, whichever is applicable, per the bid tabulation.

PART 3 EXECUTION

3.01 LAYING NON-PRESSURE PIPE - GENERAL

- A. General
 - 1. Installation shall be in accordance with ASTM D2321 and the manufacturer's recommended installation guidelines, with the exception that minimum cover in traffic areas for 12- through 30-inch (300 to 750 mm) diameters shall be one foot (0.3 m) in single run applications.
 - 2. All pipe may be tested for uniform diameter, straightness and defects before laying. Rejected pipe shall be removed from the PROJECT.
 - 3. All pipe after being inspected and accepted shall be laid to the lines and grades shown on the DRAWINGS. The CONTRACTOR shall furnish all labor and materials for staking out lines and grades. All gravity pipelines shall be laid to constant grades between invert elevations shown on the DRAWINGS. Grades shown on DRAWINGS are invert of pipe, unless specifically noted otherwise. The pipe lengths shall be fitted together and matched to form a smooth and uniform invert.
 - 4. Sub-grade, undercut, bedding and backfilling under, around and over the pipe shall all be in accordance with the details shown on the DRAWINGS. No pipe shall be laid until the sub-grade is properly in place.
 - 5. Unnecessary walking upon the completed pipelines shall be avoided until trench has been backfilled to over the top of the pipe.
 - 6. The interior of the pipe shall be cleaned of all dirt, jointing materials and superfluous materials of every description. When laying of pipe is stopped, the end of the pipe shall be securely plugged or capped. Care should be taken to prevent flotation of the pipe in the event the trench should floor. The CONTRACTOR will be responsible for relaying and/or relocating pipe if the pipe is laid before trenching has progressed far enough to eliminate the

possibility of grade conflicts or realignment on account of existing structures, pipelines, or conduits.

7. In trench conditions where pipe is in danger of sinking below grade or floated out of grade or line, or where backfill materials are such a fluid nature that such movements of pipe might take place during the placing of the backfill, the pipe shall be weighted or secured permanently in place.
8. Pipes shall be laid free from all structures other than those planned. Openings in and joints to contact walls shall be constructed as shown on the DRAWINGS.
9. Non-pressure pipes entering structures underground and unsupported by original earth for a distance of more than 3', shall be supported by Class "B" concrete, where depth of such support does not exceed 3'. All pipes entering buildings or basins, below original ground, which are higher than 3' depth above sub-grade, span more than 3' depth above sub-grade, span more than 3' between wall and original earth, and with more than 24" of cover or under a roadway, shall be supported by concrete beams with piers at 6' intervals between structural wall and edge of excavation for the structure, in order to prevent breakage from settlement of backfill about the structure. Concrete and reinforcing steel for these supports shall be in the lump sum portion of the CONTRACT; and no extra payment will be allowed. Pipe entering structures shall have flexible joint within 18" of exterior of structure or from point of leaving concrete support.
10. No backfilling except for securing pipe in place, shall be done until the ENGINEER has inspected the joints, alignment, and grade in the section laid. Such inspection, however, does not relieve the CONTRACTOR of liability in case of defective joints. Joints that show leakage will not be accepted. If after backfilling and inspection, any joints are found that are allowing groundwater to enter the sewer, such joints shall be sealed by the CONTRACTOR.

B. Pipe Bedding

1. Backfill for minimum cover situations shall consist of Class 1, Class 2 (minimum 90% SPD) or Class 3 (minimum 95%) material. Maximum fill heights depend on embedment material and compaction level, per the manufacturer's recommendations.
2. Crushed stone used for bedding shall be size shown, and shall comply with State Highway Department Standards.

END OF SECTION

SECTION 02831

CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.01 WORK INCLUDED

- A. This section will cover fences to be constructed at locations and in the manner shown on the plans.

PART 2 PRODUCTS

2.01 CHAIN LINK FENCING

- A. Fencing shall be of non-climbable type as manufactured by the Cyclone Fence Company, or approved equal. It shall be standard overall height of seven (7) feet and constructed of chain link fabric with three rows of barb wire on top of steel brackets. Chain link fabric shall be one foot less than complete coverall height of fence.
- B. Vehicular gates shall be of single swing type having opening of 20 feet, unless otherwise shown on the Plans.
- C. All fencing materials shall conform to applicable portions of the Standards of the Chain Link Fence Manufacturers Institute (CLFMI). Material for framework shall be open hearth, copper-bearing steel conforming to the applicable requirements of the latest ASTM for Standard Specifications, Serial Designation A7 for Steel for Bridges and Buildings.
- D. End corner, angle and pull post shall be 2-7/8 inch outside diameter, standard tubular steel weighing not less than 5.79 pounds per linear foot. Line posts shall be 2-1/4 inch structural "H" sections weighing 4.1 pounds per linear foot or 2-3/8 inch outside diameter steel pipe weighing 3.65 pounds per linear foot. Top rail shall be 1-5/8 inch outside diameter steel pipe weighing 2.27 pounds per linear foot or "H" section weighing 2.27 pounds linear foot. Top rails shall be provided with expansion rail couplings spaced at not less than 20 foot intervals. Gate posts for pedestrian gates shall be 2-7/8 inch outside diameter pipe weighing 5.79 pounds per linear foot Gate posts for vehicular gates shall be 4 inch outside diameter pipe weighing 9.1 pounds per linear foot.
- E. Braces shall be provided at all corners and wherever fabric is not continuous, such as at gates or at other openings. Braces shall be of the same material as top rail. Extension arms on intermediate posts shall be of pressed steel. Extension arms shall carry 3 barbed wires. Fittings used in connection with the fence and gates shall be malleable iron or pressed steel. Barbed wire shall be four-point pattern, two strand, No. 12-1/2 gauge, copper-bearing steel wire, heavily hot galvanized after weaving, with large barbs placed 3 inches apart. Chain link fabric shall be copper-bearing base metal No. 9 gauge wire heavily zinc coated by

hot dip process after weaving. The fabric shall be woven in a 2 inch chain-link diamond mesh. The fabric shall have a knuckled selvage along the top rail and a twisted and barbed selvage at the bottom. The barbing shall be done by cutting the wire on a bias, creating sharp points. A 2 inch padlock and chain shall be furnished with each gate. Three keys shall be furnished with each padlock. Chain shall be welded to the gate. Gate frames shall be of 1.9 inch outside diameter pipe weighing 2.72 pounds per linear foot. Corner fittings shall be of heavy malleable iron castings or pressed steel. Fabric shall be same as fence. Each gate frame shall be equipped with 3/8 inch diameter adjustable ball-and-socket hinges, catch and stops. Double gates shall have center rests. Hinges shall provide for swinging the gate open through an arc of not less than 180 degrees. Gates shall be suitably braced and reinforced to prevent sagging. Double gates shall be provided with center plunger rod, catch and semi-automatic outer catches to assure gate in opened position. All materials entering into the construction of required fencing shall be heavily galvanized by the hot dip process.

PART 3 EXECUTION

3.01 INSTALLATION

- A. End, corner and gate posts shall be set in a concrete base not less than 18 inches in diameter which shall extend at least three inches below the bottom of the post. The post shall extend to a depth of at least three feet below the surface of the ground. A brace shall be spaced midway in height of each end, corner and gate post and shall extend to the first line post. Braces shall be securely fastened to posts by means of malleable iron connections and trussed from line post back to end, corner or gate post with a 3/8 inch diameter rod.
- B. Line posts shall be set in a concrete base not less than 12 inches in diameter which shall extend at least three inches below the bottom of the post. The post shall extend to a depth of at least thirty inches below the surface of the ground. Line posts shall be equally spaced along the line of the fence at intervals not to exceed ten (10') feet.
- C. Galvanized steel pipe sleeves, 4 inch OD for corner, pull and gate posts and 3-1/2 inch OD for line posts shall be embedded in concrete as shown on the plans for all fence posts to be installed on concrete structures.
- D. Top rail shall be installed between line posts. Fabric shall not be erected until concrete has had sufficient time to cure. Chain-link fabric shall be stretched to uniform tightness on the outside of the posts with suitable tools and shall be attached with No. 6 gauge galvanized wire clips securely clinched and attached by means of adjustable clamps. Fabric shall be fastened to line posts at 14 inch intervals. Fabric shall be attached to rail at 24 inch intervals by galvanized wires.

- E. A No. 7 coil spring galvanized wire shall be stretched along the bottom of the fence and securely fastened to the posts. The chain-link fabric shall be attached to the tension wire at intervals not to exceed two feet.

END OF SECTION

SECTION 02900

LANDSCAPING

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. Landscape development work in this phase is generally limited to seeding and sodding.

1.02 RELATED WORK

- A. Sub-grade elevations, excavation, filling, and grading required to establish elevations shown on Drawings are not specified in this Section. Refer to this Division, Section 02200.
- B. Erosion and sediment control are included in this Division, Section 02270.

1.03 SCOPE OF WORK

- A. Sod shall be placed on all slopes steeper than 3:1 except for dam embankment slopes. All other surfaces including dam embankment slopes shall be fertilized and seeded as specified hereinafter, except for those surfaces to be paved or rip-rapped.
- B. Fertilizing and seeding shall be performed on all disturbed areas within the limits of work of this contract which are not specified to be sodded and are not occupied by structures, road, concrete slab walls, etc. or within the impoundment area.

PART 2 PRODUCTS

2.01 QUALITY OF SOD

- A. Sod shall be well-rooted Kentucky Blue Grass sod or other approved pasture sod, completely free from noxious weeds. and reasonably free from objectionable grasses, weeds and stones or other foreign materials. The source of the sod shall be available for inspection and approval by the ENGINEER prior to stripping.
- B. Sections of sod stripped may vary in length not to exceed 8 feet but shall be of uniform width of not less than 10 inches nor more than 18 inches, and shall be cut to a depth of not less than 1 inch and not more than 2 inches. The above widths and lengths are required to ensure proper handling without undue tearing and breaking. Sod from light sand or heavy clay will not be accepted. When cut in strips, the sod shall be

rolled with the grass folded inside. The sod shall be cut by means of an approved mechanical sod cutter. During dry weather, the sod shall be watered before stripping to ensure its vitality and to prevent the loss of soil from the roots. Sod shall be rejected if permitted to decay or dry out to the extent that, in the judgment of the ENGINEER, its survival is doubtful.

2.02 PLACING SOD

- A. The sod bed shall be shaped to a smooth even surface and shall be graded such that the sod, when in place, shall be flush with any adjacent turfed area, pavement or other structures, except when otherwise directed by the ENGINEER. Prior to placing of the sod, fertilizer (10-20-10 - Ratio - 25 lbs. per one thousand square feet), Agricultural Limestone (Ratio - 75 lbs. per one thousand square feet), shall be applied, harrowed, raked or otherwise incorporated into the soil. After application of above, the sod bed, if dry, shall be moistened to the loosened depth.
- B. No sod shall be placed when the temperature is below 32°F. No frozen sod shall be placed, nor shall any sod be placed on frozen soil. Sod shall not be placed during extremely dry weather unless authorized, in writing, by the ENGINEER and provided that immediately after placing, the wood is covered with a 1 inch thickness of straw mulch.
- C. The sod shall be carefully placed by hand so that each section closely joins the adjacent sections without overlapping. All open spaces or gaps shall be plugged with sod cut to the same size and shape.
- D. The sod, after it is placed, shall be wetted thoroughly and tamped or rolled to incorporate the roots with the sod bed and to ensure tight joints between strips.
- E. All sodded areas shall be kept thoroughly moist for 2 weeks after sodding.

2.03 FERTILIZING AND SEEDING

- A. This work consists of furnishing all labor, equipment and materials and in performing all operations in connection with the fertilizing and seeding of all the finished graded areas not specified to be sodded or occupied by structures, roads, concrete slabs, sidewalks, walls, etc., and including grassed areas destroyed or damaged by the CONTRACTOR.
- B. The areas to be seeded shall be thoroughly tilled to a depth of at least 4" by deicing, harrowing, or other approved methods until the condition of the soil is acceptable to the ENGINEER. After harrowing or deicing, the seed bed shall be dragged and/or hand raked to finished grade.
- C. Fertilizer shall be 25 lbs. of 10-20-10 or equivalent per 1,000 square feet. The incorporation of the fertilizer and the agricultural lime (Ratio - 75 lbs. per one thousand square feet) may be a part of the tillage operation and

shall be applied not less than 24 hours nor more than 48 hours before the seed is to be sown.

- D. The seed mixture to be sown for dry land areas shall be in the following proportions:

Common Name	Proportion By Weight	% of Purity	% of Germination
Kentucky Bluegrass	40	90	85
Chewings Fescue	25	90	85
Italian Rye Grass	20	90	85
Red Top	10	90	85
White Clover	5	95	90

The seed mixture for stream bank and wet soil areas shall be in the following proportions and applied at the noted rates:

Scientific Name	Common Name	Pure Live Seed (PLS) Ounces/Acre
<i>Andropogon gerardii</i>	Big bluestem grass	66
<i>Calamagrostis canadensis</i>	Blue joint grass	4
<i>Elymus canadensis</i>	Canada wild rye	16
<i>Panicum virgatum</i>	Switch grass	2
<i>Sorghastrum nutans</i>	Indian grass	2
Scientific Name	Common Name	Pure Live Seed (PLS) Ounces/Acre
<i>Spartina pectinata</i>	Prairie cord grass	6
<i>Agrostis alba</i>	Redtop	8
<i>Avena sativa</i>	Seed oats	360
<i>Lolium multiflorum</i>	Annual rye	100
<i>Phleum pratense</i>	Timothy	20
<i>Aster ericoides</i>	Heath aster	2
<i>Aster novae-angliae</i>	New England aster	1.25
<i>Baptisia leucantha</i>	White wild indigo	1.5
<i>Cassia fasciculata</i>	Partridge pea	3.5
<i>Coreopsis tripteris</i>	Tall coreopsis	1.25
<i>Desmodium illinoense</i>	Illinois tick trefoil	1
<i>Eryngium yuccifolium</i>	Rattlesnake master	3
<i>Gentiana andrewsii</i>	Bottle gentian	1

<i>Helenium autumnale</i>	Sneezeweed	1.25
<i>Helianthus grosseserratus</i>	Sawtooth sunflower	2
<i>Lespedeza capitata</i>	Round-headed bush clover	3
<i>Liatris spicata</i>	Marsh blazing star	4
<i>Monarda fistulosa</i>	Prairie bergamot	0.75
<i>Parthenium integrifolium</i>	Wild quinine	2.5
<i>Physostegia virginiana</i>	False dragon; Obedient plant	1
<i>Pycnanthemum virginianum</i>	Common mountain mint	0.5
<i>Ratibida pinnata</i>	Yellow coneflower	3.5
<i>Rudbeckia hirta</i>	Black-eyed susan	1.5
<i>Rudbeckia laciniata</i>	Wild golden glow	2
<i>Rudbeckia subtomentosa</i>	Sweet black-eyed susan	1.25
<i>Silphium integrifolium</i>	Rosin weed	2
<i>Silphium laciniatum</i>	Compass plant	3
<i>Silphium perfoliatum</i>	Cup plant	3
<i>Silphium terebinthinaceum</i>	Prairie dock	2
<i>Solidago juncea</i>	Early goldenrod	2
<i>Solidago rigida</i>	Stiff goldenrod	2
<i>Solidago rugosa</i>	Rough goldenrod	2.5
<i>Tradescantia ohioensis</i>	Common spiderwort	1.25
<i>Vernonia altissima taeniotricha</i>	Hairy tall ironweed	3
<i>Veronicastrum virginicum</i>	Culver's root	1
<i>Zizia aurea</i>	Golden alexanders	0.5

- E. All seed shall be fresh and clean and shall be delivered mixed, in unopened packages, bearing a guaranteed analysis of the seed and mixture.
- F. Seed shall be broadcast either by hand or approved sowing equipment at the rate of ninety (90) pounds per acre (two pounds per 1,000 square feet), uniformly distributed over the area. Broadcasting seed during high winds will not be permitted. The seed shall be drilled or raked into a depth of approximately 1/2 inch and the seeded area shall be lightly raked to cover the seed and rolled. Drill seeding shall be done with approved equipment with drills not more than 3 inches apart. All ridges shall be smoothed out, and all furrows and wheel tracks, shall be removed.
- G. Seed may be sown during the following periods:

February 1 to April 15
August 15 to October 15

- H. Seed may not be sown at any other time except with the written approval of the ENGINEER.
- I. After the seed has been sown, the areas so seeded shall be mulched with clean straw at the rate of one (1) bale per 2,000 feet (approximately 1 inch loose depth). Mulch on slopes shall be held in place with binder twine staked down at approximately 18 inch centers or by other equally acceptable means.
- J. Areas seeded shall be protected until a uniform stand develops, when it will be accepted and the CONTRACTOR relieved of further responsibility for maintenance. Displaced mulch shall be replaced or any damage to the seeded area shall be repaired promptly, both in a manner to cause minimum disturbance to the existing stand of grass. If necessary to obtain a uniform stand, the CONTRACTOR shall re-fertilize, re-seed and re-mulch as needed. Scattered bare spots up to one (1) square yard in size will be allowed up to a maximum of 10 percent of any area.

PART 3 EXECUTION

3.01 SEQUENCE OF WORK

- A. All finish grading in a general area shall be complete before sodding or fertilizing and seeding begins.

3.02 BASIS FOR PAYMENT

- A. Payment for sod or fertilizing and seeding shall be made on a unit price or a lump sum basis where a separate bid item is provided. Otherwise payment for all landscaping required for other work, such as structures, pipelines, etc., shall be made on a unit price or lump sum basis bid for that work.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 WORK INCLUDED

- A. This section includes cast-in-place concrete, formwork, reinforcing steel and related accessories in conformance with the requirements of ACI 301-latest revision, Specifications for Structural Concrete, which is hereby made a part of these Specifications except as modified by the Supplemental Requirements under PART 3. - EXECUTION, this Section.
- B. ACI 301 - latest revision is the latest consensus standard publication on concrete work and, as modified by the Supplemental Requirements in PART 3 - EXECUTION, this Section, is a complete specification. ACI 301-latest revision is part of Field Reference Manual ACI Publication SP-15 (latest revision) which includes pertinent ACI and ASTM standards considered helpful and necessary job-site reference. The Supplemental Requirements can easily be noted or clipped and taped in SP-15 (latest revision) for ready referral. The CONTRACTOR shall keep at least one copy of SP-15 (latest revision) in the field office at all times.
- C. PART 2 - PRODUCTS, this Section, includes the common concrete ingredients of cement, aggregate and water as well as admixture and grout and other concrete related items such as reinforcing steel, water stop and joint materials. These products are also generally addressed under PART 3 - EXECUTION in ACI 301-latest revision with modifications.
- D. The work also includes furnishing all labor, materials, equipment and incidentals required to place anchor bolts, inserts, reglets, flashing, pipe sleeves, conduits and other items to be embedded or passed through the concrete as specified under other sections or as shown on the Architectural, Mechanical, Electrical and Instrumentation and Heating and Ventilating Project Drawings.
- E. Quality assurance (ACI Section 1.6). The CONTRACTOR shall employ a qualified testing agency to measure the slump, air, temperature and age of the concrete mixture delivered to the site. The CONTRACTOR'S testing agent will also make three test cylinders from each 50 cubic yards, or fraction thereof, of each concrete mixture placed in any one day.

1.02 SUBMITTALS

- A. Product Data: Submit manufacturer's product data with application and installation instructions for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake

finish materials, shrinkage-resistant grout, and any others that may be requested by ENGINEER.

