

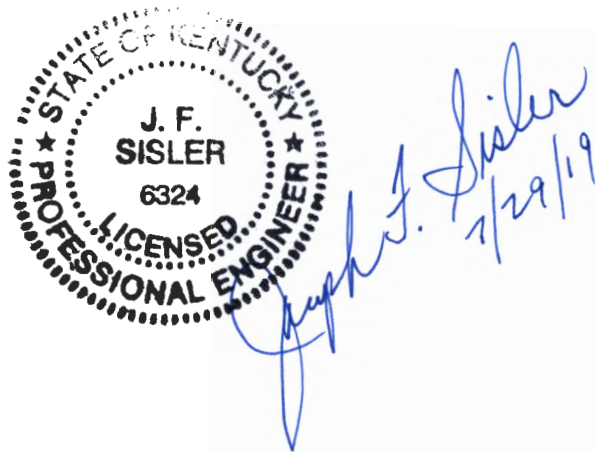
SPECIFICATIONS AND CONTRACT DOCUMENTS

FOR

BIG SANDY WATER DISTRICT
BOYD COUNTY, KENTUCKY

PHASE V
WATER SYSTEM IMPROVEMENTS
(Stream Crossing Replacements, Service Line Replacements, etc.)

CONTRACT NO. H-1



FOR CONSTRUCTION

JULY 2019

SME PROJECT CODE: 15030



SISLER-MAGGARD ENGINEERING, PLLC

220 EAST REYNOLDS ROAD, SUITE A3
LEXINGTON, KY 40517
(859) 271-2978
Fax (859) 271-5670
Email: sme@sislermaggard.com

BIG SANDY WATER DISTRICT

CONTRACT NO. H-1

Phase V

Water System Improvements

(Stream Crossing Replacements, Service Line Replacements, etc.)

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SECTION 1

ADVERTISEMENT FOR BIDS

ADVERTISEMENT FOR BIDS

1. **INVITATION:** Sealed bids for the construction of the following **BIG SANDY WATER DISTRICT – PHASE V – WATER SYSTEM IMPROVEMENTS - F-1 Water Tank Painting & Repairs, G-1 Water Booster Pump Station Upgrades, H-1 Stream Crossing Replacements & Service Line Replacements and I-1 Office Building** will be received by the Big Sandy Water District Office, 18200 State Route 3, Catlettsburg, KY 41129, until **12:00 NOON**, local time **June 13, 2019** for furnishing all labor and materials and performing all work as set forth by this advertisement, conditions (general, supplemental, and special), specifications, and/or the drawings prepared by Sisler-Maggard Engineering, PLLC., 220 East Reynolds Road, Suite A3, Lexington, Kentucky 40517. Bids will be publicly opened and read at above time.

2. **PROJECT DESCRIPTION:** The project includes but is not limited to the following:

CONTRACT – “F-1” – Water Tank Painting & Repairs

- a) 7 EA. Sandblasting & Painting Existing Ground Storage Tanks (3 @ 60-75,000 gallon, 4 @ 100-150,000 gallon)
- b) 2 EA. Misc. Repairs at Tanks

CONTRACT – “G-1” – Water Booster Pump Station Upgrades

- a) 2 EA. Construct Duplex Pump Stations
- b) 2 EA. Add VFD’s to existing Water Booster Pump Stations

CONTRACT – “H-1” – Stream Crossing Replacements and Service Line Replacements

- a) 925 L.F. 6” & 8” HDPE Horizontal Direct Drilling
- b) 43,600 L.F. ¾” Service Line Replacement by Trenchless Replacement or HDD Method
- c) 3,600 L.F. 1” Service Line Replacement by Trenchless Replacement or HDD Method

CONTRACT – “I-1” – Office Building

- a) Construct 2100 S.F. Masonry Office Building with Metal Roof

3. **OBTAINING PLANS, SPECIFICATIONS AND BID DOCUMENTS:**

Contract documents may be reviewed and obtained at the following locations:

Lynn Imaging Lexington....(859) 255-1021	Lynn Imaging Louisville.....(502) 499-8400
328 Old Vine Street.....(800) 888-0693	11460 Bluegrass Parkway..... (502)499-0022 fax
Lexington, KY 40507.....(859) 233-1558 fax	Louisville, KY 40299

A **non-refundable** deposit will be required for **each** set of documents as follows:

Contract “F-1” – Water Tank Painting & Repairs: \$150.00

Contract “G-1” – Water Booster Pump Station Upgrades: \$150.00

Contract “H-1” – Stream Crossing Replacements & Service Line Replacements: \$250.00

Contract “I-1” – Office Building: \$200.00

Deposit **DOES NOT** include shipping. Partial sets of plans or specifications will **not** be issued.

Contract Documents may also be reviewed at the following locations:

Sisler-Maggard Engineering, PLLC
220 East Reynolds Road, Suite A3
Lexington, Kentucky 40517
(859) 271-2978

Big Sandy Water District
18200 State Route 3
Catlettsburg, Kentucky 41129
(606) 928-2075

Builders Exchange
1035 Strader Avenue, Suite 100
Lexington, Kentucky 40505
(859) 288-0011

Builder's Exchange
2300 Meadow Lane
Louisville, Ky. 40218-1336
(502) 459-9800

4. **METHOD OF RECEIVING BIDS:** Bids will be submitted in the manner and subject to the conditions as set forth and described in the Instructions to Bidders and Contract Documents.
5. **METHOD OF AWARD AND RIGHT TO REJECT:** The Contract will be awarded by the Owner to the low responsive, responsible, best and qualified Bidder. Owner reserves the right to reject any and all bids and to waive all informalities and/or technicalities should it be in the best interest of the Owner.
6. **BID WITHDRAWAL:** No Bidder may withdraw his bid for a period of **(90) ninety** calendar days after receipt of bids. Errors and omissions will not be the cause for withdrawal of bid without forfeit of bid bond. Bids may be withdrawn in person prior to the closing time for receipt of bids.
7. **FUNDING:** This project is being funded by **U.S.D.A.- Rural Development and Big Sandy Water District.**
8. **WAGE RATES:** State and Federal wage rates **will not** apply to this project.
9. **BID SECURITY:** Bidders shall furnish (with bid) bid security equal to 5% of bid. A bid bond on Kentucky Resident insurance carrier or certified check is acceptable.
9. **GENERAL REQUIREMENTS:** Bidders who submit a Bid **must** be a Plan Holder of record at the issuing Office (Lynn Imaging). Bids from Bidders who are not on the Plan Holders List may be returned as not being responsive.

Plan Holders are requested to provide an e-mail address with their purchase of plans if they wish to receive addenda and other information electronically.
10. **PERFORMANCE AND PAYMENT BOND:** A Performance and Payment Bond each in the amount of 100 percent of the Contract Price issued by a responsible surety will be required of the successful Bidders.

"EQUAL EMPLOYMENT OPPORTUNITY"

OWNER: Big Sandy Water District

By: Paul E. Thomas
Paul E. Thomas, Chairman

SECTION 2

INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

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ARTICLE 1 – DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office* – The office from which the Bidding Documents are to be issued

1. Sisler Maggard Engineering, PLLC
220 E. Reynolds Road, Ste. A3
Lexington, KY 40517
Phone – (859) 271-2978

2. Lynn Imaging
328 Old Vine Street
Lexington, KY 40503
Phone – (859) 255-1021

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

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

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit with its Bid written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and the following additional information:
- A. Qualification forms @ end of Section 8 of these Specifications shall be used.
- 3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.
- 3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER’S SAFETY PROGRAM; OTHER WORK AT THE SITE

4.01 *Site and Other Areas*

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

4.02 *Existing Site Conditions*

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify:
 - a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.
 - b. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
 - c. reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.
4. Geotechnical Baseline Report: The Bidding Documents **may** contain a Geotechnical Baseline Report (GBR). The GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations (“Baseline Conditions”). The GBR is a Contract Document.

The Baseline Conditions in the GBR are intended to reduce uncertainty and the degree of contingency in submitted Bids. However, Bidders cannot rely solely on the Baseline Conditions. Bids should be based on a comprehensive approach that includes an independent review and analysis of the GBR, all other Contract Documents, Technical Data, other available information, and observable surface conditions. Not all potential subsurface conditions are baselined.