- B. Shop Drawings, General: All shop drawings submitted shall be a complete set of original drawings created by the Supplier. No partial or incomplete submittals nor duplication of ENGINEER original documents will be permitted.

All shop drawing submittals shall include 6 sets of prints for structural consultant to review and mark up. (Note number of prints may be increased by ENGINEER at the Preconstruction Conference.)

Shop drawings must not only bear the Contractor's stamp of approval but shall also show evidence that each item has been thoroughly checked. Failure to comply with this requirement shall result in the ENGINEER'S return of the submission (without review or action) for the Contractor's proper submission and review. No exceptions shall be taken.

The ENGINEER has set aside time to examine shop drawings one time only and to briefly reexamine a resubmission one time. Should it be required that shop drawings or product data be reviewed again, the Contractor shall reimburse the ENGINEER at the cost of 3.25 times the hourly rate of the ENGINEER'S personnel to reexamine them.

Copies of shop drawings used in the field shall bear the ENGINEER'S review stamp with items checked to indicate a satisfactory final review.

- C. Shop Drawings; Reinforcement: Prior to fabrication, submit shop drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of concrete reinforcement. Include special reinforcement required and openings through concrete structures.
- D. Shop Drawings; Formwork: Submit shop drawings for fabrication and erection of specific finished concrete surfaces as indicated. Show general construction of forms including jointing, special form joint or reveals, location and pattern of form tie placement, and other items which affect exposed concrete visually.

ENGINEER'S review is for general architectural applications and features only. Design of formwork for structural stability and efficiency is Contractor's responsibility.

- E. Samples: Submit samples of materials as specified and as otherwise requested by ENGINEER, including names, sources and descriptions.
- F. Laboratory Test Reports: Submit laboratory test reports for concrete materials and mix design test as specified.

- G. Materials Certificates: Provide materials certificates in lieu of materials laboratory test reports when permitted by ENGINEER. Material certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.

1.03 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of following codes, specifications and standards, except where more stringent requirements are shown or specified.

ACI 301 "Specifications for Structural Concrete for Buildings".

ACI 304 "Recommended Practices for Measuring, Mixing, Transporting and Placing Concrete".

ACI 318 "Building Code Requirements for Reinforced Concrete".

Concrete Reinforcing Steel Institute, "Manual of Standard Practice".

ANSI/AWS D1.4 "Structural Welding Code -- Reinforcing Steel".

ACI 117 – 90 "Standard Tolerances for Concrete Construction and Materials".

- B. Materials and operations shall be tested and inspected as work progresses. Failure to detect defective work shall not prevent rejection when defect is discovered, nor shall it obligate the Owner for final acceptance.
- C. All sampling and/or testing in the field shall be made by an ACI Concrete Field Testing Technician Grade I in accordance with ACI CP1 or equivalent.
- D. Testing agencies shall meet the requirements of "Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction," ASTM E 329, latest edition.
- E. Concrete Testing Service:

Engage a testing laboratory acceptable to ENGINEER at Contractor's expense to perform the following services:
 - 1. Qualification of proposed materials and the establishment of mix designs in accordance with "Building Code Requirements for Reinforced Concrete," ACI 318, latest edition and as noted under Proportioning and Design of Mixes listed elsewhere in this section.
 - 2. See Section 3.19 Quality Control Testing During Construction For Required Tests.

3. Testing services needed or required by the Contract.
 4. Correct deficiencies in structural work which inspections have indicated to be not in compliance with requirements. Perform additional tests, at Contractor's expense, as may be necessary to reconfirm any non-compliance of original work, and as may be necessary to show compliance of corrected work.
- F. Materials and installed work may require testing and retesting, as directed by ENGINEER at anytime during progress of work. Allow free access to material stockpiles and facilities. Tests including retesting of rejected materials and installed work, shall be done at Contractor's expense.

G. Pre-installation Conference:

At least 14 days prior to the start of the concrete construction schedule, the Contractor shall conduct a pre-installation conference at the project site to review the proposed mix designs and to discuss the required methods and procedures to achieve the required concrete construction.

The Contractor shall require representatives of every party who is concerned with the concrete work to attend the conference, including, but not limited to, the following:

Contractor's superintendent
Material Testing Agency
Concrete subcontractor
Engineer
Construction Manager
Owner

1.04 PROJECT CONDITIONS

- A. Protection of Footings Against Freezing: Cover completed work at footing level with sufficient temporary or permanent cover as required to protect footings and adjacent subgrade against possibility of freezing; maintain cover for time period as necessary.
- B. Protect adjacent finish materials against spatter during concrete placement.

PART 2 PRODUCTS

2.01 MATERIALS

- A. General
 1. After award of the Contract, the CONTRACTOR shall submit in writing to the ENGINEER the name, address and qualifications of the ready-mix supplier who will furnish concrete for the project.

The CONTRACTOR shall also submit the supplier and source of the sand, coarse aggregate, cement, admixtures, and the proposed mix design. The testing laboratory selected by the CONTRACTOR and approved by the ENGINEER shall receive from the ENGINEER a copy of this Section 03300, this Division, of the Project Specifications. The CONTRACTOR shall send the required materials to the testing laboratory for mix design testing unless pre-qualified mixes are on hand that have adequate test results per ACI 301.

2. Each material submitted for tests shall be from the same single source as material proposed for the concrete work unless otherwise required or permitted.
3. Also refer to ACI 301-latest revisions and Supplemental Requirements under PART 3 - EXECUTION, this Section.

B. Cement (ACI Section 4.2.1.1.a)

1. Portland cement for concrete and mortar shall conform to ASTM C 150-latest revision, Type I.
2. The ENGINEER may require the CONTRACTOR to deliver cement to the testing laboratory for tests according to ASTM Specification C 150-latest revision for Type I. Should cement fail the tests, the CONTRACTOR shall pay for the tests and the ENGINEER shall have the right to reject the brand.
3. Cement for tests shall be delivered in four-ply paper bags with supplier and source identified in writing. Cement shall be stored in a dry location for not longer than 90 days after delivery from the mill.

C. Admixtures (ACI Section 4.2.1.4)

1. The air-entraining admixture for concrete shall conform to ASTM C 260-latest revision.
2. Water-Reducing Admixture: ASTM C 494, Type A, and contain not more than 0.1% chloride ions. Type A, Water-Reducing admixture shall be a hydroxylated polymer type admixture. Admixtures that are predominantly composed of hydroxylated carboxylic acid or lignin sulfonates are not permitted.
3. The non-chloride accelerating admixture for concrete shall conform to ASTM C494-latest revision for Type C or E (accelerating admixtures).
4. The water-reducing, set retarding admixture for concrete shall conform to ASTM C 494-latest revision for Type D, and contain

not more than 0.1% chloride ions (water-reducing and retarding admixtures).

5. The high range water-reducing admixture for concrete shall conform to ASTM C 494-latest revision for Type F, and contain not more than 0.1% chloride ions (high range super plasticizer water-reducing admixtures).
6. The high range water-reducing and retarding admixture for concrete shall conform to ASTM C 494-latest revision for Type G, and contain not more than 0.1% chloride ions (high range super plasticizer water-reducing and retarding admixtures).
7. The shrinkage reducing admixture (REQUIRED for all cell structural floors, walls, beams, control area floor slab and maintenance building floor slab) for concrete shall conform to ASTM C157- latest revision (shrinkage-reducing admixtures). Available materials are as follows:
 - a. Eclipse Plus or Eclipse Floor by W. R. Grace & Co.
 - b. Approved equivalent.
8. The plastic crack control fibers in the concrete (NOT REQUIRED for this project) shall be in accordance to ASTM C1116. They shall be virgin polypropylene, 3/4" in length, colated, fibrilated, or microfilament. Dosage rate range 1/2 to 1-1/2# pounds per cubic yard of concrete. Available materials are as follows:
 - a. Grace Fibers, Microfibers, or Gilco by W. R. Grace & Co.
 - b. Approved Equivalent.
9. The temperature and shrinkage or post-crack control high volume fibers in the concrete (REQUIRED for the dumpster support slab only) shall be in accordance to ASTM C1116. They shall have a minimum tensile strength of 78ksi, minimum modulus of elasticity of 1300ksi, and a minimum length of 1.5". They shall have the ability to attain a minimum average residual flexural strength ($f'e_3$) of 150psi residual in accordance to ASTM C1018-97. Fiber dosage rate is based on $f'e_3$, $f'c$, and concrete slab thickness. Available materials are as follows:
 - a. "Strux 90/40" by W. R. Grace & Co.
 - b. Approved equivalent.
10. Corrosion resistant additive such as Xypex ADMIX C-1000 (dye) or approved equal concrete waterproofing admix (REQUIRED for floor,walls and top of the plant sump, Dwg 20-2-23) shall be added to the concrete during the batching operation to provide corrosion

resistance. 3% of the required weight of Portland Cement shall be added as Xypex. The amount of cement shall remain the same and not be reduced. A colorant shall be added to verify the Xypex ADMIX was added to the concrete. Colorant shall be added at the ADMIX manufacturing facility, not at the concrete batch plant. Xypex ADMIX must be added to the concrete at the time of batching. It is recommended that the ADMIX powder be added first to the rock and sand and blended thoroughly for 2-3 minutes before adding cement and water. The total concrete mass should be blended using standard practices to insure homogeneous mixture.

11. The admixture manufacturer shall furnish a qualified concrete technician employed by the manufacturer, to assist in the proper field batching and use the specified admixtures if requested by the Engineer. The technician shall visit the site at the beginning of concrete operations and as requested during construction. In addition, the manufacturer shall furnish the ready mix plant with accurate and dependable equipment for the proper dispensing of admixture.
12. Substitute admixtures will be acceptable provided they meet or exceed all properties of the specified materials and specified field service is provided.
13. The CONTRACTOR shall deliver, to the testing laboratory selected by the OWNER, 12 fluid ounces of each admixture required in the concrete design mix such as air entraining, water-reducing, and water-reducing, set-retarding admixtures. Admixture samples shall be labeled with printed identification indicating trade name, strength, dosage instructions and manufacturer.
14. Pozzolanic admixtures according to "Specification for Fly Ash and Raw or Calcined Natural Pozzolans for Use in Portland Cement Concrete" (ASTM C 618 type F-latest revision) and ACI 301, 4.2.1.1.c shall be limited to 15% of the minimum cement by weight.
15. Prohibited Admixtures: Calcium chloride thyocyanates or admixtures containing more than 0.1% chloride ions are not permitted..

D. Water (ACI 301 Section 4.2.1.3)

1. Water shall be clean and free from injurious amounts of oils, acid, alkali, organic matter, or other deleterious substances. Potable tap water will normally fulfill the above requirements, but the requirements of ASTM C 94 shall be met.

2. When subjected to the mortar strength test described in ASTM C 94-latest revision, the 28-day strength of mortar specimens made with the water under examination and normal portland cement shall be at least 100 percent of the strength of similar specimens made with distilled water.

E. Fine Aggregate (ACI 301 Section 4.2.1.2)

1. Fine aggregate shall consist of clean, well graded particles of hard, durable sand and shall contain limited amounts of deleterious substances. Fine aggregates shall meet the requirements of KTC Section 805 or ASTM C 33.
2. The CONTRACTOR shall deliver sand as requested by the ENGINEER to the testing laboratory for initial and periodic tests. Usually 150 pounds of sand for initial and periodic tests will be sufficient. All material delivered to the laboratory shall be accompanied by identification in writing as to supplier and source.
3. Sand shall be graded in accordance with Section 804-latest revision of the Kentucky Transportation Cabinet, Department of Highways Standard Specifications for Road and Bridge Construction - latest edition.

	Percent
Passing 3/8 inch Sieve	100
Passing No. 4 Sieve	90-100
Passing No. 16 Sieve	45-85
Passing No. 50 Sieve	5-25
Passing No. 100 Sieve	0-8

4. Sand shall meet the requirements of these Specifications and the specifications and tests listed below:

Deleterious Substances	Par. 5 - ASTM Designation C 33-latest revision.
Soundness	Par. 6 - ASTM Designation C 33-latest revision.
Organic Impurities	ASTM Designation C 33-latest revision.

F. Coarse Aggregate (ACI 301 Section 4.2.1.2)

1. Coarse aggregate shall be washed river gravel or crushed limestone of hard durable particles and shall contain limited amounts of deleterious substances. Crushed limestone shall come from ledges of a quarry approved by the Kentucky Transportation Cabinet, Department of Highways for use in reinforced concrete untreated bridge superstructures above the tops of the caps excluding pedestals.

2. The CONTRACTOR shall deliver coarse aggregate as requested by the ENGINEER to the testing laboratory for initial tests and periodic tests. Usually 200 pounds of coarse aggregate for initial and periodic tests will be sufficient. All material delivered to the laboratory shall be accompanied by identification in writing as to supplier and source.
3. Coarse aggregate shall be graded in accordance with ASTM C 33 and Section 805 of the Kentucky Transportation Cabinet, Department of Highways Standard Specifications for Road and Bridge Construction-latest edition. Refer to ACI 301 Section 4.2.2.3 for maximum size of coarse aggregate.

	Percent By Weight	
	No. 57	No. 67
Passing 1-1/2-Inch Square Sieve	100	--
Passing 1-Inch Square Sieve	95-100	100
Passing 3/4-Inch Square Sieve	--	90-100
Passing 1/2-Inch Square Sieve	25-60	--
Passing 3/8-Inch Square Sieve	--	20-55
Passing No. 4 Square Sieve	0-10	0-10
Passing No. 8 Square Sieve	0- 5	0- 5

4. Coarse aggregate shall meet the requirements of these Specifications and the specifications and tests listed below:

Deleterious Substances	Par. 9 - ASTM Designation C 33-latest revision
Soundness	Par. 9 - ASTM Designation C 33-latest revision
Abrasion	Par. 9 - ASTM Designation C 33-latest revision

G. Reinforcing Steel (ACI Section 3)

1. Unless otherwise required or permitted, concrete reinforcing bars shall conform to grade 60 deformed bars and shall meet requirements of Deformed and plain Billet-Steel Bars for Concrete Reinforcement (ASTM A 615-latest revision), Rail-Steel Deformed and Plain Bars for Concrete Reinforcement (ASTM A 616-latest revision) or Axle-Steel Deformed and Plain Bars for Concrete Reinforcement (ASTM A 617-latest revision). All other reinforcement and details shall conform to ACI Standard Building Code Requirements for Reinforced Concrete (ACI 318-latest revision).

2. Before steel is shipped to job, the reinforcing steel supplier shall submit to the ENGINEER, 2 certified copies of mill tests on all steel to be used in the work. The tests shall substantiate that chemical and physical properties of the steel comply with the requirements of the governing specifications.
3. The CONTRACTOR shall carry in stock at the beginning of the concrete work the following amounts of extra reinforcing steel for replacement of lost steel or additional steel considered necessary by the ENGINEER.

5	3/8-Inch Rods	30 Feet	-	0-Inch Long
5	1/2-Inch Rods	30 Feet	-	0-Inch Long
5	5/8-Inch Rods	30 Feet	-	0-Inch Long

H. Non-shrink Grout

1. Unless otherwise required or permitted, the grout for non-shrink waterproof joints, waterproof mortar patches, filling under handrail floor flanges and anchoring bolts into existing concrete shall be Sonneborn-Contech SonogROUT, Master Builders' Masterflow 713 grout, or approved equal. The grout for use under base plates of columns, pumps, compressors, generators and similar heavy equipment, and for rebar grouting shall be Sonneborn-Contech FerroLith GNC, Master Builders' Embeco 636 or approved equal.

I. Waterstop for Construction and Control Joints

1. Waterstops shall be 6-inches wide, 3/16-inch minimum thickness, ribbed with center bulb, virgin polyvinyl chloride, in accordance with Corps of Engineers Specifications CRD-C-572, latest revision, as manufactured by Vinylex Corp., W. R. Grace Co., Southern Metal and Plastics, or approved equal.
2. Waterstops shall be furnished in maximum lengths available to reduce the number of joints to the minimum. All joints shall be lapped, as recommended by manufacturer, to make the stops continuous and watertight.

J. Waterstop for Expansion Joints

1. Waterstops, where required in expansion joints, shall be 9-inches wide, 1/4-inch minimum thickness, ribbed with center bulb, virgin polyvinyl chloride, in accordance with Corps of Engineers Specification CRD-C-572, latest revision, as manufactured by Vinylex Corp., W. R. Grace Co., or approved equal.

K. Premolded Joint Fillers

1. Joint fillers, where required, shall be Sonneborn-Contech Sonoflex F foam expansion joint filler (closed cell, ultraviolet stable, polyethylene foam), or equivalent W. R. Grace Co., products, or approved equal. Where application requires cementing the joint filler into place, such as in a wall expansion joint, a pressure-sensitive adhesive recommended by the filler manufacturer shall be used.

L. Joint Sealants and Backing for Sealants

1. For sealing vertical exposed faces of joint filters, use Sonneborn-Contech Sonolastic NPI (one component urethane) or equivalent W. R. Grace Co. products, or approved equal. For water immersion, prime with Sonneborn-Contech Primer No. 733 for concrete and masonry and Primer No. 758 for glass and metals or as required by manufacturers of equivalent acceptable sealants.
2. For sealing horizontal exposed faces of joint fillers, use Sonneborn-Contech Sonolastic SL1, one-part, self-leveling, polyurethane sealant with Primer No. 733 or equivalent W.R. Grace Co. products, or approved equal.
3. Where additional sealant backing is needed to control the depth of sealant in relation to joint width, use Sonneborn-Contech Sonoflex F foam expansion joint filler or Sonofoam Backer Rod (closed cell polyethylene foam) or equivalent W. R. Grace Co. products, or approved equal.

M. Self-Leveling Floor, Deck and Sidewalk Joint Sealant

1. One-part self-leveling polyurethane sealant for concrete floors, decks, sidewalks and other horizontal contraction and expansion joints shall be Sonolastic SL1 as manufactured by Sonneborne-Contech or equivalent by W. R. Grace Company, or approved equal.
2. Sealant shall comply with Federal Specification TT-S-00230C, Type 1 Class A and ASTM C 920-latest revision, Type S, Grade P, Class 25. Joint primer shall be Sonolastic Joint Primer No. 733, or equal, shall be used where joints will be subjected to continuous or protracted periods of water immersion. When required in deep joints, backing material shall be Sonofoam Backer-Rod, or approved equal, which should not be primed and/or punctured.
3. Sealant color shall be limestone gray, tan, and/or mortar (stone) as selected by the ENGINEER unless otherwise required or permitted.