Nothing in the GBR is intended to relieve Bidders of the responsibility to make their own determinations regarding construction costs, bidding strategies, and Bid prices, nor of the responsibility to select and be responsible for the means, methods, techniques, sequences, and procedures of construction, and for safety precautions and programs incident thereto.

- B. **Underground Facilities:** Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.
- C. **Adequacy of Data:** Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 *Site Visit and Testing by Bidders*

- A. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site.
- B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.
- D. Bidder shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- E. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.04 *Owner's Safety Program*

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

4.05 *Other Work at the Site*

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

ARTICLE 5 – BIDDER’S REPRESENTATIONS

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

ARTICLE 6 – PRE-BID CONFERENCE (NOT USED)**ARTICLE 7 – INTERPRETATIONS AND ADDENDA**

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

ARTICLE 8 – BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of **5% (percent)** of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.
- 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 Documents, 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 Documents 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. Such forfeiture shall 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 seven days after the Effective Date of the Contract or **60 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 seven 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 substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

- 10.01 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.
- The liquidated damage for **these** contracts shall be **\$500 per calendar day** that the contracts are NOT substantially complete.

ARTICLE 11 – SUBSTITUTE AND "OR-EQUAL" ITEMS

- 11.01 The Contract for the Work, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those "or-equal" or substitute materials and equipment

subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an "or-equal" or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids in the case of a proposed substitute and 5 days prior in the case of a proposed "or-equal". Each such request shall comply with the requirements of Paragraphs 7.04 and 7.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not reply upon approvals made in any other manner. Substitutes and "or-equal" materials and equipment may be proposed by Contractor in accordance with Paragraphs 7.04 and 7.05 of the General Conditions after the Effective Date of the Contract.

- 11.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.
- 11.03 If an award is made, Contractor shall be allowed to submit proposed substitutes and "or-equals" in accordance with the General Conditions.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 12.01 If required by the bid documents, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for any of the work.

If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or

entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

- 12.02 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.
- 12.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.
- 12.04 The Contractor shall not award work to Subcontractor(s) in excess of the limits stated in SC 7.06.

ARTICLE 13 – PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents.

- A. All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
- 13.02 A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation shall be shown.
- 13.03 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 13.04 A Bid by an individual shall show the Bidder's name and official address.
- 13.05 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.06 All names shall be printed in ink below the signatures.
- 13.07 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.08 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.09 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.
- 13.10 Each bid must be submitted on the prescribed forms accompanied by the following items which will constitute the submittal documents necessary for a complete bid package:
1. Bid Forms Including Subcontractors & Manufacturers List
 2. Bid Bond with Power Of Attorney
 3. Compliance Statement (Rd Form 400-6)
 4. Certificate for Contracts, Grants, & Loans (Rd Form 1940-Q)
 5. Certificate Regarding Debarment, Suspension, And Other Responsibilities (AD-1048)
 6. Equal Employment Opportunity Certification (RD Form 400-1)
 7. Bidder's Qualifications Statement
 8. Contractor's Certification Concerning Labor Standards and Prevailing Wage Requirements
-
- 13.11 Subcontracts: The bidder is specifically advised that any person, for, or other party to whom it is proposed to award a subcontract under this Contract:
- a. Must be acceptable to the Owner and have current eligibility status for federal programs; and
- Approval of the proposed subcontract award cannot be given by the Owner unless and until the proposed subcontractor has submitted the Certifications and/or other evidence showing that it has fully complied with any reporting requirements to which it is or was subject. Although the bidder is not required to attach such Certifications by proposed subcontractors to their bid,

the bidder is hereby advised of this requirement so that appropriate action can be taken to prevent subsequent delay in subcontract awards.