N. Concrete Floor Curing and Sealing System

1. System shall be a pigmented, ready to use, non-yellowing, acrylic curing and sealing compound which seals by providing a tough scuff resistant film over freshly finished concrete and complies with ASTM C309 and AASHTO M-148. System shall be Gray Kure-N-Seal as manufactured by Sonneborn-Contech or equivalent by W. R. Grace Company, or approved equal.
- O. Vibration Isolating Pit Liners
1. Liner material shall be specifically engineered to provide optimum compression rates for inertia block foundation. Liner material shall be unaffected by oils, coolants, cutting fluids and other liquids normally found in industrial environments.
 2. Liner material shall be manufactured by the traditional felting process in two densities. A less dense material shall be used to isolate sidewalls of inertia block. A more dense material shall be applied to the base surface of the pit.
 3. Liner material shall be 1/2" thick 1B-500-S2 for the sidewalls and 1/2" thick 1B-500-B1 for each of two base layers in 3 feet by 5 feet sheets as manufactured by Unisorb, or approved equal.
 4. Vinyl or duct tape shall be used to seal joints between sheets of materials to assure that no fluid concrete enters the joints causing "short-circuiting" of the inertia block insulation.
- P. Reglets: Where resilient or elastomeric sheet flashing or bituminous membranes are terminated in reglets, provide reglets of not less than 26gage galvanized sheet steel. Fill reglet or cover face opening to prevent intrusion of concrete or debris.
- Q. Dovetail Anchor Slots: Hot-dip galvanized sheet steel, not less than 0.03363 inch thick (22 gauge) with bent tab anchors. Fill slot with temporary filler or cover face opening to prevent intrusion of concrete or debris.
- R. Granular Base: Compacted layer of #57 stone, unless otherwise approved or directed by ENGINEER.
- S. Vapor Barrier: Provide vapor barrier cover [above/under] prepared base material for slabs on grade and where indicated. Use only materials which are resistant to decay when tested in accordance with ASTM E 154, as follows:
- Polyethylene sheet not less than 10 mills thick.
- T. Moisture-Retaining Cover: One of the following, complying with ANSI/ASTM C 171.
- a. Waterproof paper.

- b. Polyethylene film.
 - c. Polyethylene-coated burlap.
- U. Bonding Compound: Polyvinyl acetate, rewettable type.
 - a. Products: Subject to compliance with requirements, provide one of the following:
 - "Weldcrete"; Larson Products.
 - "Everbond"; L & M Construction Chemicals.
 - "Euroweld"; Euclid Chemical Co.
 - "Daraweld C"; W.R. Grace
 - "Sonocrete"; Sonneborn-Contech.
- V. Epoxy Adhesive: 100% solids, two component material suitable for use on dry or damp surfaces.
 - b. Products: Subject to compliance with requirements, provide one of the following:
 - "Thiopoxy"; W.R. Grace.
 - "Sikadur Hi-Mod"; Sika Chemical Corp.
 - "Euco Epoxy"; Euclid Chemical Co.

PART 3 EXECUTION

3.01 SUPPLEMENTAL REQUIREMENTS TO ACI 301-latest revision

- A. ACI 301- SECTION 4 – CONCRETE MIXTURES
 - 1. Also refer to PART 2 – PRODUCTS, for required admixtures
 - 2. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.
 - a. Delete references for allowing additional water to be added to batch for material with insufficient slump. Addition of water to batch will not be permitted.
 - b. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required.
 - c. When air temperature is between 85°F (30°C) and 90°F (32°C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90°F (32°C), reduce mixing and delivery time to 60 minutes. Mixing and delivery time will not have to be reduced if Type D retarder is incorporated in the mix.

- d. Provide batch ticket for each batch discharged and used in work, indicating project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.

B. ACI 301 – SECTION 4 – PROPORTIONING

1. General - concrete shall be composed of portland cement, fine aggregate, coarse aggregate, water, and as specified, admixtures. Proportions of ingredients shall produce concrete that will work readily into corners and angles of forms, bond to reinforcement, without segregation or excessive bleed water forming on surface. Proportioning of materials shall be in accordance with ACI 211.1-91, "Recommended Practice for Selecting Proportions for Normal, Heavyweight & Mass Concrete."
2. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method is used, use an independent testing facility acceptable to ENGINEER for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to ENGINEER.
3. Submit written reports to ENGINEER of each proposed mix for each class of concrete at least 45 days prior to start of work. Do not begin concrete production until mixes have been reviewed and approved by ENGINEER.
4. Required Average Strength Above Specified Strength:
Determinations of required average strength (fcr) shall be in accordance with ACI 318, "Building Code Requirements for Reinforced Concrete," and evaluations of compressive strength results of field concrete shall be in accordance with ACI 214-88, "Recommended Practice for Evaluation of Strength Test Results of Concrete."
 - a. Trial Mixes when the ready-mix producer does not have a record of past performance, the combination of materials and the proportions selected shall be selected from trial mixes having proportions and consistencies suitable for the work based on ACI 211.1, using at least three different water-cement ratios which will produce a range of strengths encompassing those required.
 - 1) Average strength (fcr) required shall be 1200 psi (8.3 MPa) above specified strength.
 - b. Past Field Experience - proportions shall be established on the actual field experience of the ready-mix producer with

the materials proposed to be employed. Standard deviations shall be determined by 30 consecutive tests (or two groups of tests totaling 30 or more).

- 1) Average strength (f_{cr}) shall exceed specified strength (f'_c) by at least:

400 psi (2.8 MPa) - standard deviation is less than 300

550 psi (3.8 MPa) - standard deviation is 300 to 400

700 psi (4.8 MPa) - standard deviation is 400 to 500

900 psi (6.2 MPa) - standard deviation is 500 to 600

1200 psi (8.3 MPa) - standard deviation is above 600 or unknown

5. Design mixes to provide normal weight concrete with the design strengths as indicated on drawings. The average strength shall exceed specified compressive strength as required in accordance with ACI 318.
6. High Early Strength Concrete: If early strength development is a requirement to meet construction schedules, the mix shall be proportioned to develop the necessary compressive strength at the required age, and data will be provided to the engineer for review.
7. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to Owner and as accepted by ENGINEER. Laboratory test data for revised mix design and strength results must be submitted to and accepted by ENGINEER before using in work.
8. ACI Section 4.2.2. Performance and Design Requirements

Add the following final paragraph:

Specified strength of concrete, f'_c for each structure or portion of structures shall be as follows unless otherwise required or permitted:

- a. Class 4,000 concrete ($f'_c = 4,000$ psi, minimum cement factor of 620 lb/cu.yd.) for all reinforced concrete structures except as otherwise noted on the Drawings and surface courses of highway and street paving except as required for Class 4,500 concrete.

- b. Class 3,500 concrete ($f'c = 3,500$ psi, minimum cement factor 564 lb/cu. yd.) for non-reinforced portions of manholes, control chambers, interceptor structures, grout for two-course slab toppings, grout to be screeded in place by process mechanical equipment, curbs, gutters, driveways, sidewalks, and base courses for highway and street paving.
- c. Class 2,500 concrete ($f'c = 2,500$ psi, minimum cement factor of 450 lb./cu. Yd. And 3 to 6 inch slump) for encasement around sewers and branches for cradle or refill under conduits and fill under structures as specified or indicated on the Project Drawings.

9. ACI Section 7 – Weight

Lightweight concrete shall not be used unless otherwise required or permitted.

10. ACI Section 4 – Durability

a. ACI Section 4.2.2.4 – Air Entrainment

Substitute the following:

Classes 4,000 and 3,500 concrete required to be watertight or subjected to potentially destructive exposure (other than wear and loading) such as freezing and thawing, severe weathering or deicer chemicals shall have an entrained air content of 5 +1% by volume (6+/-1% for SRA Concrete). Measurement of air content shall meet the requirements of ASTM C231-latest revision, ASTM C173-latest revision or ASTM C138-latest revision.

11. ACI 301 Section 4.2.2 – Water-Cement Ratio/Watertightness

Substitute the following:

Classes 4,000 and 3,500 concrete which must be watertight shall have a maximum water-cement ratio of 0.45. Where watertightness is the primary concern, refer to ACI 350.

12. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

- a. Slabs, ramps and sloping surfaces: Not more than 3" with ordinary WRA, or 6" with MRWR.

- b. Reinforced foundation systems: Not less than 2-1/2" and not more than 4" except Foundation Walls slump to be 5" to 6".
- c. Other concrete: Not less than 1" nor more than 4".
- d. Concrete containing MRWR admixture (mid-range): Not more than 6".
- e. Concrete containing HRWR admixture (super plasticizer): Not more than 8".

C. ACI 301 Section 5 – HANDLING, PLACING, AND CONSTRUCTING.

1. ACI 301 Section 5 – Use

Add the following final paragraph:

The ENGINEER may require a set-retarding admixture if required by construction conditions. Otherwise, the CONTRACTOR shall have the option to use a retarding, a water reducing, or a water reducing set-retarding admixture. However, once accepted by the ENGINEER, the CONTRACTOR shall be consistent in admixture use, for example in all wall pours of a structure. Accelerating admixture shall not be used unless otherwise required or permitted.

2. ASTM C157-93 - Modified Testing Procedure

- a. Wet cure specimens for a period of 7 days (including the period of time the specimens are in the mold). Wet cure may be achieved either through storage in a moist cabinet or room in accordance with ASTM C 511, or through storage in lime saturated water.
- b. Report results in accordance with ASTM C 157-93 at 0, 7, 14 & 28 days of curing.

3. ASTM C157-93 Test Results – Shrinkage Requirements

- a. Shrinkage Test Results: Floor slab design requires using materials with combined shrinkage characteristic of 0.032% maximum at 28 days when tested per ASTM C-157-93. Provide documentation that the proposed mix design, using actual aggregates, additives, and cement of the proposed mix for this project as called for in Structural Notes, meets this criteria. Submit results

for at least three (3) specimens. Each test takes 28 days. Start tests as soon as Contract is let so final test results are available for submittal.

- b. If a concrete mix is proposed for use without adequate documentation of the shrinkage test described above, or if mix does not meet 0.032% maximum at 28 days when tested per ASTM C-157-93, then use shrinkage reducing admixture (SRA).
 - 1) Use 1.5 gallons of SRA per cubic yard for mixes with no documentation or where tested shrinkage values exceed 0.050%.
 - 2) Use 1 gallon of SRA per cubic yard for mixes with tested shrinkage values between 0.033% and 0.050%.

D. ACI 301 SECTION 2 – FORMWORK AND FORMWORK ACCESSORIES

1. ACI Section 2.1 – General

a. ACI Section 2.1.2 – Submittals

Substitute the following:

Formwork is the CONTRACTOR'S responsibility and shop drawings will not be required.

2. ACI Section 2.2 - Products

a. ACI Section 2.2.1 Materials
2.2.1.3 - Formwork Release Agents

Add the following paragraph:

For potable water treatment facilities, the form coating shall be non-toxic after a specified period, usually 30 days.

- b. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.
 - 1) Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood", Class I, Exterior Grade or better, mill-oiled and edge-

sealed, with each piece bearing legible inspection trademark.

- c. Forms for Unexposed Finish Concrete: Plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.
- d. Forms for Textured Finish Concrete: Units of face design, size, arrangement, and configuration to match ENGINEER'S brick face control sample. Provide solid backing and form supports to ensure stability of textured form liners.
- e. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.
- f. Form Ties: Factory-fabricated, adjustable-length, removable or snapoff metal form ties, designed to prevent form deflection and to prevent spalling concrete upon removal. Provide units which will leave no metal closer than 1-1/2" to surface.
- g. Chamfer exposed corners and edges as indicated, using wood, metal, PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- h. Provide ties which, when removed, will leave holes not larger than 1" diameter in concrete surface.
- i. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such items. Accurately place and securely support items built into forms.

3. ACI Section 2.3 – Execution

- a. ACI Section 2.3.1 Construction and erection of formwork
- b. ACI Section 2.3.2 Removal of formwork

Add the following:

Forms and shoring in the formwork used to support the weight of concrete in beams, slabs and other structural members shall remain in place until the concrete has reached 75 percent of the specified strength if, after stripping the forms, the structural system is reshored the same day of stripping and shores remain in place until the

specified concrete strength is reached. Deviation from these requirements shall not occur unless otherwise required or permitted.

When shores and other vertical supports are so arranged that the non-load-carrying form facing material may be removed without loosening or disturbing the shores and supports, the facing material may be removed when the concrete has reached 50 percent of the specified strength unless otherwise required or permitted.

- c. ACI Section 2.3.3 Reshoring and backshoring
- d. ACI Section 2.3.4 Strength of concrete required for removal of formwork.
- e. ACI Section 2.3.5 Field quality control – horizontal and vertical location.
 - 1) Establish and maintain controls and benchmarks in an undisturbed condition until final completion and acceptance of the project.
 - 2) Variations from plumb and designated building lines shall not exceed the tolerances specified in ACI 117.

E. VAPOR BARRIER INSTALLATION

- 1. Place vapor barrier above compacted granular base.
- 2. Lap joints 6" and seal with appropriate tape

F. ACI SECTION 3 – REINFORCEMENT AND REINFORCEMENT SUPPORTS

- 1. ACI Section 3.1 – General
 - a. ACI Section 3.1.1 Submittals, data, and drawings

Add the following:

Submit cut sheets describing any coated reinforcement, placement spacers, or other accessories.
 - b. Reinforcing Bars: ASTM A 615, Grade 60, deformed. Bars indicated to be welded shall conform to ASTM A706 and have the approval of the ENGINEER.
 - c. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other

devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI recommendations, unless otherwise acceptable.

- 1) For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
- 2) For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs which are plastic protected (CRSI, Class 1) or stainless steel protected (CRSI, Class 2).
- 3) For elevated slabs on metal deck, use standard chairs to position reinforcement at mid-height above deck ribs, unless otherwise shown.

d. Mechanical Couplers: Couplers used for reinforcing bar splices must develop a minimum of 125% of bar yield strength. Approved manufacturers include but are not limited to "Bar-Grip System" or "Grip-Twist System" by Barsplice Products Inc.

2. ACI Section 3.3 - Execution

- a. ACI Section 3.3.1 – Preparation
- b. ACI Section 3.3.2 – Placement

G. INSTALLATION OF EMBEDDED ITEMS

1. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached thereto.
2. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds.
3. Install reglets to receive top edge of foundation sheet waterproofing, and to receive thru-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, relieving angles, and other conditions.

- 4 Install dovetail anchor slots in concrete structures as noted on drawings.

H. CONCRETE PLACEMENT

1. Preplacement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.
 - a. Apply temporary protective covering to lower 2'-0" of finished walls adjacent to poured floor slabs and similar conditions, and guard against spattering during placement.

2. General: Comply with ACI 304, and as herein specified. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.

When placing operations will involve dropping concrete more than 5 feet, the concrete shall be dropped through a tube fitted with a hopper head, or through other approved devices, as necessary to prevent segregation. This requirement shall not apply to cast-in-place piling or caissons when concrete placement is completed before initial set occurs in the first placed concrete.

3. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
4. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.
5. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.

6. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
7. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
8. Bring slab surfaces to correct level with straightedge and strikeoff. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
9. Maintain reinforcing in proper position during concrete placement operations.
10. Cold Weather Placing:
 - a. Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.
 - b. When air temperature has fallen to or is expected to fall below 40°F (4°C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50°F (10°C), and not more than 80°F (27°C) at point of placement.
 - c. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - d. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.
11. Hot Weather Placing:
 - a. When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.
 - b. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90° F (32° C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing.
 - c. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed

the ambient air temperature immediately before embedment in concrete.

- d. Fog spray forms, reinforcing steel and subgrade thoroughly just before concrete is placed.
- e. Use water-reducing retarding admixture (Type D) when required by high temperatures, low humidity, or other adverse placing conditions.

H. SECTION 5 – HANDLING, PLACING, AND CONSTRUCTING

1. ACI Section 5.3.3 – Finishing concrete surfaces.

- a. Rough Form Finish: For formed concrete surfaces not exposed to view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.
- b. Smooth Form Finish: Provide a smooth form finish to formed concrete surfaces exposed-to-view, or that are to be covered with a coating or waterproofing material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, painting or other similar system. This is an as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas, with fins or other projections completely removed and smoothed.
- c. Grout Cleaned Finish: Provide a grout cleaned finish to concrete surfaces which have received smooth form finish treatment, where shown on drawings or in schedules. Finish shall be performed by the following procedure:
 - 1) Combine one part portland cement to 1-1/2 parts fine sand by volume, and mix with water to consistency of thick paint. Use of proprietary additives may be used at Contractor's option. Blend standard portland cement and white portland cement, amounts determined by trial patches, so that final color of dry grout will closely match adjacent surfaces.
 - 2) Thoroughly wet concrete surfaces and apply grout to coat surfaces and fill small holes. Remove excess grout by scraping and rubbing with clean

burlap. Keep damp by fog spray for at least 36 hours after rubbing.

- d. Related Uniform Surfaces: At tops of walls where horizontal offsets surfaces occur adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.
- e. Trowel finish shall be applied to concrete on which process water and sewage flow and to all surfaces normally intended as walking surfaces including surfaces to receive covering such as tile, and in working and operating areas except as required below for non-slip surfaces.
- f. Broom or belted finish shall be applied to all exterior sidewalks, steps, platforms, ramps and concrete walking surfaces and to interior sloped walking surfaces frequently cleaned by hosing such as garage floors. Brooming shall be in the direction of the slab drainage maintaining the required surface tolerance to provide non-slip finish.
- g. Floated finish shall be applied to all surfaces intended to receive roofing, waterproofing membranes or sand bed terrazzo.
- h. Refer to Project Drawings for any special requirements.
- i. Non-Slip Broom Finish: Apply non-slip broom finish to exterior concrete loading dock, stairs, ramps, stoops, and elsewhere as indicated. Flatness and levelness requirements are listed later in this section.
 - 1) Immediately after trowel finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with ENGINEER before application.
- j. Flatness and Levelness Requirements (unless otherwise noted):
 - 1) Slab on Grade: Check and level surface plane to a tolerance for floor flatness (F_F) = 28 overall value and minimum local value of 23 and floor levelness (F_L) = 20 overall value and minimum local value of 18.
 - 2) Supported Slabs: Check and level surface plane to a tolerance for floor flatness (F_F) = 25 overall value

and minimum local value of 17 and floor levelness (F_L)=20 overall and minimum local value of 15. Supported floors must be tested before any shoring is removed.

- 3) All testing and sampling to conform to ASTM E11-55.

I. CONCRETE CURING AND PROTECTION

1. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
2. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting; keep continuously moist for not less than 7 days.
3. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.
4. Curing Methods: Perform curing of concrete by curing and sealing compound, by moist curing, by moisture-retaining cover curing, and by combinations thereof, as herein specified.
 - a. Provide curing and sealing compound to exposed interior slabs and to exterior slabs, walks, and curbs as follows:
 - 1) Apply specified curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours). Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period. Coordinate curing/sealing compounds with coating materials to verify compatibility of materials.
 - 2) Use moisture retaining covering in lieu of membrane curing compound on surfaces which are to be covered with coating materials applied directly to concrete, liquid floor hardener, waterproofing, dampproofing, membrane roofing, flooring, (such as ceramic or quarry tile or glue down carpet), resinous epoxy finish, painting, and other coatings and finish materials, unless it can be documented that no reaction or bonding problem will be

developed. See finish schedule(s) for proper coordination and extent of these materials.

- 3) All interior slabs that are to remain exposed and that are not to receive special coating materials shall be cleaned and covered with one additional coat of curing and sealing compound after all construction traffic is off of slab surface.
- b. Provide moist curing by one of the following methods:
- 1) Keep concrete surface continuously wet by covering with water.
 - 2) Continuous water-fog spray.
 - 3) Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.
- c. Provide moisture-cover curing as follows:
- 1) Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- d. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.
- e. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by application of appropriate curing method.
- 1) Final cure concrete surfaces to receive liquid floor hardener or finish flooring by use of moisture-retaining cover, unless otherwise directed.

K. BASIS FOR PAYMENT

1. Payment for concrete work shall include all excavation, crushed stone bedding, forms, reinforcing steel, finishing, concrete testing, etc. and shall be made on a unit price or lump sum basis where a

separate bid item is provided. Otherwise payment for all concrete required for other work as shown on the PLANS shall be made on a unit price or a lump sum basis for that work.

2. Payment for concrete work shall be made only after an acceptable finish and compression tests results are obtained.

END OF SECTION

SECTION 05120
STRUCTURAL STEEL

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Structural steel framing members, structural steel support members, struts, and hoisting systems, with required bracing, welds and fasteners.
- B. Baseplates, shear stud connectors, and high strength bolts.

1.02 RELATED WORK

- A. Grouting base and bearing plates are included in Division 3.
- B. Masonry is included in Division 4.
- C. Metal fabrications are included in this Division, Section 05520.
- D. Cleaning and painting are included in Division 9, Section 09900.

1.03 REFERENCES

- A. ASTM A36 - Structural Steel.
- B. ASTM A53 - Hot-dipped, Zinc-coated Welded and Seamless Steel Pipe.
- C. ASTM A325 - High-Strength Bolts for Structural Steel Joints.
- D. ASTM A490 - Quenched and Tempered Alloy Steel Bolts for Structural Steel Joints.
- E. ASTM A500 - Cold-formed Welded and Seamless Carbon Steel Structural Tubing in Round and Shapes.
- F. ASTM A501 - Hot-formed Welded and Seamless Carbon Steel Structural Tubing.
- G. AWS D1.1 - Structural Welding Code.
- H. AISC - Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.
- I. Cleaning and painting are included in Division 9, Section 09900.

1.04 SUBMITTALS

- A. Submit shop DRAWINGS in accordance with Division 1, Section 01300.

- B. Product Data: Submit manufacturer's technical data for each product indicated. Include test reports and certifications substantiating that product's comply with requirements.
- C. Indicate profiles, sizes, spacing and locations of structural members, connections, attachments, fasteners, cambers, loads, and shop paint primer.
- D. Indicate welded connections using standard AWS welding symbols. Indicate net weld lengths.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Structural Steel Members: ASTM A36 and A572, Grade 50.
- B. Structural Tubing: ASTM A500, Grade B, ASTM A501 and ASTM A53, Grade B.
- C. Bolts, Nuts and Washers: ASTM A325 and A490.
- D. Welding Materials: AWS D.1.1 - latest revision; type required for materials being welded.
- E. Shop Primer: Refer to Division 9, Section 09900.

2.02 FABRICATION

- A. Fabricate structural steel members in accordance with AISC Specification for the Design, Fabrication and Erection of Structural Steel for Buildings, latest revision and supplements.

2.03 FINISH

- A. Clean, prepare and shop prime and/or galvanize to ASTM A525 - latest revision structural steel members. Do not prime surfaces to be field welded or in contact with concrete. Provide minimum G-90 galvanized coating where galvanizing is required.

PART 3 EXECUTION

3.01 ERECTION

- A. Erect structural steel in accordance with AISC Specification.

- B. Make provision for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb and in true alignment until completion of erection and installation of permanent bracing.
- C. Do not field cut or alter structural members without approval of ENGINEER.
- D. After erection, prime or cold galvanize (Section 05520) welds, abrasions, and surfaces not shop primed, or galvanized, except surfaces to be in contact with concrete. Use a primer consistent with shop coat according to Division 9, Section 09900.

END OF SECTION

SECTION 05520
METAL FABRICATIONS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, and equipment required to construct and install metal fabrications as shown on the Drawings and specified herein. Included in this section are handrails, grating, nuts, bolts, anchors, hatches, ladders, and stairs.

1.02 RELATED WORK NOT INCLUDED

- A. Concrete work is included in Division 3.
- B. Castings are included in Division 5, Section 05540.
- C. Flashing and sheet metal work for roofing is included in Division 7, Section 07600.
- D. Painting is included in Division 9, Section 09900.

1.03 QUALITY ASSURANCE

- A. All fabricated materials shall be of the highest quality, free of structural, handling, and workmanship defects.
- B. Pre-assembled items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installations.

1.04 SUBMITTALS

- A. Shop Drawings
 - 1. The CONTRACTOR shall submit to the ENGINEER in accordance with Division 1, Section 01300 detailed shop drawings of all materials to be fabricated, and shall receive the ENGINEER'S certification of review before fabrication. Include plans, elevations and details of sections and connections. Show anchorage and accessory items. Provide templates for anchor bolt installation by others. Include any requirements for surface preparation, paint products, or grout.

2. Where materials or fabrications are indicated to comply with certain requirements for design loadings, include structural computations, material properties and other information needed for structural analysis. This shall not relieve the CONTRACTOR of responsibility for all errors, omissions, and deviations of his shop drawings from the Drawings and Specifications and from requirements of final results called for in the Drawings and Specifications.

B. Samples

1. The CONTRACTOR shall submit 2 sets of representative samples of materials and finished products as may be requested by the ENGINEER, or as specified herein.

PART 2 PRODUCTS

2.01 MATERIALS

A. Steel

1. Steel fabrication shall be done in conformity with the "AISC Specification for the Design, Fabrication and Erection of Structural Steel for Buildings", latest revision and supplements.
2. Prime and paint in accordance with Division 9, unless otherwise required or permitted.
3. Unless otherwise noted on the Drawings or in the Specifications, galvanizing shall be by hot-dip process in accordance with ASTM A525 - latest revision, Coating Designation G90 (previous Coating Class Commercial 1.25 oz. per sq. ft.).
4. Damaged zinc coating shall be repaired according to Federal Specification DOD-21035A (Galvanizing Repair Spec.) and ASTM A780 - latest revision as follows:
 - a. Remove foreign matter from both damaged and contiguous undamaged area by wire brushing and cleaning with metal conditioner recommended by cold galvanizing coating manufacturer.
 - b. Apply 2 coats of cold galvanizing coating to damaged area, ensuring an overlap of the surrounding undamaged galvanizing for continuity of galvanic protection. Cold galvanizing coating shall be Z.R.C. Chemical Products Co., "Z.R.C. Cold Galvanizing," or equal.

B. Aluminum

1. Aluminum shall have a high resistance to corrosion and shall be Alloys 6061-T6, 6062-T6, 6063-T5 or 6063-T6 for wrought products such as rods, bars, standard structural shapes, extrusions, and forgings; and Alloys 214 for castings, or equal.
2. Aluminum fabrication shall be in accordance with ASCE the Aluminum Association's "Specifications for Aluminum Structures," latest revision. Welding shall be done by the argon-shielded tungsten-arc method or the automatic or semi-automatic argon-shielded consumable-electrode method, or equal. Welding rod and electrodes shall be in strict accordance with above specifications.
3. Where anodic coating is required and type is not specified or shown on the Drawings, coating shall be No. 2 Clear. Anodic coatings shall conform for the following requirements:
 - a. Clear Anodic Coatings
 - 1) The exposed surfaces of aluminum shall be cleaned of all fabricating oils and foreign matter, given a medium caustic etch pretreatment and shall receive one of the following clear anodized finishes:
 - a) No. 1 - a minimum coating thickness of 0.0004 inch (0.001 mm) and a minimum coating weight of 15.5 mg per square inch (204R1).
 - b) No. 2 - a minimum coating thickness of 0.0008 inch (0.0018 mm) and a minimum coating weight of 27.0 mg per square inch (215R1).
 - b. Color Anodic Coatings
 - 1) All aluminum parts (both extrusion and sheet stock) shall be of a controlled aluminum alloy and temper suitable for receiving an electrochemically produced hard anodic oxide coating. All aluminum parts (both extrusion and sheet stock) shall receive a caustic etch pretreatment to remove all surface foreign matter followed by an electrochemically produced anodic oxide coating having a minimum coating thickness of 0.0007 inch (0.0018 mm). Color shall be specified by the Owner and range samples shall be submitted to establish the upper and lower limits of color variations.

2.02 HANDRAILS

A. General

1. All handrail components and systems shall meet applicable federal and state regulations.
2. All handrails shall be the fence-type handrail system, except where located inside of buildings or on steps which shall be standard post and rail handrail, unless otherwise noted on the Drawings.
3. Shop drawing submittals shall include verification that all components including base flanges, side mounting assemblies and anchor bolts can meet required strength capacities. Anchorages shall be identical to those shown on the Drawings or equal.
4. A vertical post sample with fittings and base connection shall be submitted for review and acceptance prior to preparation and submission of the shop drawings.

B. Standard Aluminum Pipe Handrail

1. Pipe for rails and posts shall be of 6063-T6 extruded aluminum with smooth standard mill finish. Scratches and discolorations uncommon to standard mill finish and sharp edges and rough surfaces shall be removed by rubbing with stainless steel wool lubricated with neutral soap solution.
2. Joints shall be welded and/or slip-on fitting type.
3. Welded joints shall be ground smooth, buffed and rubbed to a finish similar to the pipe.
4. Slip-on fittings shall be cast of magnesium aluminum alloy meeting Aluminum Association requirements for Alloy B-535.2 and furnished with stainless steel set screws. Fittings shall be "SpeedRail" and "NuRail" as manufactured by Hollaender Manufacturing Company, Cincinnati, Ohio, or equal.

C. Performance

1. Handrail system design, construction and installation shall meet or exceed all applicable Federal and State regulations. Handrail anchors, posts, rail and fabric shall be capable of withstanding a load of at least 200 pounds applied in any direction at any point on the top rail, with a minimum of deflection.
2. The manufacturer shall submit to the ENGINEER certified test data verifying the strength of his handrail system.

2.03 STEEL PIPE RAILINGS AND HANDRAILS

- A. Fabricated steel pipe railings and handrails to design, dimensions, and details indicated. Provide railings and handrails members formed of pipe of sizes and wall thickness indicated, but not less than that required to support design loading.
- B. Interconnect railing and handrail members by butt-welding or welding with internal connectors, at fabricator's option, unless otherwise indicated.
 - 1. At tee and cross intersections provide coped joints.
 - 2. Form bends by use of prefabricated elbow fittings and radius bends or by bending pipe, at fabricator's option.
 - 3. Form simple and compound curves by bending pipe in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross-connection of pipe throughout entire bend without buckling, twisting or otherwise deforming exposed surfaces of pipe.
 - 4. Provide wall returns at ends of wall-mounted handrails, except where otherwise indicated.
 - 5. Close exposed ends of pipe by welding 3/16" thick steel plate in place or by use of prefabricated fittings.
 - 6. Toe Boards: Where required, provide toe boards at railings around openings and at the edge of open-sided floors and platforms. Fabricate to dimensions and details indicated, or if not indicated, use 4" high x 1/4" plate secured to each railing post and intermediate brackets, as required, with stainless steel fasteners. Provide for thermal expansion and contraction, as necessary, through elongated holes, or equal.
- C. Brackets, Flanges, Fittings and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings and anchors for interconnections of pipe and attachment of railings and handrails to other work. Furnish inserts and other anchorage devices for connecting railings and handrails to concrete or masonry work.
 - 1. For railing posts set in concrete, provide sleeves of galvanized steel pipe not less than 6" long and with inside diameter not less than 1/2" greater than the outside diameter of pipe. Provide steel plate closure welded to bottom of sleeves and of width and length not less than 1" greater than outside diameter of sleeve.
 - 2. Provide friction fit, removable covers designed to keep sleeves clean and hold top edge of sleeve 1/2" below finished-surface of concrete.

- D. Galvanized steel railings, including pipe, fittings, brackets, fasteners and other ferrous metal components.

2.04 GRATINGS

- A. Gratings shall be the dimensions required on the Drawings and as required to meet deflection specifications below and of aluminum Alloy 6063-T5, 6063-T6, or 6061-T6, or equal. Gratings shall be designed for an allowable uniformly distribution load of 200 lbs./s.f. and a concentrated load of 400 lbs./ft. of width with less than 0.25 inch deflection. Gratings shall be IKG Industries "IBAR," Reliance "ILOK," or equal.

2.05 NUTS AND BOLTS

- A. Unless otherwise shown on the Drawings or required in other parts of these Specifications, all nuts and bolts shall be in accordance with ASTM A307 - latest revision, Grade A and shall be electro-galvanized according to ASTM B633 - latest revision.
- B. All nuts, bolts, washers and accessories in contact with water, in any moist atmosphere or damp area such as occurs above water, or embedded in concrete exposed to the weather, shall be Type 302 or 304 stainless steel. Stainless steel nuts, bolts, and washers shall be used to fasten aluminum to all materials including aluminum.

2.06 CONCRETE ANCHORS

- A. Sizes and spacings or numbers of anchors shall be shown on the Drawings and materials shall comply with exposure requirements listed under Nuts and Bolts above. All anchors used for securing moving or vibrating equipment (pumps, motors, gears, sluice gates, conveyors, etc.), shall be of the cast-in-place type.
- B. The size and number of anchors shall be approved by the equipment manufacturer.
- C. Unless specifically noted otherwise on the Drawings or Specifications, concrete anchors for other applications shall be chemical grout-type anchors equal to Hilti "HVA Adhesive Anchor," or Ramset "Chemset Chemical Anchors." Installation shall be in strict accordance with the manufacturer's recommendations which shall be available on the job site.

2.07 ALUMINUM LADDERS

- A. Aluminum ladders shall be fabricated as detailed on the Drawings.

2.08 HATCHES

- A. Metal hatches shall be fabricated as detailed on the Drawings.

2.09 BOLLARDS

- A. Concrete filled, steel posts as shown on Drawings.

PART 3 EXECUTION

3.01 GENERAL

- A. The CONTRACTOR shall be responsible for all errors, omissions, and deviations of the shop drawings from the Drawing and Specifications. Any errors or omissions shall be brought to the attention of the ENGINEER whose interpretation and instructions shall be received before proceeding with the fabrication of that portion of the work.
- B. Similarly, manufacturers' printed installation instructions shall be strictly followed and any conflicts with the shop drawings and/or Contract Drawings shall be directed to the ENGINEER for resolution before proceeding with installation.
- C. All base plates, inserts and anchorages shown embedded in concrete shall be accurately located and secured before placing concrete as per a manufacturer supplied template. All structural members and components shall be accurately leveled, plumbed and secured at location shown on the Drawings.
- D. Painting
 - 1. Cleaning and painting of all fabricated materials shall be in strict accordance with Division 9, Section 09900, of these specifications.
- E. Steel
 - 1. All fabrication and erection shall be done in conformity with the "AISC Specification for the Design, Fabrication and Erection of Structural Steel for Buildings," - latest revision.
 - 2. Refer to Article 2.01.A of this Specification Section for repair of galvanized surfaces.
- F. Aluminum
 - 1. The contact surfaces of aluminum with steel, dissimilar materials, concrete and/or masonry shall be protected from corrosion by a thick coating of coal tar, Koppers Bitumastic No. 50, or equal.
 - 2. Aluminum surfaces embedded in concrete shall be protected from corrosion by a tightly adherent coating of 2 applications of zinc chromate primer.

3.02 HANDRAILS

A. General

1. Refer to Article 2.02 this Section for types of handrails.
2. Shop drawings and handrail manufacturer's printed instructions shall be closely followed during handrail installation. Posts shall be installed plumb and rails parallel.
3. Required anchorages shall be strictly followed.

B. Workmanship

1. All rail and post cuts shall be square and accurate for minimum joint gap, clean and straight, and free of burrs and nicks.
2. In exterior and high humidity interior fabricated fitting installations, provision shall be made to drain entrapped water from inside the railing system to prevent electrolysis and/or damage from freezing. Manufacturer's printed instructions shall be strictly followed.
3. Welds and damaged areas shall be finished and coated according to Article 2.02, this Section.
4. Where required, holes shall be drilled and countersunk the correct size for proper fit of all components.
5. In aluminum handrail systems where protection is applied for prevention of electrolysis from dissimilar materials, visibility of protective material shall be minimized.
6. Handrail system surfaces shall be protected from physical damage and discoloration during storage, assembly and installation. Manufacturer's coverings to protect anodized finishes shall be left intact until damage from construction operations no longer exists.

C. Rigidity

1. Posts shall be continuous from mounting surface to top rail.
2. Top and bottom rails shall be un-spliced lengths between post except as covered under expansion joints.
3. Railing manufacturer's instructions shall be strictly followed regarding torquing and tightening of fittings, and type and materials of fasteners.

4. Only stainless steel fasteners shall be used in aluminum installations, unless otherwise noted.

D. Expansion Joints

1. To prevent excessive stresses and misalignment in standard joints and gaps shall be provided in top and bottom rails. Joints shall be located within 8 inches of posts and supports and the top and bottom rail joints shall be in vertical alignment. In fence-type handrail systems, top rail couplings shall be furnished with galvanized expansion compression spring as required in Part 2, this Section.
2. Where sleeve-type expansion joints are used, fasten only one side of sleeve to rail and allow other side of sleeve to slide on adjacent rail in standard aluminum handrail systems.
3. Gaps shall be provided according to the table below which is based on the coefficients of expansion of 0.000013 inch/°F for aluminum and 0.0000065 inch/°F for steel; a temperature difference of 120°F less the minimum listed temperature; and an expansion joints spacing of 24'-0" on centers for aluminum and 40'-0" on centers for steel. Where it is know that other temperature differentials and/or expansion joint spacings will be experienced, gap dimensions can be determined by: gap in inches = (coefficient of expansion) x temperature difference from maximum to minimum) x (distance in inches between expansion joints).

EXPANSION JOINTS GAP TABLE

Gap Dimension Required at Each Expansion Joint

Temperature (°F) at Time of Installation	Aluminum Railing with Expansion Joints on 24' - 0" Centers	Steel Railing with Expansion Joints on 40' - 0" Centers
-20 to 0	1/2"	7/16"
0 to 20	7/16"	3/8"
20 to 35	3/8"	5/16"
35 to 50	5/16"	1/4"
50 to 70	1/4"	1/4"
70 to 90	3/16"	3/16"
90 to 12	1/8"	1/8"

3.03 GRATINGS

- A. Grating frames shall be installed flush with the floor surfaces. Adequate blocking shall be provided to hold corners square during placing concrete and exposed aluminum surfaces shall be protected to prevent pitting from

the concrete. Surfaces embedded in concrete shall be protected as covered under Article 3.01, this Section.

3.04 NUT AND BOLTS

- A. Refer to Article 2.05, this Section, for material requirements.
- B. Bolts embedded in concrete shall be secured with templates at the time of pouring concrete. Bolts shall be suitably protected from damage throughout the construction period.
- C. Damaged galvanized surfaces on nuts and bolts shall be repaired according to Article 2.05, this Section.

3.05 CONCRETE ANCHORS

- A. Refer to Article 2.06, this Section, for anchor specifications.
- B. Concrete anchors shall be installed strictly in accordance with manufacturer's printed instructions which shall be available on the job site.
- C. Refer to Division 15 for supporting small pipe.

3.06 LADDERS

- A. Install ladders as herein specified and as detailed on the Drawings.

3.07 HATCHES

- A. Install hatches as herein specified and as detailed on the Drawings.

3.08 BOLLARDS

- A. Set in concrete as indicated. Fill cores solidly with air-entrained concrete having a 28-day minimum compressive strength at 3,000 psi.

END OF SECTION

SECTION 05540

CASTINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, and equipment required to install castings as shown on the Drawings and specified herein. Included in this section are manhole covers, steps, valve boxes, and hatch covers.

1.02 RELATED WORK NOT INCLUDED

- A. Concrete work is included in Division 3.
- B. Surface preparation and furnishing of castings is included in Division 9, Section 09900.

1.03 SUBMITTALS

The CONTRACTOR shall submit to the ENGINEER, in accordance with Division 1, Section 01300, copies of construction details of castings proposed for use.

PART 2 MATERIALS

2.01 GENERAL

- A. All castings shall be gray iron, conforming to the requirements of the ASTM Standards, Designation A48 - latest revision, Class 35B.