ARTICLE 14 – BASIS OF BID

14.01 *Unit Price*

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

ARTICLE 15 – SUBMITTAL OF BID

- 15.01 With each copy of the Bidding Documents, a Bidder is furnished 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 7 of the Bid Form.
- 15.02 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall 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 shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation “BID ENCLOSED.” A mailed Bid shall be addressed to the **Big Sandy Water District**
- 15.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.
- 15.04 The **Big Sandy Water District** (herein called the “Owner”), invites bids on the forms attached hereto, all blanks of which must be appropriately filled in. Bids will be received by the Owner at the **Big Sandy Water District, 18200 State Route 3, Catlettsburg, Kentucky 41129** until **12:00 Noon, local time, June 13, 2019** and then at said office publicly opened and read aloud. The envelopes containing the bids must be sealed, addressed to the **Big Sandy Water District**, designated as bid for **Phase V – Water System Improvements – Contract “F-1 - Water Tank Painting & Repairs, Contract “G-1” – Water Booster Pump Station Upgrades, Contract “H-1” – Stream Crossings and Service Line Replacements, Contract “I-1” – Office Building.**

The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid

received after the time and date specified shall not be considered. No bidder may withdraw a bid within 90 days after the actual date of the opening thereof.

- 15.05 **Telegraphic/Facsimile Modification:** Any bidder may modify their bid by telegraphic or facsimile communication at any time prior to the scheduled closing time for receipt of bids, provided such communication is received by the Owner prior to the closing time, and provided further, the Owner is satisfied that a written confirmation of the telegraphic/facsimile modification over the signature of the bidder was mailed prior to the closing time. The communication should not reveal the bid price but should provide the addition or subtraction or their modifications so that the final prices or terms will not be known by the Owner until the sealed bid is opened. If written confirmation is not received within two days from the closing time, no consideration will be given to the telegraphic/facsimile modification.

Method of Bidding: The Owner invites the following bid: **Phase V – Water System Improvements – Contract “F-1 - Water Tank Painting & Repairs, Contract “G-1” – Water Booster Pump Station Upgrades, Contract “H-1” – Stream Crossings and Service Line Replacements, Contract “I-1” – Office Building.**

Time of Completion and Liquidated Damages: Bidder must agree to commence work on or before a date to be specified in a written “Notice to Proceed” of the Owner and to fully complete the project as follows:

Phase V – Water System Improvements:

Contract “F-1 - Water Tank Painting & Repairs - 180 consecutive calendar days

Contract “G-1” - Water Booster Pump Station Upgrades - 150 consecutive Calendar days

Contract “H-1” - Stream Crossings & Service Line Replacements - 210 consecutive calendar days

Contract “I-1” - Office Building - 150 consecutive calendar days

thereafter. Bidder must agree also to pay as liquidated damages, the sum of \$500.00 for each consecutive calendar day thereafter as hereinafter provided in Article 15 of the Special Conditions and in the Agreement.

- 15.06 Every request for such interpretation on **Phase V – Water System Improvements – Contract “F-1” - Water Tank Painting & Repairs, Contract “G-1” – Water Booster Pump Station Upgrades, Contract “H-1” – Stream Crossings and Service Line Replacements, Contract “I-1” – Office Building** should be in writing addressed to **Sisler - Maggard Engineering, PLLC, 220 East Reynolds Road, Suite A3, Lexington, Kentucky 40517** and to be given consideration must be received in writing at least **five days** prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the Specifications which, if issued, will be mailed by certified mail with return receipt requested to all prospective bidders (at the respective addresses furnished for such purposes), not later than three days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under their bid as submitted. All addenda so issued shall become part of the Contract Documents.

Security for Faithful Performance: Simultaneously with their delivery of the executed Contract, the Contractor shall furnish a 100% surety bond or bonds as security for faithful performance of this Contract and for the payment of all persons performing labor on the project under this Contract and furnishing materials in connection with this Contract, as specified in the General Conditions included

herein. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Owner.

- 15.07 Power of Attorney: Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney with Kentucky Resident agent.
- 15.08 Notice of Special Conditions: Attention is particularly called to those parts of the Contract Documents and Specifications which deal with the following:
- a. Inspection and testing of materials.
 - b. Insurance requirements.
 - c. Wage rates - State and Federal – **DO NOT APPLY**
- 15.09 Safety Standards and Accident Prevention: With respect to all work performed under this Contract, the Contractor shall:
- a. Comply with the safety standards provisions of applicable laws, building and construction codes and the “Manual of Accident Prevention in Construction” published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596), and the requirements of Title 29 of the Code of Federal Regulations, Section 1518 as published in the “Federal Register”, Volume 36, No. 75, Saturday, April 17, 1971.
 - b. Exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees) and property.
 - c. Maintain at their office or other well known place at the job site, all articles necessary for giving first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or a doctor’s care of persons (including employees), who may be injured on the job site before the employer has made a standing arrangement for removal of injured persons to a hospital or a doctor’s care.
- 15.10 **Federal and State Prevailing Wage Rates do not** apply to this project.

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

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

ARTICLE 17 – OPENING OF BIDS

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

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.
- 19.02 If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest responsive Bid.
- 19.03 Evaluation of Bids
- A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 20 – BONDS AND INSURANCE

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

ARTICLE 21 – SIGNING OF AGREEMENT

- 21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement (and any bonds and insurance documentation required to be

delivered by the Contract Documents) to Owner. Within ten days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 22 – SALES AND USE TAXES, DO APPLY TO THIS CONTRACT

ARTICLE 23 – CONTRACTS TO BE ASSIGNED (NOT USED)

ARTICLE 24 - WAGE RATE REQUIREMENTS (NOT USED)

- 24.01 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.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

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

has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

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

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed 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 specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

2.05 *Initial Acceptance of Schedules*

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

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

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

3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*
 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

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

B. *Resolving Discrepancies:*

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

3.04 *Requirements of the Contract Documents*

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

3.05 *Reuse of Documents*

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

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

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

4.02 *Starting the Work*

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

4.03 *Reference Points*

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

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
2. abnormal weather conditions;
3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
4. acts of war or terrorism.

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

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

F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

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

5.01 *Availability of Lands*

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

5.02 *Use of Site and Other Areas*

- A. *Limitation on Use of Site and Other Areas:*
 - 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 - 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part

by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

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

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants; or subcontractors, with respect to:
 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

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

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

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

- c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

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

becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings*: The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE**6.01 Performance, Payment, and Other Bonds**

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

6.02 Insurance—General Provisions

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

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

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
1. include at least the specific coverages provided in this Article.
 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

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

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 Supervision and Superintendence

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

7.02 Labor; Working Hours

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

7.03 Services, Materials, and Equipment

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and

guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 "Or Equals"

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 Substitutes

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and

- 2) available engineering, sales, maintenance, repair, and replacement services.
- d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

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

7.08 *Permits*

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

7.09 *Taxes*

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

7.10 *Laws and Regulations*

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

7.11 *Record Documents*

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

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
 - C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
 - D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
 - E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
 - F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
 - G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

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

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or

exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

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

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

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

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

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

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

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

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures:*

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

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.

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

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop

Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 *Coordination*

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

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

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

9.03 *Furnish Data*

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

9.04 *Pay When Due*

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

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

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

9.06 *Insurance*

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

9.07 *Change Orders*

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

9.08 *Inspections, Tests, and Approvals*

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

9.09 *Limitations on Owner's Responsibilities*

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

9.10 *Undisclosed Hazardous Environmental Condition*

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

9.11 *Evidence of Financial Arrangements*

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

9.12 *Safety Programs*

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

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

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

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during

or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

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

10.05 *Shop Drawings, Change Orders and Payments*

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

10.06 *Determinations for Unit Price Work*

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

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

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

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

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

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

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

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

11.02 *Owner-Authorized Changes in the Work*

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

11.03 *Unauthorized Changes in the Work*

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

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on

the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

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

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim

submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

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

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

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable

thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes

other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

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

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

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

D. *Contractor's Fee:* When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

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

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

13.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 2. there is no corresponding adjustment with respect to any other item of Work; and
 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

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

14.01 Access to Work

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

14.02 Tests, Inspections, and Approvals

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

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

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

cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

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

14.04 *Acceptance of Defective Work*

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

14.05 *Uncovering Work*

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

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

14.06 *Owner May Stop the Work*

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

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will

include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

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

15.01 Progress Payments

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

- a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

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

E. *Reductions in Payment by Owner:*

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

remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

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

15.02 *Contractor's Warranty of Title*

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

15.03 *Substantial Completion*

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

- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

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

15.06 *Final Payment*

- A. *Application for Payment:*
 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of

inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 1. correct the defective repairs to the Site or such other adjacent areas;
 2. correct such defective Work;
 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