2.02 MANHOLE CASTINGS

- A. Frames and Covers
 - 1. Sanitary sewer manhole castings shall consist of cast iron frames and 22-3/4 inch diameter covers, having a combined weight of not less than 350 pounds for out of traffic locations and 460 pounds for traffic locations. The frame shall be at least 7 inches high overall. Manhole covers must set neatly in the frame, with contact surfaces machined smooth for even bearing. The top of the cover shall be flush with the frame edge. The top of the cover shall sufficient corrugations to prevent slipperiness and be marked in large letters "SANITARY SEWER." Covers shall have one pick hole only, about 1-1/2 inches wide and 3/4 inch deep with 3/8 inch square undercut at rear and 3/4 inch square undercut on sides. Covers on sanitary sewer manholes must not be perforated and shall be as manufactured by J.R. Hoe & Sons, Inc. or approved equal.

2. Storm sewer manhole castings shall consist of cast iron frames and 22-3/4 inch diameter grate type covers, having a combined weight of not less than 460 pounds. The frames shall be at least 7 inches high overall. Manhole covers must set neatly in the frame with contact surfaces machined smooth for even bearing. The top of the cover shall be flush with the frame edge. The castings shall be Neenah Foundry Company with type "D" grate, or approved equal.

B. Steps

1. Cast iron or polypropylene plastic encapsulated steel manhole steps shall be patterns shown on the detail Drawings, and have corrugated treads. In case of need for non-protruding steps, shop drawings of special inset cast iron steps shall be reviewed by and be acceptable to the ENGINEER.
2. If a step constructed of another material is going to be considered, shop drawings will need to be submitted far enough in advance to allow consideration.
3. It is intended that the cast iron step be Neenah Foundry Company's R-1980-E, or equal, and the polypropylene plastic encapsulated steel step be M.A. Industries PS-1, or equal.

2.03 VALVE BOXES

A. Slip Type for Iron Body Gate Valves

1. Valve boxes for 2 inch through 10 inch valves shall be the 2 piece slip type, without screw, of sufficient length to allow for 36 inches of cover over the top of the pipe, Tyler 6855 series, model #562-A, or approved equal. The inner section shall have a minimum inside diameter of 5-1/4 inches with a hood type base that will cover the packing gland on a 2 inch through 10 inch valve (minimum of 8 inches inside diameter). The base of the top section shall be flanged at least 1-1/4 inches. The caps shall be circular with a corrugated surface and have pick holes in the periphery and be marked "Water", "Gas", "Sewer", or "Air" according to use. For 12 inch through 16 inch valves, the valve boxes shall be Opelika Foundry Company No. 4907 for cast iron or approved equal.
2. Valve boxes for valves in the horizontal position shall be Opelika Foundry Company No. 4907 for cast iron or approved equal, with a base that is sized to allow covering of the bevel gear case and centering of the operating nut in the valve box.

PART 3 EXECUTION

3.01 INSTALLATION

- A. The installation of castings is generally covered under specifications for pipe work and manholes. Castings shall be leveled, plumbed, secured, and installed in accordance with the Drawings.

END OF SECTION

SECTION 07720

ACCESS HATCHES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Access hatches shall be furnished and installed where shown on the plans for the project.

1.02 RELATED WORK

- A. Flashing and sheet metal is included in Section 07600 of this Division.

1.03 SUBMITTALS

- A. SHOP DRAWINGS shall be submitted in accordance with Division 1, Section 01300
- B. SHOP DRAWINGS shall include detailed installation instructions and dimensions.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Equipment referenced for design is as manufactured by Bilco. Subject to compliance with the complete requirements of these SPECIFICATIONS, manufacturers offering products that may be incorporated into the WORK are Bilco or equal.

2.02 EQUIPMENT

- A. Access door for the alum storage tanks basin shall be Type KD-3 (4'0" x 6'0") Double Leaf Aluminum. Frame shall be 1/4" extruded aluminum with built-in neoprene cushion and with strap anchors bolted to exterior. Door leaf shall be 1/4" aluminum diamond plate reinforced with aluminum stiffeners as required. Cast steel hinges shall be bolted to underside and pivot on torsion bars that counterbalance the door for easy operation. The door shall open to 90° and lock automatically in that position. A vinyl grip handle shall be provided to release the cover for closing. Doors shall be built to withstand a live load of 150 pounds per square foot, and equipped with a snap lock and removable handle. Aluminum shall be mill finish, with bituminous coating to be applied to exterior of frame by manufacturer. Hardware shall be Type 316 SS.
- B. Roof hatches for the high service pump building shall be Type E-50 (3'0" x 3'0"). Cover shall be 11-gauge aluminum with a 3" beaded flange and

formed reinforcing members welded to support a minimum live load of 40 lb/ft². Insulation shall be glass fiber 1" in thickness, fully covered and protected by a metal liner (18-gauge aluminum). Curb shall be 12" in height and of 11-gauge aluminum. It shall be formed with a 3 1/2" flange with holes provided for securing to the roof deck. Curb shall be equipped with the Bilclip™ flashing system, including stamped tabs and Pak-Rope. Insulation on the exterior of the curb shall be rigid fiberboard 1" in thickness. Hatch shall be completely assembled with heavy pintle hinges, positive snap latch with turn handles and padlock hasps inside and outside and a mechanically retained thermoplastic rubber gasket. Compression spring operators enclosed in telescopic tubes shall be provided for smooth, easy and controlled door operation throughout the entire arc of opening and closing. Operation shall not be affected by temperature. Cover shall be equipped with an automatic cover to its closed and latched position. All hardware shall be Type 316 SS and factory finish shall be mill finish with bituminous coating applied to the exterior of the frame.

- C. Access hatch for the clearwell high service flow meter vault and four (4) of the distribution system valve vaults shall be Type J-4 AL (3'0" x 3'0"). Access hatch for one (1) of the distribution system valve vaults shall be Type J-2 AL (2'6" x 2'6"). Door leaf shall be 1/4" steel (or aluminum) diamond pattern plate to withstand a live load of 300 lb/ft² with a maximum deflection of 1/150th of the span. Channel frame shall be 1/4" aluminum with an anchor flange around the perimeter and have a minimum cross-section area of 7-1/2 in² to allow for adequate water drainage. Door shall be equipped with heavy forged brass hinges having 3/8" minimum diameter stainless steel pins and pivot so that the cover does not protrude into the channel frame. Compression spring operators enclosed in telescopic tubes shall be provided for smooth, easy and controlled door operation throughout the entire arc of opening and closing. Operation shall not be affected by temperature. The door shall automatically lock in the vertical position by means of a heavy steel hold-open arm with release handle. A Type 316 stainless steel snap lock with a gasketed cover plug and removable turn handle shall be provided. A 1-1/2" drainage coupling shall be located in the front right corner of the channel frame. Hardware and all fasteners shall be Type 316 SS. Factory finish shall be mill finish with bituminous coating applied to exterior of the frame.

PART 3 EXECUTION

3.01 INSTALLATION

Installation shall be in accordance with manufacturer's instructions. The CONTRACTOR shall guarantee against defects in material or workmanship for a period of five (5) years.

END OF SECTION

SECTION 07900

JOINT SEALERS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The description and extend of each type of joint sealer is indicated on the DRAWINGS and specified herein. Specific applications include:
 - 1. Masonry wall joints
 - 2. Flashing and coping joints
 - 3. Interior wall/ceiling joints
 - 4. Gasketing of assemblies
 - 5. Door thresholds

1.02 RELATED WORK NOT INCLUDED

- A. Concrete work, including joints and sealants, is included in Division 3.
- B. Unit masonry is included in Division 4, Section 04200.
- C. Flashing is included in this Division, Section 07600.
- D. Glazing is included in Division 8, Section 08800.
- E. Doors and windows are included in Division 8.

1.03 QUALITY ASSURANCE

- A. General Performance: Except as otherwise indicated, joint sealers are required to establish and maintain airtight and waterproof continuous seals on a permanent basis, within recognized limitations of wear and aging as indicated for each application. Failures of installed sealers to comply with this requirement will be recognized as failures of materials and workmanship.

1.04 SUBMITTALS

- A. Product Data

Submit manufacturer's product specifications, handling/installation/ curing instructions, and performance tested data sheets for each elastomeric product required, in accordance with Division 1, Section 01300.

B. Certified Tests

1. With produce data, submit test reports for elastomeric sealants on aged performances as specified, including hardness, stain resistance, adhesion, cohesion or tensile strength, elongation, low-temperature flexibility, water absorption, and resistance (aging, weight loss, deterioration) to heat and exposure to ozone and ultraviolet.

PART 2 PRODUCTS

2.01 CAULKING COMPOUND AND ACCESSORIES

A. Caulking Compound

Caulking compound shall be Sonolastic NPI as manufactured by Sonneborn-Contech or equivalent by W.R. Grace Co., or equal. Color shall be light gray throughout unless noted on DRAWINGS.

B. Primer

For water immersion, prime with Sonneborn-Contech Primer No. 733 for concrete and masonry, and Primer No. 758 for glass and metals, or as required by manufacturer of equivalent sealants.

C. Joint Filler and Bond Breaker

Joints shall be filled to the required distance from the surface with polyethylene strip to prevent bonding, or closed cell polyethylene foam rod, Sonofoam Backer-Rod, or equal. Never use filler impregnated with asphalt, tar or any migratory saturant or oil base caulking compounds for joint fillers.

PART 3 EXECUTION

3.01 INSTALLATION OF CAULKING COMPOUNDS AND ACCESSORIES

- A. Caulking compound shall completely seal all joints around frames and sills of doors, windows and other openings in masonry and concrete walls, and all other joints or spaces noted on the DRAWINGS to be caulked. Set door thresholds in full bed of caulking compound. All caulking compound, primer and joint filler shall be installed in strict accordance with the manufacturer's printed instructions, which shall be available at the job site. Refer to Division 3 for special joint requirements in connection with pre cast and pre stressed structural concrete members.
- B. All joint surfaces must be dry, thoroughly clean and primed as recommended by the caulking manufacturer. Apply primer with a brush

or clean cloth in sufficient amount to obtain 100 percent coverage. Best results are obtained when primer is applied in a thin coat for most surfaces; however, porous surfaces require a somewhat heavier but not excessive coat. Allow primer to dry for the recommended period before applying sealant.

- C. The depth of sealant shall be $\frac{1}{2}$ of the width of the joint, with a maximum depth of $\frac{1}{2}$ inch and a minimum of $\frac{1}{4}$ inch. Joint depths exceeding this design criteria should be filled to the proper depth using a joint filler or backup material such as a backer rod, which should be $\frac{1}{8}$ inch larger in diameter than the width of the joint to allow for compression. Where the joint is too small to permit a backer rod, a polyethylene film strip must be used to prevent the sealant bonding to joint filler.
- D. Caulking can be applied with a bulk or air powered caulking gun. See manufacturer's recommendations for minimum temperature at which caulking can be applied.
- E. See manufacturer's instructions for application to masonry, metal, glass, and wood.
- F. Remove excess caulking and leave surface neat, smooth and clean. All caulked joints shall be watertight.

END OF SECTION

SECTION 15100

SMALL PLUMBING VALVES, PLUMBING SPECIALTIES AND SERVICE ACCESSORIES

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Furnish all labor, materials, equipment, and incidentals required, and install complete and ready for operation, all valves and appurtenances as show on the Drawings and as specified herein.

1.02 RELATED WORK

- A. Excavation, backfill and grading are included in Division 2
- B. Painting is included in Division 9, Section 09900.
- C. Electrical is included in Division 16.

1.03 SYSTEM DESCRIPTION

- A. All of the equipment and materials specified herein is intended to be standard for use in controlling the flow of wastewater, sludge, water, air or chemicals, depending on the applications.

1.04 QUALITY ASSURANCE

- A. All of the types of valves and appurtenances shall be products of well established firms who are fully experienced, reputable and qualified in the manufacture of the particular equipment to be furnished. All materials of construction shall be of an acceptable type and shall be designated for the pressure and temperature at which they are to be operated, for the materials they are to handle and for the use for which they are intended. The materials shall meet established technical standards of quality and strength necessary to assure safe installations and conform to applicable standards. The equipment shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications as applicable.

1.05 REFERENCES

- A. Kentucky Basic Building Code.
- B. Kentucky State Plumbing Law, Regulations and Code

1.06 SUBMITTALS

- A. Copies of all materials required to establish compliance with these Specifications shall be submitted in accordance with the provisions of Division 1, Section 01300. Submittals shall include at least the following:
 - 1. Certified drawings showing all important details of construction and dimensions.
 - 2. Descriptive literature, bulletins, and/or catalogs of the equipment.
 - 3. The total weight of each item.
 - 4. A complete total bill of materials.
 - 5. A list of the manufacturer's recommended spare parts.

1.07 OPERATING INSTRUCTIONS

- A. Operating and maintenance instructions shall be furnished to the ENGINEER as provided in Division 1. The instructions shall be prepared specifically for this installation and shall include all required cuts, drawings, equipment lists, descriptions, etc., that are required to instruct operating and maintenance personnel unfamiliar with such equipment.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. General
 - 1. All valves and appurtenances shall be of the size shown on the Drawings and as far as possible all equipment of the same type shall be from one manufacturer.
 - 2. All valves and appurtenances shall have the name of the maker, flow directional arrows, and the working pressure for which they are designed cast in raised letters on some appropriate part of the body.
 - 3. All buried valves shall open left (counterclockwise). Insofar as possible, all valves shall open counterclockwise.

2.02 VALVES

- A. Gate Valves

Gate valves shall be used in shut-off applications and where the valves are scheduled for infrequent use.

1. Gate Valves for Water

- a. Gate valves shall be for 125-pound water working pressure, 2-1/2 inches and 3 inches for air release. Valves 3 inches and smaller shall be standard brass construction, rising stem, double disc, parallel seat, with handwheel where exposed or key operated when in the ground. The valves shall be Crane No. 440, Jenkins 62U or approved equal.
- b. In copper-solder-joint piping, Chase Style 1334 or approved equal, gate valves are preferred with solder joint connections.

B. Plug Valves

Eccentric plug valves shall be used in shut-off applications for pump stations and where the valves are scheduled for infrequent use.

Eccentric plug valves 3 to 12 inches in diameter shall be rated for 175 psi working pressure. The body and cover shall be cast iron conforming to ASTM A126, Class B. Flange ends shall comply with ANSI B16.1, Class 125 standards. Mechanical joint ends shall comply with AWWA C11/ANSI 21.11. The entire seat surface shall be protected by a welded nickel seat of minimum 1/8" thickness. The plug shall be cast iron ASTM A126, Class B. The portion of the plug in the valve body cavity shall be coated with Buna-N rubber using an injection-mold process. Valve bonnet shall be full sealed and bolted to the body for ease of maintenance. The seal between the body and the bonnet shall be an O-ring. Stem packing shall be Buna-N multiple "V" ring stem packing seals, conforming to AWWA C504 and AWWA C507 standards. The packing seal shall be held in place with an adjustable gland follower. Shaft bearings shall be sintered 316 stainless steel for both the upper and lower trunnions. Bearings shall be permanently lubricated. 3" valves shall be quarter-turn and shall be supplied with a position indicator marked at 10 degree increments. Valves 4" and larger shall be equipped with a worm gear operator. Eccentric plug valves shall be Clow F-5412, F-5413 or approved equal.

C. Ball Valves

Ball valves shall normally be used in quick shut-off and frequent use applications.

1. Ball Valves for Water Service

- a. Ball valves shall be for 125-pound water working pressure, 2 inches and smaller, standard bronze construction, with precision machined bronze ball, twin Buna-N seats, and handle operator with integral stop where exposed. Buried

ball valves shall be as above with key or nut operators. Valves shall be Lunkenheimer No. 700-SB, Ford, or approved equal.

2. Ball Valves for Chlorine Solutions

- a. Ball valves shall be for 150 pound water working pressure, 140 degree Fahrenheit maximum temperature, 3 inches and smaller, standard PVC "True Union" construction, with PVC ball, Viton seats, and handle operator where exposed. Buried ball valves shall be as above with key, nut, pneumatic, or electric operators as shown on the DRAWINGS. Valves shall be Utilities Supply Corp., Plastic Piping Systems, or approved equal.

D. Swing Check Valves

Check valves for cast iron and ductile iron pipelines shall be swing type and shall meet the material requirements of AWWA Specification C508-latest revision. The valves shall be cast iron body with reinforced 125 lb flanges conforming to ANSI B 16.1. Valves shall be single disc with Buna-N seat, stainless steel hinge pin, 150 psi working water pressure, non-shock, and hydrostatically tested at 300 psi. The valves shall be manufactured by Clow, Kennedy or approved equal.

1. When there is no flow through the line, the disc shall hang lightly against its seat in practically a vertical position. When open, the disc shall swing clear of the water-way.
2. Valves shall be so constructed that disc and body seat may easily be removed and replaced without removing the valve from the line. Valves shall be fitted with an extended hinge arm with outside lever and adjustable weight.

E. Globe Style Silent Check Valves

1. General

- a. This specification covers the design, manufacture, and testing of 2 in. (50 mm) through 42 in. (1050 mm) Silent Check Valves suitable for pressures up to 500 psig (3450 kPa) water service.
- b. The Check Valve shall be of the silent operating type that begins to close as the forward flow diminishes and fully closes at zero velocity preventing flow reversal and resultant water hammer.

2 Standards, Approvals and Verification

- a. The valves for use in fire protection systems shall be Factory Mutual approved in sizes 2 1/2 in.-12 in.
- b. Stainless steel valves shall meet the requirements of ASME B16.34 and MSS SP-126.
- c. The valves used in potable water service shall be certified to NSF/ANSI 61, Drinking Water System Components – Health Effects, and certified to be Lead-Free in accordance with NSF/ANSI 61, Annex G.
- d. Manufacturer shall have a quality management system that is certified to ISO 9001 by an accredited, certifying body.

3 Connections

- a. Globe style valves shall be provided in sizes 2 1/2 in (75 mm) through 42 in. (1050 mm) and have flat faced flanges in accordance with ASME B16.1 for Class 125 or Class 250 iron flanges. Sizes 10 in (250 mm) and smaller flanged valves shall be capable of mating directly to a wafer butterfly valve without disc interference.
- b. Wafer style valves shall be provided in sizes 2 in (50 mm) through 10 in. (250 mm) for installation between ASME B16.1 Class 125 or Class 250 iron flanges. Stainless steel wafer style valves shall include raised faces for installation between ASME B16.5 Class 150 flanges.

4 Design

- a. The valve design shall incorporate a center guided, spring loaded disc, guided at opposite ends and having a short linear stroke that generates a flow area equal to the nominal valve size.
- b. The operation of the valve shall not be affected by the position of installation. The valve shall be capable of operating in the horizontal or vertical positions with the flow up or down. Heavy duty springs for vertical flow down installations shall be provided when specified on 14 in. and larger valves.
- c. All component parts shall be field replaceable without the need of special tools. A replaceable guide bushing shall be provided and held in position by the spring. The spring shall be designed to withstand 100,000 cycles without failure and provide a cracking pressure of 0.5 psi.

- d. The valve disc shall be concave to the flow direction providing for disc stabilization, maximum strength, and a minimum flow velocity to open the valve.
- e. The valve disc and seat shall have a seating surface finish of 16 micro-inch or better to ensure positive seating at all pressures. The leakage rate shall not exceed the allowable rate for metal seated valves allowed by AWWA Standard C508 or 1 oz (30 ml) per hour per inch (mm) of valve diameter.
- f. The valve flow way shall be contoured and unrestricted to provide full flow areas at all locations within the valve. Cv flow coefficients shall be equal to or greater than specified by the manufacturer cited in Paragraph 7, and verified by an independent testing laboratory.
- g. Wafer-style valve seats shall be fully retained with full size threads, and sealed with an o-ring. Globe style valve seats shall be contained with a machined counterbore and restrained by the mating flange and gasket.