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

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

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

16.02 *Owner May Terminate for Cause*

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

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

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

16.03 *Owner May Terminate For Convenience*

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

16.04 *Contractor May Stop Work or Terminate*

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

expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

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

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

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

18.03 *Cumulative Remedies*

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

18.04 *Limitation of Damages*

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

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Headings*

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

CERTIFICATE OF OWNER'S ATTORNEY AND AGENCY CONCURRENCE

CERTIFICATE OF OWNER'S ATTORNEY

PROJECT NAME: Big Sandy Water District - Contract No. "H-1"

CONTRACTOR NAME: _____

I, the undersigned, Roger W. Hall, the duly authorized and acting legal representative of Big Sandy Water District, 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 - Roger W. Hall

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.

USDA - Rural Development

Agency Representative

Date

Name - Julie Anderson - RD

Supplementary Conditions

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract Funding Agency Edition (No. C-700, 2013 Edition). All provisions that are not so amended or supplemented, remain in full force and effect.

The terms used in these Supplementary Conditions will have the meanings indicated 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.

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ARTICLE 1 - DEFINITIONS AND TERMS

SC 1.01 Defined Terms

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

The Application for Payment form to be used on this Project is Form RD 1924-18. The Agency must approve all Applications for Payment before payment is made.

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

The Change Order form to be used on this Project is Form 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 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 Project Financing

SC 1.01.A.50 Add the following new Paragraph after Paragraph 1.01.A.49:

The project is financed **the U.S.D.A - Rural Development and the Big Sandy Water District.**

SC 1.02 Terminology

SC-1.02.A.15. Delete in its entirety and replace with the following:

Contract Times: The number of days or date stated in the Agreement to achieve substantial completion, based on remaining work, weather and market conditions.

ARTICLE 2 - PRELIMINARY MATTERS

SC -2.02 Copies of Documents

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

Owner shall furnish to Contractor **four** copies of the Contract Documents (including one fully executed counterpart of the Agreement). Additional printed copies of the conformed Contract Documents will be furnished upon request at the cost of reproduction.

SC 2.03 Before Starting Construction

SC-2.03.A. Delete Paragraph 2.03.A in its entirety and insert the following in its place:

A. The Contract Times will commence on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 10 days after the Effective Date of the Agreement.

ARTICLE 4 - COMMENCEMENT AND PROGRESS OF THE WORK

SC 4.01 - Commencement of Contract Times; Notice to Proceed

SC-4.01. Delete the following sentence from Paragraph 4.01A:

In no event will the Contract Times commence to run later than the **sixtieth** day after the day of Bid opening unless agreed to by all parties.

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;

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

SC 5.03 Subsurface and Physical Conditions

SC-5.03. Delete Paragraphs 5.03.A and 5.03B in their entirety and insert the following:

A. No reports of explorations or tests of subsurface conditions at or adjacent to the Site, or drawings of physical conditions relating to existing surface or subsurface structures at the Site, are known to Owner.

SC 5.05 Underground Facilities

SC-5.05

Add the following new paragraphs immediately after Paragraph 5.05 A.1:

a. Special precautions shall be taken by the Contractor to avoid damage to existing overhead and underground utilities owned and operated by the owner or by public or private utility companies.

b. The available information concerning the location of existing underground utilities is shown on the Drawings. While it is believed that the locations shown are reasonably correct, neither the Engineer nor the Owner can guarantee the accuracy of this information.

c. Before proceeding with the work, the Contractor shall confer with all public or private companies, agencies or departments that own and operate utilities in the vicinity of the construction work. The purpose of the conference, or conferences, shall be to notify said companies, agencies or departments of the proposed construction schedule, verify the location of, and possible interference with, the existing utilities that are shown on the Drawings, arrange for necessary suspension of service, and make arrangements to locate and avoid interference with all utilities (including house connections) that are not shown on the Drawings. The Engineer and Owner have no objection to the Contractor arranging for the said utility companies, agencies or departments to locate and uncover their own utilities; however, the Contractor shall bear the entire responsibility and cost of locating and avoiding, or repairing damage to said existing utilities.