5 Materials

- a. The valve body shall be constructed of ASTM A126 Class B cast iron for Class 125 and Class 250 valves and ASTM A351Grade CF8M for Class 150 stainless steel valves. Optional body material include ASTM A536 Grade 65-45-12 ductile iron.
- b. The seat and disc shall be ASTM B584 Alloy C83600 cast bronze or ASTM B148 Alloy C95200 aluminum bronze. Optionaltrim material include ASTM A351 Grade CF8M stainless steel.
- c. The compression spring shall be ASTM A313 Type 316 stainless steel with ground ends.

6 Options

- a. A Buna-N seal shall be provided on the seat when specified to provide zero leakage at both high and low pressures without overloading or damaging the seal. The seal design shall provide both a metal-to-metal and a metal-to-Buna-N seal.
- b. Valve interiors and exteriors shall be coated with an NSF/ANSI 61 certified fusion bonded epoxy in accordance with AWWAC550 when specified.

7 Manufacture

- a. The valves shall be hydrostatically tested at 1.5 times their rated cold working pressure and seat tested at the valve CWP. When requested, the manufacturer shall provide test certificates, dimensional drawings, parts list drawings, and operation and maintenance manuals.
- b. The exterior of the valve shall be coated with a universal alkyd primer.
- c. Silent Check Valves shall be Series #1400A (Wafer Style), 1400A.4 (Stainless Steel Wafer Style) or 1800 (Globe Style) as manufactured by Val-Matic® Valve & Mfg. Corporation, Elmhurst, IL. USA or approved equal.

E. Y Check Valves

Check valves for PVC pipelines shall be Y-type. The valves shall be PVC body with Viton seals, rated for 150 psi working water pressure. The disk guide shall be a PVC coil. The valves shall be manufactured by George Fischer, Hayward, or approved equal.

1. Valves shall be so constructed that the plunger assembly can be easily accessed for cleaning.
2. Valves shall be so constructed such full flow may be achieved. Minimal back pressure shall be necessary to seat the plunger.

F. Blow Off Valves

Blow off valves shall normally be used in quick shut-off and infrequent use applications.

1. Blow Off Valves for Plant Air, Instrument Air, and Water Service
 - a. Blow off valves shall be for 175 pound working pressure, 180 degree Fahrenheit, 3/4 inch thru 2 inches, and shall have a positive sealing system accomplished without metal-to-metal fits. O-ring seals shall be attached to removable plug for ease of replacement. The O-ring seals shall be pre-lubricated with a long life lubricant. Valves shall have a plastic thrust washer on top of the plug to provide a means of reducing thrust and rotary friction between metal plug and body and bronze retaining rings. The valve body and plug shall be cast of composition bronze ASTM B62-latest revision; O-ring shall be synthetic rubber. Connections shall be as shown on the DRAWINGS. All valves shall be subject to the following tests:

- (1) 10-psi air test, valve open and closed position submerged in water. No leaks permitted.
- (2) 175-psi hydrostatic, valve open and closed. No leaks permitted. Valves shall be Mueller Company Mark II Oriseal Valves, Crane, or approved equal.

G. Air Release Valves

1. Air Release Valves shall be furnished and installed at the locations shown on the PLANS. The valves shall be combination air valves as manufactured by A.R.I. Corporation, Kfar Charuv, Israel, or approved equal.
2. The valves shall be the size shown on the PLANS and be A.R.I. Model D-40 "BARAK" or approved equal.
3. The valves shall be designed to allow entrapped air to escape from the pipeline when pumps are started and close water tight when liquid enters the valves via a float and roll seal arrangement. In the event of a vacuum on the pipeline, the valves shall allow air to enter the pipe. Working pressures shall be as follows:
¾" & 1" valve: 3-150 psi
2" valve: 2-230 psi
4. The body, of each valve assembly shall be constructed of high strength reinforced nylon. All wetted parts shall be corrosion resistant.

H. Automatic Air and Vacuum Relief Valves for Vertical Turbine Pumps

1. Combination air and vacuum valves for vertical turbine pumps shall be equal to APCO Air Valves for Vertical Turbine Pumps, per APCO Bulletin 586, as manufactured by Valve and Primer Corp., Schaumburg, Illinois, or approved equal.
2. Valves shall be the size shown on the drawings and shall be equipped with an automatic air release valve, such as APCO Valve No. 55, or approved equal.
3. Air valves for vertical turbine pumps shall be designed to allow large quantities of air to escape out the orifice when the pump is started and close water tight when the liquid enters the valve. The air valve shall also permit large quantities of air to re-enter through the orifice when the pump is stopped to prevent a vacuum from forming in the pump column.
4. The valve shall consist of a body, cover, baffle, float and seat. The valve shall be designed to prevent prematurely shut-off. The seat shall be fastened into the valve cover, without distortion, and shall be easily removed, if necessary.

5. The entire float and baffle assembly must be shrouded with a perforated water diffuser to prevent the water column entering the valve, from slamming the float shut and eliminate water hammer in the system.
6. The float shall be stainless steel, designed to withstand a minimum of 1,000 psi, or approved equal. The float shall be center guided and not free floating for positive seating.
7. The discharge orifice shall be fitted with an automatic air release valve in order to vent small pockets of air. This valve shall consist of a body, cover, float and seat, and shall be rated at a working pressure of 150 psi.
8. The body, cover, and baffle of this valve assembly shall be constructed of cast iron, conforming to ASTM A48 Class 30, or approved equal. The float shall be stainless steel, conforming to ASTM A240, or approved equal. The seats shall be BUNA-N and the water diffuser shall be brass, or approved equal. All flanges shall be 125# ANSI.

I. Altitude Valves

1. Application: The level control valve for the water storage tank shall be single acting, automatically closing to prevent tank overflow when the high water level is reached, and opening for refilling when the tank water level lowers. Non-throttling action is required for operation (valve will assume either a fully open or fully closed position).
2. Design: The level control valve shall be globe (inline) or angle (90 degree) body with flanged end connections, be fully mounted, external pilot operated, with free floating piston (operated without springs, diaphragm or levers). It shall contain a single full-ported seat, with seat bore equal to size of valve. The minimum travel of the piston shall be equal to 25% of the diameter of the seat. For true alignment (to correct lateral thrust and stem binding), the piston shall be guided above and below the seat a distance equal to no less than 75% of the diameter of the seat. The piston shall be cushioned and so designed as to insure positive closure. The main valve shall be packed with leather (or other soft material) to insure tight closure and prevent metal-to-metal friction and seating. The valve shall be furnished with an indicator rod to show position of piston opening, and pet-cocks for attachment to valve body for receiving gauges for testing purposes. The design shall be such that repairs and dismantling internally of main valve may be made without its removal from the line. The pilot valve, controlling operation of the main valve, shall have a range of adjustment, be easily accessible, and arranged to allow for easy removal from the main valve while the main valve is under

pressure. The pilot valve, external strainer with blow-off, isolation valves, and all associated rigid brass piping and fittings (with the exception of a separate static pressure sensing line, if required) shall be factory assembled and furnished with the valve.

3. Physical and Chemical Properties: Valve body and cap(s) shall be constructed of gray iron castings that conform to ASTM Specification A 126 Class B. Internal bronze components shall conform to ASTM Specification B-584. Internal Stainless Steel components shall conform to ASTM Specification A-743 Grade CF-8 or CF-8M. The control piping shall be rigid red brass, no less than 0.5" in diameter. The flanged assemblies shall conform to ANSI standards for wall thickness of body and caps, and flange thickness and drilling, subject to other specified standards.
4. Paint: Ferrous surfaces of the valve shall be coated with NSF Certified Epoxy (Tnemec Series FC20) in accordance with ANSI/NSF Std. 61, and conforming to AWWA D102 Inside System No. 1.
5. Testing: A trio of tests shall be performed on the completely assembled valve prior to shipment. These shall include a hydrostatic test of up to two (2) times the working pressure (maximum 500 psi testing pressure), a tight seating test, and a performance test for simulated field conditions. The tests may be witnessed by the customer/engineer or representative.
6. Manufacturer and Model: The valve shall be a Model 30AWR as manufactured by Ross Valve Mfg. Co., Inc, 6 Oakwood Ave, Troy, NY 12180, or approved equal.

J. Booster Pump Control Check Valves

1. Function: The Pump Control Valve shall open fully or shut off in response to electric signals. It shall isolate the pump from the system during pump starting and stopping, to prevent pipeline surges.
2. Main Valve: The main valve shall be a center guided, diaphragm actuated globe valve of either oblique (Y) or angle pattern design. The body shall have a replaceable, raised, stainless steel seat ring. The valve shall have an unobstructed flow path, with no stem guides, bearings or supporting ribs. The body and cover shall be ductile iron. All external bolts, nuts, and studs shall be Duplex® coated. All valve components shall be accessible and serviceable without removing the valve from the pipeline.
3. Actuator: The actuator assembly shall be double chambered with an inherent separating partition between the lower surface of the

diaphragm and the main valve. The entire actuator assembly (seal disk to top cover) shall be removable from the valve as an integral unit. The stainless steel valve shaft shall be center guided by a bearing in the separating partition. The replaceable radial seal disk shall include a resilient seal and shall be capable of accepting a V-Port Throttling Plug by bolting.

4. Control System: The control system shall consist of a 3-Way solenoid pilot (for 8" and larger valves, an accelerator shall be added to the solenoid), two check valves (for 12" and larger valves, an additional check valve), a limit switch, and a filter. All fittings shall be forged brass or stainless steel. The assembled valve shall be hydraulically tested.
5. Quality Assurance: The valve manufacturer shall be certified according to the ISO 9001 Quality Assurance Standard. The main valve shall be certified as a complete drinking water valve according to NSF, WRAS, and other recognized standards.
6. Manufacturer and Model: The valve shall be manufactured by Bermad Waterworks, Model WW-(nominal size)-740-03-Y-C-A5-EB-4AC-NN or approved equal.

K. Surge Anticipating Control Valves

1. Function: The Surge Anticipating Valve shall open in response to the pressure drop associated with abrupt pump stoppage to dissipate the returning high pressure wave, eliminating the surge. It shall smoothly close drip tight as quickly as the relief feature allows, while preventing closing surge. The valve shall also relieve excessive system pressure.
2. Main Valve: The main valve shall be a center guided, diaphragm actuated globe valve of either oblique (Y) or angle pattern design. The body shall have a replaceable, raised, stainless steel seat ring. The valve shall have an unobstructed flow path, with no stem guides, bearings, or supporting ribs. The body and cover shall be ductile iron. All external bolts, nuts, and studs shall be Duplex® coated. All valve components shall be accessible and serviceable without removing the valve from the pipeline.
3. Actuator: The actuator assembly shall be double chambered with an inherent separating partition between the lower surface of the diaphragm and the main valve. The entire actuator assembly (seal disk to top cover) shall be removable from the valve as an integral unit. The stainless steel valve shaft shall be center guided by a bearing in the separating partition. The replaceable radial seal disk shall include a resilient seal and shall be capable of accepting a V-Port Throttling Plug by bolting.

4. Control System: The control system shall consist of two adjustable 2-way pilots, a needle valve, a flow stem, a cock valve, and a filter. All fittings shall be forged brass or stainless steel. The assembled valve shall be hydraulically tested.
5. Quality Assurance: The valve manufacturer shall be certified according to the ISO 9001 Quality Assurance Standard. The main valve shall be certified as a complete drinking water valve according to NSF, WRAS, and other recognized standards.
6. Manufacturer and Model: The valve shall be manufactured by Bermad Waterworks, Model WW-(nominal size)-735-55-Y-C-A5-EB-NN-M or approved equal.

L. Pressure Reducing Valves

1. Pressure reducing valves shall be of the single seated balanced design type globe body with threaded inlet and outlet ports. It shall be diaphragm operated, spring loaded permitted adjustment over a range of no less than 30 psi.
2. The body shall be bronze construction with bronze or stainless steel stem and furnished with a replacement rubber seat.
3. The pressure reducing valves shall be G-A Industries, APCO, or equal.

2.03 SPECIALTIES AND ACCESSORIES

A. Yard Hydrants

1. Above ground yard hydrants shall be of the anti-freezing, non-pollutable type, 1-1/2" size for 30" cover over water service line. The yard hydrant assembly shall include a ball-wheel handle, vacuum breaker, 1-1/2" hose connection, and double-ball check valve on the drain. The operating valve shall be located at the bottom of the hydrant assembly. When the operating valve is turned off it shall allow the water remaining in the supply line in the hydrant above the valve to drain from the hydrant by means of a by-pass in the valve stem. The hydrant handle, casing, and base shall be cast iron, and the operating valve red brass.
2. The yard hydrant shall be Murdock BFHM-150, 1-1/2" or approved equal.
3. All hydrants shall be furnished with anti-siphon vacuum breaker.

B. Hose and Nozzles

1. Hose

- a. Furnish 3/4-inch and 1-1/4 inch hose as indicated below. The 3/4 inch hose for hose stations shall be heavy-duty rubber, Gates Figure 35B, or approved equal. Hose for yard hydrants shall be as above in 1-1/4 inch size.
- b. Furnish one 3/4" x 50' hose for each 3/4" hose station and one 1-1/4" x 75' hose for each yard hydrant.
- c. Furnish 1-1/2" x 1-1/4" reducing adaptors for connecting each 1-1/4" hose to each 1-1/2" hydrant.

2. Nozzles

- a. Furnish 1-1/4" x 8" cast plain brass nozzles for each yard hydrant, and 3/4-inch nozzles for each hose station. The 1-1/4-inch nozzles shall be Akron Brass, or approved equal; and the 3/4-inch nozzle for hose stations shall be Leonard N-2, or approved equal.

C. Strainers, Filters, and Dryers

1. Strainers for Water Service

- a. Strainers shall be "Y" type with a cast iron body manufactured in accordance with ASTM A126-latest revision Class B steel, sizes 3/4 inch thru 12 inches. Strainer shall be rated at 200 psi pressure @ -20 to 150 deg F, and 125 @ 450 deg F., with a 304 stainless steel 0.125" perforated screen.
- b. Cover shall be carbon steel manufactured in accordance with ASTM A126-B latest revision. Cover shall contain a blow off outlet with an NPT outlet for connection of a drain valve.
- c. Contractor shall furnish and install on the blow off outlet, a stainless steel ball valve and cast iron piping directed to the floor drain.
- d. Strainers shall be Mueller, Model 758 or approved equal.

D. Vacuum Breakers

1. Vacuum Breakers for Water Service

- a. Vacuum breakers shall be designed to prevent back-siphonage of water lines. Valve types shall be either bottom inlet or side outlet, or top inlet and bottom outlet as required. Internal discs or floats shall be either plastic or silicone. Piping systems with solenoid-operated valves

shall require a vacuum breaker with an "O" ring seal. Breakers shall be Sloan No. V-350-A, V-370-A, V-188-A, Wilkins, or approved equal.

2. Air and Vacuum Valve for Surface Wash

- a. Air and vacuum valve for the surface wash supply pipe shall be 1/2 inch. Valve shall be APCO Model 141 or approved equal.

E. Dielectric Pipe Couplings

1. Dielectric pipe couplings shall be used wherever copper pipe connects to steel or cast iron pipe and appurtenances. Couplings shall have steel bodies with non-conducting bushings on both ends. Ends shall have standard pipe threads. Couplings shall be rated for at least 200 psi at 225°F. Couplings shall be as manufactured by Thermodynamics Corporation, Needham, MA; Water Vallett Company, Detroit, MI; or approved equal.

F. Water-hammer Arresters

1. Water-hammer arresters shall be used on water lines as shown on the DRAWINGS. Arresters shall consist of a permanently pre-charged air chamber and a rugged rubber sealed-in diaphragm to absorb shock. The unit shall be capable of being mounted at any angle. Arresters shall be Watts No. 150, or approved equal.

G. Air Vents

1. Air vents shall be used on water lines as shown on the DRAWINGS for the removal of unwanted air. Vents shall be rated at 150 pounds working water pressure, shall have a safety drain connection, stainless or copper clad steel internal components and a cast iron or brass body and cap. Vents shall be Hoffman No. 78, or approved equal.
2. See Section 15500 of these SPECIFICATIONS for air vents on unit heaters.

H Rubber Expansion Joints

Rubber expansion joints shall be mounted on the suction and discharge of each pump.

1. Expansion joints shall be single arch type of butyl rubber construction with carcass of high grade woven cotton or suitable synthetic fiber and individual solid steel ring reinforcement. Soft rubber fillers shall be integrally cured into the arches to prevent settling of material into the arch. Interior surface shall comply with NSF 61 for potable water contact. Joints shall be constructed to

pipeline size and to meet working pressure and corrosive conditions similar to the line where installed. Joints shall have full faced fabric reinforced butyl flanges integral with body. Split type steel backup rings shall be provided to ensure a good joint. Rings shall be designed for mating the ANSI Standard 150 lb. flanges. Joints shall have a working pressure rating of 140 psig (minimum). All joints shall be finish coated with Hypalon paint.

2. Expansion joints shall be furnished with control units. Control units shall consist of two (2) drilled plates, stretcher bolts, and rubber washers backed by metal washers. The stretcher bolts shall prevent over-elongation of the joint. Extra nuts shall be provided on the stretcher bolts on the inside of the plate to prevent over-compression. All nuts, bolts and plates shall be galvanized.
3. Expansion joints shall be Style 500B as manufactured by Mercer Rubber Company, Style 4140 by Uniroyal Company, or equal.

I. Water Service Accessories

1. Backflow Preventers

- a. The reduced pressure principle backflow preventers shall be a complete assembly consisting of two independently acting spring loaded toggle levers or poppet-type check valves together with an automatically operating pressure differential relief valve located between the two check valves. The first check valve shall reduce the supply pressure a predetermined amount so that during normal flow and the cessation of normal flow, the pressure between the checks is less than the supply pressure. In the case of leakage of either check valve, the differential relief valve shall discharge to atmosphere to maintain the pressure between the checks at a level less than the supply pressure.
- b. Each unit shall include tightly closing shutoff valves located at each end of the device, and shall be fitted with four properly located test cocks. Operation shall be completely automatic. All parts must be removable or replaceable without removal of the unit from the line. The total head loss through the complete backflow assembly shall not exceed 10 psi at rated flow.
- c. The backflow preventer shall be Watts 9090SOS&Y, or approved equal, shall have prior approval of the State Environmental Protection Agency and shall be in accordance with AWWA C506-latest revision.

- d. Furnish and mount an air gap on the body of the backflow preventer. The air gap shall be Watts No. 909AG, or approved equal.

2. Service Clamps

- a. Service clamps shall have malleable or ductile iron bodies, which extend at least 160 degrees around the circumference of the pipe and shall have neoprene gaskets cemented to the saddle body. Bodies shall be tapped for either corporation stop threads or IPS as required. Clamps with tap sizes 1 inch and smaller shall be of the single strap design. Clamps with tap sizes larger than 1 inch shall be of the double strap design.
- b. Service clamps shall be Style 91 or 291 as manufactured by Dresser Industries, Inc., Type 311 or 313 as manufactured by Smith-Blair, Inc. or equal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. All valves and appurtenances shall be installed in the locations shown, true to alignment and rigidly supported. Any damage to the above items shall be repaired to the satisfaction of the ENGINEER before they are installed.
- B. Control valves in all locations shall be so grouped and located that they may be easily operated, through access panels, doors, or adjacent to equipment.
- C. After installation, all valves and appurtenances shall be tested at least one hour at the working pressure corresponding to the class of pipe, unless a different test pressure is specified. If any joint proves to be defective, it shall be repaired to the satisfaction of the ENGINEER.
- D. Install all brackets, extension rods, guides, the various types of operators and appurtenances as shown on the DRAWINGS in masonry floors or walls, and install concrete inserts for hangers and supports as soon as forms are erected and before concrete is poured. Before setting these items, the CONTRACTOR shall check all DRAWINGS and figures which have a direct bearing on their location and he shall be responsible for the proper location of these valves and appurtenances during the construction of the structures.
- E. All materials shall be carefully inspected for defects in workmanship and materials; all debris and foreign material cleaned out of valve openings, etc.; all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness. Valves and other equipment

which do not operate easily, or are otherwise defective, shall be repaired or replaced at no additional cost to the OWNER.

- F. Fire hydrants and yard hydrants shall be set at the locations as shown on the DRAWINGS and bedded on a firm foundation. A drainage pit as detailed on the DRAWINGS shall be filled with screened gravel and satisfactorily compacted.
- G. During backfilling, additional screened gravel shall be brought up around, and 6-inches over, the drain port. Each hydrant shall be set in true vertical alignment and properly braced. Concrete thrust blocks shall be placed between the back of the hydrant inlet and undisturbed soil at the end of the trench. Minimum bearing area shall be as shown on the DRAWINGS. Felt roofing paper shall be placed around hydrant elbow before placing concrete. CARE SHALL BE TAKEN TO INSURE THAT CONCRETE DOES NOT PLUG THE DRAIN PORTS.
- H. If directed, the hydrant shall be tied to the pipe with suitable rods or clamps, galvanized, painted, or otherwise rustproof treated. Concrete used for backing shall be no leaner than 1 part cement, 2-1/2 parts sand, and 5-1/2 parts stone. Hydrant paint shall be touched up as required after installation.
- I. Buried flanged or mechanical joints shall be made with cadmium-plated bolts. All exposed bolts and nuts shall be cadmium-plated. All exposed bolts and nuts shall be heavily coated with two coats of bituminous paint.
- J. Yard hydrants shall be installed in accordance with manufacturer's recommendation and applicable requirements of the fire hydrants above.
- K. Buried valves and valve boxes shall be set with the valve stem vertically aligned in the center of the box. Valves shall be set on firm foundation and supported by tamping selected excavated material under the sides of the valve. The valve box shall be supported during backfilling and maintained in vertical alignment with the top flush with finish grade.

3.02 SHOP PAINTING

- A. Interior surfaces of all valves, the exterior surfaces of buried valves, and miscellaneous piping appurtenances shall be given a shop finish of an asphalt varnish conforming to Federal Specification TT-V51e for Varnish Asphalt.
- B. The exterior surface of various parts of the valves, operators, floor stands and miscellaneous piping shall be thoroughly cleaned of all scale, dirt, grease or other foreign matter and thereafter one shop coat of an approved rust-inhibitive primer, such as Inertol Primer No. 621, shall be applied in accordance with the instructions of the paint manufacturer.
- C. Ferrous surfaces obviously not to be painted shall be given a shop coat of grease or other suitable rust-resistant coating.

- D. Field painting is specified under Division 9, Section 09900.

3.03 INSPECTION AND TESTING

- A. The various pipelines in which the valves and appurtenances are to be installed are specified to be field-tested. During these tests any defective valve or appurtenance shall be adjusted, removed and replaced, or otherwise made acceptable to the ENGINEER.
- B. Various regulating valves, strainer, or other appurtenances shall be tested to demonstrate their conformance with the specified operational capabilities and any deficiencies shall be corrected or the device replaced or otherwise made acceptable to the ENGINEER.

END OF SECTION

SECTION 15101

LARGE VALVES AND APPURTENANCES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment, and incidentals required and install complete and ready for operation all valves and appurtenances where shown on the Drawings as specified herein.
- B. The equipment specified herein includes the following:
 - 1. Gate valves with boxes for yard piping
 - 2. Gate valves for inside service
 - 3. Butterfly valves for yard piping
 - 4. Butterfly valves for inside service
 - 5. Plug valves for yard piping
 - 6. Plug valves for interior or above ground service
 - 7. Ball valves
 - 8. Check valves
 - 9. Air and vacuum relief valves (piping application)
 - 10. Automatic air release valves
 - 11. Shock absorbers
 - 12. Service clamps
 - 13. Expansion joints
 - 14. Pressure-reducing valves
 - 15. Back Pressure Sustaining Valves
- C. The work of this Section shall include the installation of valve tags furnished by the CONTRACTOR. All exposed valves provided under this Section shall be tagged.

1.02 RELATED WORK NOT INCLUDED

- A. Excavation, backfill, fill and grading is included in Division 2.
- B. Piping is included in the respective sections of Division 2 and 15.
- C. Valves, hydrants, meters and service lines for distribution system application are included in Division 2.
- D. Valves and service accessories on all plumbing systems are included in this Division, Section 15100.
- E. Pipe hangers and supports are included in this Division, Section 15094.

- F. Electrical is included in Division 16.

1.03 DESCRIPTION OF SYSTEMS

- A. All of the equipment and materials specified herein is intended to be standard for use in controlling the flow of wastewater, sludges, water, air or chemicals, depending on the applications.

1.04 QUALIFICATIONS

- A. All of the types of valves and appurtenances shall be products of well-established firms who are fully experienced, reputable and qualified in the manufacture of the particular equipment to be furnished. The equipment shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these SPECIFICATIONS as applicable.

1.05 SUBMITTALS

- A. Complete shop drawings of all valves and appurtenances shall be submitted to the ENGINEER in accordance with the requirements of Division 1.
- B. Furnish all information required in Division 1.

1.06 OPERATING INSTRUCTIONS

- A. Manufacturer's operating and maintenance instructions as set forth in Division 1 shall be furnished to the ENGINEER for equipment furnished under this Section.

1.07 TOOLS

- A. Special tools, if required for normal operation and maintenance, shall be supplied with the equipment.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. General
 - 1. All valves and appurtenances shall be of the size shown on the PLANS and as far as possible all equipment of the same type shall be from one manufacturer.
 - 2. All valves and appurtenances shall have the name of the maker, flow-directional arrows, and the working pressure for which they are designed cast in raised letters on some appropriate part of the body.

3. Handwheel operator shall be no less than 12-inch diameter.
4. Except as otherwise shown on the PLANS or specified herein, all valves with operators located 7 feet or more above the operating floor shall be provided with chain-wheel operators complete with chain guides and galvanized steel chain.
5. All buried valves shall open left (counterclockwise). Insofar as possible, all valves shall open counterclockwise.
6. All butterfly valves, gate valves and plug valves 8 inches or larger shall be furnished with gear operators and gear cases conforming to the requirements of AWWA C504 or as shown on the PLANS.

2.02 VALVES

A. Butterfly Valves for Buried Service

1. Butterfly valves and operators for buried service shall conform to AWWA C504, except as hereinafter provided. Butterfly valves shall be rated for Class 150B and both valve and operator shall be especially designed for service buried in the ground where the ground water may at times completely submerge the valve and operator, and shall be of the totally enclosed type.
2. The valve bodies shall be of cast iron conforming to ASTM A48-CL 40. Valve ends shall be mechanical joint meeting ANSI Specification A21.11.
3. Except as otherwise specified herein, valve shafts shall be of Type 304 stainless steel. Shaft seals shall be rubber O-ring seals. Shafts having a minimum torsional strength equivalent to shafts specified in Section 3.3 of AWWA C504 and completely isolated from the pipeline contents shall be furnished. Connections between shafts and discs shall be designed to transmit full shaft torque.
4. If the rubber seat is in the body, the disc shall be of an alloy cast iron conforming to ASTM A436 Type I with the periphery machined to a smooth spherical surface. If the rubber seat is mounted on the disc edge it shall be held in place by a one-piece Type 304 stainless steel retaining ring and stainless steel screws, the disc shall be of ASTM A48, Class 40 cast iron and a mating Type 304 stainless steel ring shall be installed in the valve body.
5. The unit shall be permanently lubricated with grease or oil. A standard AWWA 2-inch square operating nut shall be provided on the input shaft and it shall have a cap to center the valve box. Valves shall open to the left (counterclockwise).

6. Valve and operator assemblies shall be given two coats of asphalt varnish conforming to Section 4 of AWWA C504.
7. An Affidavit of Compliance in accordance with Section 1.5 of AWWA C504 shall be furnished to the ENGINEER prior to shipment of valves to the job site.
8. Valve boxes shall be provided for each buried valves. Valve boxes and appurtenances are specified in Division 5, Section 05540.
9. Four tee-handled gate wrenches of suitable length shall be furnished to operate all valves with valve boxes.

B. Butterfly Valves (for Interior Service)

1. Butterfly valves and operators shall conform to the AWWA Standard Specification for rubber seated butterfly valves Designation C504, except as hereinafter specified. Valves shall have a minimum 150-psi pressure rating and be equal to those manufactured by Allis-Chalmers, Henry Pratt Company, or equal.
2. Butterfly valves shall be flanged end with face-to-face dimensions in accordance with Table 3 of the above mentioned AWWA Specification for short-body valve, or wafer type.
3. Valve seats shall be full resilient seats retained in the body or the disc edge in accordance with Section 3.5 of the above mentioned AWWA Specification. If the resilient seat is in the body, the disc shall be of an alloy cast iron conforming to ASTM A436 Type 1 with the periphery machined to a smooth spherical surface. If the resilient seat is mounted on the disc edge, it shall be held in place by a one-piece Type 304 stainless steel retaining ring and stainless screws, the disc shall be of ASTM A48, Class 40 cast iron and a mating Type 304 stainless steel ring shall be installed in the valve body. Resilient seats shall be Hycar or equal for water service and Nordel or equal for air service.
4. The valve body shall be constructed of close grain cast iron per ASTM A126, Class B with integrally cast hubs for shaft bearing housings of the through boss-type. Permanently self-lubricating body bushings shall be provided and shall be sized to withstand bearing loads. Stuffing box of liberal dimensions shall be provided at the operator end of the vane shaft, arranged so that the packing can be replaced by removing the bronze follower without removing the operator. Packing shall be of the Chevron type as manufactured by Garlock Packing Company. A sealing element utilizing O-rings shall also be acceptable.

5. The valve shaft shall be of Type 304 stainless steel and designed for both torsional and shearing stresses when the valve is operated under its greater dynamic or seating torque.
6. In general, the butterfly valve operators shall conform to the requirements of Section 3.8 of the AWWA Standard Specifications for Rubber Seated Butterfly Valves, Designation C504, insofar as applicable and as herein specified.
7. Gearing for the operators where required shall be totally enclosed in a gear case in accordance with Section 3.8.3 of the above mentioned AWWA Standard Specification.
8. The manual operators shall conform to Section 3.8.2 of the above mentioned AWWA Standard Specifications, insofar as applicable. Valves shall have Handwheel or lever operators and open left, or counterclockwise. Operators shall have indicators to show position of the valve disc. Operators shall be rigidly attached to the valve body.

C. Gate Valves and Appurtenances for Yard Piping

1. Gate valves for water shall meet the requirements of AWWA C509 covering resilient seated gate valves. Valves shall be rated for 200-psi working pressure and a minimum of 400-psi test pressure. The wedge shall be of cast iron completely encapsulated with rubber. The sealing rubber shall be permanently bonded to the cast iron wedge to meet ASTM tests for rubber metal bond ASTM D429. They shall have non-rising cast bronze stems (unless otherwise shown on the PLANS) and be fitted with "O-ring" seals. The operating nuts shall be 2-inch square. All valves shall open left, or counterclockwise. Stuffing boxes shall be the "O-ring" type with two rings located above thrust collar; the two rings shall be replaceable with valve fully open and subjected to full rated working pressure. Gate valves shall be mechanical joint, ANSI Standard 21.11 except where shown otherwise. The body and bonnet shall be coated with a fusion coating both interior and exterior to meet C50. Each valve shall have maker's name, pressure rating and year in which manufactured cast on the body. Gate valves shall be as manufactured by Mueller Co., or approved equal.
2. Tapping sleeves shall be as manufactured by the Ford Meter Box Company, Inc., with cadmium-plated cast iron nuts and bolts. Sleeves shall be of cast iron, designated for working pressures not less than 200 psi. Lead gaskets shall be provided for the full area of the sleeve flanges.

3. Tapping valves shall conform to the requirements specified above for gate valves except that one end shall be flanged and one mechanical. Tapping valves shall be provided with an over-sized opening to permit the use of full sized cutters.
4. Four tee-handled gate wrenches of suitable length shall be furnished to operate all valves with valve boxes.

D. Gate Valves for Inside Service

1. See Section 15100 of these SPECIFICATIONS for gate valves 2-1/2" in diameter and smaller.
2. Gate valves 3" and larger in size, unless otherwise specified shall be iron body, bronze mounted, solid wedge gate valves with flanged ends and conforming to the AWWA Standard Specification for Gate Valve for Water and Sewage Systems, Designation C509-latest revision, insofar as applicable and in addition to the following requirements:
 - a. Valve shall be outside screw and yoke type with rising stem (unless otherwise shown on the PLANS).
 - b. Flanges shall be faced and drilled to ANSI B16.1 125 pound template, unless otherwise shown on the PLANS.
 - c. Bronze gate rings shall be fitted into grooves of dovetail or similar shape in the gates. For grooves or other shapes, the rings shall be firmly attached to the gates with bronze rivets.
 - d. Handwheels shall turn counterclockwise to open the valves. Handwheels shall be of ample size and shall have an arrow and the word "OPEN" cast thereon to indicate the direction of opening.
 - e. Stuffing box follower bolts shall be of steel and the nuts shall be of bronze.
 - f. The design of the valves shall permit packing the valves without undue leakage while they are wide open and in service.
 - g. O-ring stuffing boxes may be used.
 - h. Gate valves for pipeline installation shall be housed in an adjustable two-piece cast iron valve box and have a cover with the word "Water" or "Sewer" stamped or cast.
 - i. Gate valves with spur gears shall be housed to accommodate the offset of the operating nut.

E. Gate Valves For 16 and 24 Inch Distribution Mains

1. General

Valves to be installed on 16 and 24-inch high service and transmission lines shall conform to the latest revision of AWWA Standard C-509 covering resilient seated gate valves. These large diameter valves shall be as manufactured by Clow Valve Co., M & H Valve Co., or approved equal.

2. Design

The valves shall be either, **non-rising stem**, opening by turning stem left or right and provided with **2" square operating nut or handwheel** with the word Open and an Arrow cast in the metal to indicate direction to open.

The wedge shall be of cast iron completely encapsulated with rubber.

The sealing rubber shall be permanently bonded to the cast iron wedge to meet ASTM tests for rubber metal bond ASTM D429.

Stems for NRS assemblies shall be cast bronze with integral collars in full compliance with AWWA. OS & Y stems shall be on bronze bar stock. The NRS stem stuffing box shall be the o-ring seal type with two rings located above thrust collar; the two rings shall be replaceable with valve fully open and subjected to full rated working pressure.

There shall be two low torque thrust bearings located above and below the stem collar. The stem nut shall be independent of wedge and shall be made of solid bronze. There shall be a smooth unobstructed waterway free of all pockets, cavities and depressions in the seat area.

3. Materials

All cast iron shall conform to ASTM-A-126 Class C. Castings shall be clean and sound without defects that will impair their service. No plugging or welding of such defects will be allowed.

Stems shall be manganese bronze having a minimum tensile strength of 60,000 psi, a minimum yield of 20,000 psi.

Bolts shall be electro-zinc plated steel with hex heads and hex nuts in accordance with ASTM A-307 and A-563, respectively.

4. Testing

Prior to shipment from factory, each valve shall be tested by hydrostatic pressure equal to twice the specified working pressure of 250 psi.

5. Coating AWWA

The body and bonnet shall be coated with a fusion coating both interior and exterior to meet C550.

6. Marking

Valves shall be marked with name of manufacturer, the year of manufacture, the maximum working pressure and size of valve.

F. Plug Valves for Interior or Above Ground Service

1. Plug valves shall be manufactured in accordance with AWWA C-504, shall be of the 1/4 turn, eccentric, non-lubricated type, serviceable under full line pressure, and capable of sealing in both directions at the rated pressure. Valves shall have a minimum port area of 80% of the nominal pipe size. The valve body shall be of cast iron, 30,000 psi tensile strength with added nickel and chromium, ASTM A-126, Class B, 175 psi rating. Valve ends shall be flanged. The valve plug shall be ductile iron conforming to ASTM A-536, Grade 65-45-12 with neoprene resilient facing. The valve seating design shall be resilient and of the continuous interface type having consistent opening/closing torques and shall be non-jamming in the closed position. Closure shall be accomplished by means of an off-set plug design with a resilient seating face that achieves full 360 degree seating contact. Valves shall be of the bolted bonnet design. The resilient faced plug shall be replaceable without removing the valve body from the line. The valve body seating area shall be corrosion resistant by a welded-in overlay of high nickel content. Sprayed or plated seating surfaces will not be acceptable. Valves shall have permanently lubricated Type 316 stainless steel bearings on the upper and lower plug stem journal. Bearings shall be replaceable. Packing shall be Buna N (Vee Type) rated for 150 psig working pressure. Packing shall be adjustable and valves shall be designed such that they can be repacked without removing the bonnet. All exposed nuts, bolts, springs, and washers shall be zinc plated, except exposed hardware for submerged valves that shall be of stainless steel.
2. All valves shall be equipped with gear actuators and handwheel operators (unless otherwise shown on the PLANS). All gearing shall be enclosed suitable for running in oil with seals provided on all shafts to prevent entry of dirt and water into the actuator. All shaft bearings shall be furnished with permanently lubricated bronze bearing bushings. Actuator shall clearly indicate valve position and an adjustable stop shall be provided. Construction of

actuator housing shall be semi-steel. Hardware on actuators shall be of the same materials as the valves.

3. All valves and actuators shall be as manufactured by DeZurik Corporation or equal.
4. All plug valves shall be installed so that the direction of flow through the valve is in accordance with the manufacturer's recommendations.

G. 3-Way Plug Valves

1. Valves shall be of the non-lubricated taper plug type and shall have resilient faced plugs for drip tight shutoff. End connections shall be flanged and shall be drilled to ANSI 125 pound standard. Valves shall be semi-steel and shall have stainless steel bearings in the upper and lower journal areas. The three-way valve shall be furnished as standard with a plug to shut off one port at a time.
2. The valve shall be furnished with a resilient facing bonded to the plug sealing surface and shall have double handwheel actuators. The actuator shall be of the worm and gear type and shall have one handwheel to lift and reseal the plug and one handwheel to rotate the plug. Handwheel actuators shall be totally enclosed and shall have seals and gaskets to prevent entry of dirt, water or corrosive atmosphere. Actuators shall have corrosion resistant bearings on the gear sector. Actuators shall provide plug rotation up to 360°.
3. The 3-way valves, actuators and accessories shall be as manufactured by DeZurik Corporation, or equal.

H. Plug Valves for Yard Piping

1. Plug valves for yard piping shall be as specified above for interior plug valves, except valves shall have mechanical joint ends and stainless steel hardware. Buried actuators shall be as specified above and shall be of buried, submerged service with seals on all covers and shafts and all exposed hardware of stainless steel. Provide valve box, stem extension, and operating nut as specified above for gate valves.

I. Ball Valves

1. See Section 15100 of these SPECIFICATIONS.

J. Check Valves

1. Check valves for cast iron and ductile iron pipelines shall be swing type and shall meet the material requirements of AWWA Specification C508-latest revision Swing-Check Valves for

ordinary water-works service. The valves shall be iron body, bronze mounted, single disc, 150 psi working water pressure, non-shock, and hydrostatically tested at 300 psi. Ends shall be 125 lb. ANSI B16.1 flanges.

- a. When there is no flow through the line the disc shall hang lightly against its seat in practically a vertical position. When open, the disc shall swing clear of the water-way.
- b. Check valves shall have bronze seat and body rings, extended bronze hinge pins and bronze nuts on the bolts of bolted covers.
- c. Valves shall be so constructed that disc and body seat may easily be removed and replaced without removing the valve from the line. Valves shall be fitted with an extended hinge arm with outside lever and spring. Springs with various tensions shall be provided and springs approved by the ENGINEER shall be installed.

K. Automatic Air and Vacuum Relief Valves for Vertical Turbine Pumps

- 1. Combination air and vacuum valves for vertical turbine pumps shall be equal to APCO Air Valves for Vertical Turbine Pumps, per APCO Bulletin 586, as manufactured by Valve and Primer Corp., Schaumburg, Illinois, or approved equal.
- 2. Valves shall be the size shown on the drawings and shall be equipped with an automatic air release valve, such as APCO Valve No. 55, or approved equal.
- 3. Air valves for vertical turbine pumps shall be designed to allow large quantities of air to escape out the orifice when the pump is started and close water tight when the liquid enters the valve. The air valve shall also permit large quantities of air to re-enter through the orifice when the pump is stopped to prevent a vacuum from forming in the pump column.
- 4. The valve shall consist of a body, cover, baffle, float and seat. The valve shall be designed to prevent prematurely shut-off. The seat shall be fastened into the valve cover, without distortion, and shall be easily removed, if necessary.
- 5. The entire float and baffle assembly must be shrouded with a perforated water diffuser to prevent the water column entering the valve, from slamming the float shut and eliminate water hammer in the system.
- 6. The float shall be stainless steel, designed to withstand a minimum of 1,000 psi, or approved equal. The float shall be center guided and not free floating for positive seating.

7. The discharge orifice shall be fitted with an automatic air release valve in order to vent small pockets of air. This valve shall consist of a body, cover, float and seat, and shall be rated at a working pressure of 150 psi.
8. The body, cover, and baffle of this valve assembly shall be constructed of cast iron, conforming to ASTM A48 Class 30, or approved equal. The float shall be stainless steel, conforming to ASTM A240, or approved equal. The seats shall be BUNA-N and the water diffuser shall be brass, or approved equal. All flanges shall be 125# ANSI.

L. Air Release Valves

1. Combination Air Valve Assemblies

- a. Sizes 1-inch through 6-inch. Valve shall be single body, double orifice, allowing air to exit when filling a pipeline, and air to enter when draining. Orifices shall operate independently; the smaller release orifice shall be capable of opening when the larger is in the closed position.
- b. The valve shall be designed to prevent premature closing. The closing mechanism shall be either needle and seat and be Buna-N, or of the rolling seal type made of Rubber E.P.D.M., and attached to the valve cover to ensure drop-tight shut-off. The float shall be stainless steel, hermetically sealed, and designed to withstand pressures up to 1000 pounds per square inch, or approved equal. The float shall be of corrosion resistant materials in accordance with ASTM A240, or approved equal. The plug shall be bronze and in accordance with ASTM B124, or approved equal. The body, cover, and leverage frame shall be cast iron/Delrin and shall be in accordance with ASTM A126 GR, B and ASTM D2133, reinforced Nylon, or approved equal.
- c. Valve exterior shall be painted with Red Oxide Phenolic Primer, or approved equal as accepted by the FDA for use in contact with potable water.
- d. Valve to be APCO Model (corresponding to size) Combination Air Valve as manufactured by Valve & Primer Corp., Schaumburg, Illinois, U.S.A., or approved equal.
- e. Air valves shall be installed as shown in the plans, housed in a valve box with cover. Valve boxes for air valves shall be carefully set to grade with covers at grade.

2. Air Release (Vent) Valve Assemblies

- a. Air Vent Valve No. 50, or approved equal. Valve shall operate under pressure, allowing entrapped air to escape from a pipeline. Orifices shall operate by means of a simple lever mechanism (stainless steel, ASTM A240), rolling seal mechanism, or approved equal to prevent water from escaping as or after air is expelled.
- b. The closing mechanism shall be either needle and seat and be Buna-N, or of the rolling seal type made of Rubber E.P.DM., and attached to the valve cover to ensure drop-tight shut-off. The float shall be stainless steel, hermetically sealed, and designed to withstand pressures up to 1000 pounds per square inch, or approved equal. The float shall be of corrosion resistant materials in accordance with ASTM A240, or approved equal. The seat shall be of stainless steel, or approved equal. The seat shall have an orifice of 3/32 inches, or approved equal to operate up to 175 pounds per square inch (psi), or a 1/16 inch orifice when operation at pressures higher than 175 psi, or approved equal. The body shall be cast iron, ASTM A48, Class 30, or approved equal, and shall have a ½ inch NPT female threaded inlet and outlet, and be rated for 350 psi test pressure.
- c. Valve exterior shall be painted with Red Oxide Phenolic Primer, or approved equal as accepted by the FDA for use in contact with potable water.
- d. Valve to be APCO Model 50 Air Vent Valve as manufactured by Valve & Primer Corp., Schaumburg, Illinois, U.S.A., or approved equal.

M. Shock Absorbers

- 1. Shock absorbers shall be supplied on the plant water distribution piping where shown on the PLANS. The shock absorbers shall be Model 1485-1 as manufactured by Josam Manufacturing Company, Michigan City, Indiana or approved equal.

N. Service Clamps

- 1. Service clamps shall have malleable or ductile iron bodies, which extend at least 160 degrees around the circumference of the pipe and shall have neoprene gaskets cemented to the saddle body. Bodies shall be tapped for either corporation stop threads of IPS as required. Clamps with tap sizes 1 inch and smaller shall be of the single strap design. Clamps with tap sizes larger than 1 inch shall be of the double strap design.

2. Service clamps shall be Style 91 or 291 as manufactured by Dresser Industries, Inc., Type 311 or 313 as manufactured by Smith-Blair, Inc. or equal.

O. Expansion Joints

1. Expansion joints shall be single arch type of butyl rubber construction with carcass of high grade woven cotton or suitable synthetic fiber and individual solid steel ring reinforcement. Soft rubber fillers shall be integrally cured into the arches to prevent settling of material into the arch. Joints shall be constructed to pipeline size and to meet working pressure and corrosive conditions similar to the line where installed. Joints shall have full faced fabric reinforced butyl flanges integral with body. Split type steel backup rings shall be provided to ensure a good joint. Rings shall be designed for mating the ANSI Standard 150 lb. flanges. Joints shall have a working pressure rating of 140 psig (minimum). All joints shall be finish coated with Hypalon paint.
2. Expansion joints shall be furnished with control units. Control units shall consist of two (2) drilled plates, stretcher bolts, and rubber washers backed by metal washers. The stretcher bolts shall prevent over-elongation of the joint. Extra nuts shall be provided on the stretcher bolts on the inside of the plate to prevent over-compression. All nuts, bolts and plates shall be galvanized.
3. Expansion joints shall be Style 500B as manufactured by Mercer Rubber Company, Style 4140 by Uniroyal Company, or equal.

P. Pressure Reducing Valves

1. Pressure reducing valves shall be of the single seated balanced design type globe body with threaded inlet and outlet ports. It shall be diaphragm operated, spring loaded permitted adjustment over a range of no less than 30 psi.
2. The body shall be bronze construction with bronze or stainless steel stem and furnished with a replacement rubber seat.
3. The pressure reducing valves shall be G-A Industries, APCO, or equal.

Q. Mud Valves

1. Mud valves shall be flanged end, rising stem type.
2. Bodies shall be cast iron. The stem, stem nut, disk ring, and seat ring shall be bronze. Bolts and nuts shall be rustproof steel.
3. Handwheel operator and floorstand shall be furnished where shown on the PLANS.

4. Provide stem guides for maximum unsupported stem length of 5 feet.
5. The valves shall be Clow F-3085, or equal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. All valves and appurtenances shall be installed in the locations shown on the PLANS, true to alignment and rigidly supported. Any damage to the above items shall be repaired to the satisfaction of the ENGINEER before they are installed.
- B. After installation, all valves and appurtenances shall be tested at least 1 hour at the working pressure corresponding to the class of pipe, unless a different test pressure is specified. If a joint proves to be defective, it shall be repaired to the satisfaction of the ENGINEER.
- C. Install all brackets, extension rods, guides, the various types of operators and appurtenances as shown on the PLANS that are in masonry floors or walls, and install concrete inserts for hangers and supports as soon as forms are erected and before concrete is poured. Before setting these items, the CONTRACTOR shall check all plans and figures, which have a direct bearing on their location and he shall be responsible for the proper location of these valves and appurtenances during the construction of the structures.
- D. All materials shall be carefully inspected for defects in workmanship and materials; all debris and foreign material cleaned out of valve openings, etc.; all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness. Valves and other equipment, which do not operate easily or are otherwise defective, shall be repaired or replaced at no additional cost the OWNER.
- E. Buried flanged or mechanical joints shall be made with cadmium plated bolts. All exposed bolts and nuts shall be cadmium plated. All exposed bolts and nuts shall be heavily coated with two (2) coats of bituminous paint comparable to Inertol No. 66 Special Heavy.
- F. Buried valves and valve boxes shall be set with the stem vertically aligned in the center of the gate box. Valves shall be set on a firm foundation and supported by tamping selected excavated material under the sides of the valve. The valve box shall be supported during backfilling and maintained in vertical alignment with the top flush with finish grade.

3.02 SHOP PAINTING

- A. Interior surfaces of all valves, the exterior surfaces of buried valves and miscellaneous piping appurtenances shall be given a shop finish of an asphalt varnish conforming to Federal Specification TT-V51e for Varnish Asphalt.
- B. The exterior surface of various parts of valves, operators, floor stands and miscellaneous piping shall be thoroughly cleaned of all scale, dirt, grease or other foreign matter and thereafter on shop coat an approved rust-inhibitive primer (such as specified in Section 09900) shall be applied in accordance with the instructions of the paint manufacturer.
- C. Ferrous surfaces obviously not to be painted shall be given a shop coat of grease or other suitable rust-resistant coating.
- D. Field painting is included under Division 9.

3.03 INSPECTION AND TESTING

- A. The various pipe lines in which the valves and appurtenances are to be installed are specified to be field tested. During these tests any defective valve or appurtenance shall be adjusted, removed and replaced, or otherwise made acceptable or the ENGINEER.
- B. Various regulating valves, strainer, or other appurtenances shall be tested to demonstrate their conformance with the specified operational capabilities and any deficiencies shall be corrected or the device replaced or otherwise made acceptable to the ENGINEER.

END OF SECTION

SECTION 15122

PRESSURE SENSING AND CONTROL INSTRUMENTATION

PART I GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Pressure Sensing and Control Instrumentation:
 - a. Pressure gauges and transmitters
 - b. Pressure gauge cocks.
 - c. Diaphragm seals
- B. Gauges furnished as part of factory-fabricated equipment are specified as part of equipment assembly in other Division 15 sections.

1.02 SUBMITTALS

- A. Product Data:
 - 1. Manufacturer's technical product data, including installation instructions, for each type gauge. Include scale range and ratings, certified where indicated.
 - 2. Gauge schedule showing manufacturer's figure number, scale range, location, and accessories for each gauge.
- B. Submit in accordance with Section 01300.

1.03 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of gauges, of types and sizes required, whose products have been in satisfactory use in similar service.
- B. Regulatory Requirements:
 - 1. UL Compliance: Comply with applicable UL standards pertaining to gauges.
 - 2. ANSI and ISA Compliance: Comply with applicable portions of ANSI and Instrument Society of America (ISA) standards pertaining to construction and installation of gauges.
- C. Certification: Provide gauges whose accuracies, under specified operating

conditions, certified by manufacturer.

PART 2 PRODUCTS

2.01 PRESSURE GAUGES

- A. Manufacturers include but are not limited to:
 - 1. Dwyer
 - 2. Ametek/U.S. Gauges.
 - 3. Marsh Instrument Company, Unit of General Signal.
 - 4. Weiss Instruments, Inc.
 - 5. Or approved equal.
- B. Provide pressure gauges of materials, capacities, and ranges indicated, designed, and constructed for use in service indicated.
- C. Type: WOG, 1 % accuracy, Grade A phosphor bronze bourdon type, bottom connection.
- D. Case: Enamel coated steel, 4-1/2 in. dia.
- E. Connector: Stainless steel with 1/4 in. male NPT.
- F. Scale: White coated aluminum with permanently etched markings.
- G. Range: Per Pressure Gauge Schedule on drawings.

2.03 PRESSURE SWITCH

- A. Same as for pressure gages:
- B. Provide pressure switch of materials, capacities, and ranges indicated, designed, and constructed for use in service indicated. Dwyer Series DA, or approved equal.
- C. Type: WOG, 403 SS bourdon type, bottom connection.
- D. Case: Pressed steel w. transparent cover, 5-3/4 in. dia.
- E. Connector: Stainless steel with 1/4 in. male NPT.
- F. Deadband: Adjustable

- G. Contacts: (3) Screw type
- H. Switch: Hermetically sealed contact mercury switch
- I. Range: 0-100 psi

2.04 PRESSURE GAUGE COCKS

- A. Manufacturers: Same as for pressure gauges.
- B. Provide pressure gauge cocks between pressure gauges and gauge tees on piping systems; or when applicable, between diaphragm seals and gauge tees on piping systems. Construct gauge cock of stainless steel with NPT fittings on each end of size and type consistent with the adjacent fittings, and with a "T" handle brass plug.
- C. Siphon: 1/4 in. straight coil constructed of type 304 stainless steel tubing with 1/4 in. male NPT on each end.
- D. Snubber: 1/4 in. stainless steel bushing with corrosion resistant porous metal disc through which pressure fluid is filtered. Select disc material for fluid served and pressure rating.

2.05 DIAPHRAGM SEALS

- A. Manufacturers: Same as for pressure gauges.
- B. Provide continuous-duty diaphragm seals between pressure gauges and gauge tees on process piping systems. Construct diaphragm seal of stainless steel with NPT fittings on each end of size and type consistent with the adjacent fittings.
- C. Type: Capsule with fill/bleed connection, glycerin filled.
- D. Diaphragm Material: 304L SS, w/ teflon coating
- E. Bottom Housing: 304L SS
- F. O-ring: Viton
- G. Range – Compatible with pressure gage, transmitter or switch.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine areas and conditions under which meters and gauges to be installed. Do not proceed with Work until unsatisfactory conditions are corrected.

3.02 INSTALLATION OF PRESSURE INSTRUMENTATION

- A. Install pressure instrumentation and ancillaries, located on pipe at most readable position, and adjust faces of gauges to proper angle for best visibility.

3.03 CLEANING

- A. Clean windows of instrumentation and factory-finished surfaces. Replace cracked or broken windows, and repair any scratched or marred surfaces with manufacturer's touch-up paint.

END OF SECTION

SECTION 15123

COUPLINGS, FLANGED COUPLING ADAPTERS AND SERVICE SADDLES

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Couplings, flanged coupling adapters, and service saddles required for piping connections. Some products specified in this Section may not be required for this Contract. Refer to piping system specification section(s) and Drawings to determine particular products to be provided under this Contract.

1.02 SUBMITTALS

- A. Not required for products identical to those specified by name of manufacturer and model type.
- B. For products other than those specified by name of manufacturer and model number, submit information in accordance with requests for substitutions or "Or Equal" items in Section 01300.
- C. Submit information for products that vary from specified requirements regardless of manufacturer name.

PART 2 PRODUCTS

2.01 COUPLINGS

- A. Couplings for connecting plain-end steel or ductile iron pipe of same outside diameter;
 - 1. Dresser Style 38.
 - 2. Smith-Blair Product No. 411.
 - 3. or approved equal
- B. Stainless steel couplings for stainless steel aeration piping:
 - 1. Brico Depend-0-Lok Air Master Couplings or approved equal
 - a. Housing and closure plates: ASTM A-240-T-304L stainless steel.
 - b. Sealing plates: T-304 stainless steel.

- c. Gaskets: ASTM D2000-EPDM for -20 deg. to 300 deg. F.
 - d. Hardware: ASTM A-276 T-304 stainless steel.
- C. Transition couplings for connecting plain-end steel or ductile iron pipe of different outside diameter:
 - 1. Dresser Style 162.
 - 2. Smith-Blair Product No. 413.
 - 3. or approved equal.
- D. Insulating couplings for connecting plain-end steel or ductile iron pipe and stopping flow of electrical current:
 - 1. Dresser Style 39.
 - 2. Smith-Blair Product No. 416.
 - 3. or approved equal.
- E. Pressure rating shall be greater than test pressure of piping system.
- F. Materials:
 - 1. Middle Ring and Gaskets: As selected by manufacturer. Suitable for fluid service and maximum operating temperature of piping system,
 - 2. Followers: Ductile iron or steel.
 - 3. Bolts and Nuts: Manufacturer's standard.

2.02 FLANGED COUPLING ADAPTERS

- A. Flanged coupling adapters for connecting plain-end steel or ductile iron pipe to flanged pipe, fitting, valve, instrument, or equipment item:
 - 1. Dresser Style 128.
 - 2. Smith-Blair Product No. 913.
 - 3. or approved equal.
- B. Pressure rating shall be greater than test pressure of piping system.
- C. Materials:
 - 1. Flange: Steel, faced and drilled to 150 lb. class in conformance

with ANSI B16.5.

2. Body: Steel.
3. Follower: Ductile iron or steel.
4. Gasket: As selected by manufacturer. Suitable for fluid service and maximum operating temperature of piping system.
5. Bolts and Nuts: Manufacturer's standard.

2.03 SERVICE SADDLES

- A. Service saddles for tapping pipe sizes 18 in. and smaller shall be double strap design.
 1. Dresser Style 91.
 2. Smith-Blair Product No. 313.
 3. or approved equal.
- B. Service saddles for tapping pipe sizes larger than 18 in. shall be triple strap design.
 1. Smith-Blair Product No. 366. or approved equal
- C. "Materials:
 1. Body: Malleable iron or ductile iron.
 2. Straps: Steel.
 3. Nuts and Washers: Manufacturer's standard.
 4. Gasket: As selected by manufacturer. Suitable for fluid service and maximum operating temperature of piping system.

2.04 ANCHORS

- A. Provide anchors including, but not limited to, tie rods, lugs, harness assemblies, flanged spool pieces, friction collars and hardware for each coupling, and flanged coupling adapter. Anchors shall restrain pipe to prevent movement out of each coupling and flanged coupling adapter.
- B. Design each anchor to sustain force developed by test pressure of piping system.
- C. Anchor studs placed perpendicular to longitudinal axis of pipe is unacceptable.

- D. Anchorage with welded attachments to ductile iron piping is unacceptable.

2.05 COATINGS

- A. Coatings for couplings, flanged coupling adapters, and service saddles shall be same material as coatings for connected pipe.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's written instructions.

END OF SECTION