SC 5.06 Hazardous Environmental Conditions

SC-5.06 Delete Paragraphs 5.06A and 5.06B in their entirety and insert the following:

- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.**
- B. Not Used.**

ARTICLE 6 - BONDS AND INSURANCE

SC 6.01 Performance, Payment and Other Bonds

SC-6.01

Add the following new paragraph immediately after Paragraph 6.01.F:

G. The Performance Bond shall remain in full force and effect throughout the Guaranty period referred to in SC 6.03. All warranties and guarantees remaining in effect at and beyond the Guaranty expiration date shall be relinquished and transferred to the Owner. Copies of such warranty/guaranty shall be submitted to the Engineer prior to date of the start of the Guaranty period.

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 6.03 Contractor's Insurance

SC 6.03 Contractor's Liability Insurance - add the following new paragraph immediately after Paragraph 6.03J:

K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amount or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

a. State:	Statutory
b. Federal, if applicable (e.g. Longshoreman's): (e.g., Longshoremen's)	Statutory
c. Employer's Liability	\$500,000
Bodily injury, each accident	\$500,000
Bodily injury by disease, each employee	\$500,000
Bodily injury/disease aggregate	\$500,000

2. Contractor's General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

a. General Aggregate	\$2,000,000
b. Products – Completed Operations Aggregate	\$1,000,000
c. Personal and Advertising Injury	\$1,000,000
d. Each Occurrence (Bodily Injury and property damage)	\$1,000,000
e. General Aggregate	\$5,000,000
f. Each Occurrence	\$2,000,000

3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:

a. Bodily Injury:

Each Person	\$1,000,000
Each Accident	\$1,000,000
b. Property Damage	
Each Accident	\$1,000,000
c. Combined Single Limit of	\$1,000,000
4. Excess or Umbrella Liability:	
a. Per Occurrence	\$1,000,000
b. General Aggregate	\$1,000,000
5. Contractor's Pollution Liability	
a. Each Occurrence	\$1,000,000
b. General Aggregate	\$1,000,000
6. Contractor's Professional Liability	
a. Each Claim	\$1,000,000
b. Annual Aggregate	\$1,000,000

SC 6.05 Property Insurance

Add the following paragraph immediately after Paragraph 6.05.F:

G. The Contractor shall provide INSTALLATION FLOATER INSURANCE when Builder's Risk Insurance is inappropriate, or when Builder's Risk Insurance will not respond, to cover damage or destruction to renovations, repairs, materials, or equipment being installed or otherwise being handled or stored by the Contractor, including off-site storage, transit and installation. The amount of coverage shall provide full replacement value (FRV) of the property, repairs, additions, materials, or equipment being installed, otherwise being handled or stored on or off premises. All risks coverage shall be provided. Coverage cannot be contingent on an external cause or risk, or limited to property for which the Contractor is legally liable. The Contractor will be solely responsible for any deductible carried under this coverage and claims on materials, supplies, machinery, fixture, and equipment that will be incorporated into the Work while in transit or in storage. 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

SC 7.01 Supervision and Superintendence

Add the following new paragraph C after Paragraph 7.01.B:

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C. All General Contractors shall have the authority and be responsible for coordination of the activities among the other prime contractors and subcontractors on the Site to ensure a safe, efficient working environment. This authority covers scheduling delivery of materials, storage of materials, sequencing of construction involving different crafts, resolving interface issues between crafts, scheduling testing, and all other aspects of the Work that do not impact the design or function of the work.

SC 7.02 Labor; Working Hours

SC-7.02.A.1

Add the following new paragraphs immediately after Paragraph 7.02.B:

C. Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services, Owner's representative and construction observation services occasioned by the performance of work on Saturday, Sunday, any legal holiday, or as overtime on any work day. For purposes of administering the foregoing requirement, additional overtime costs are defined as \$75 per hour.

D. The Contractor shall employ workmen skilled in their various duties and shall remove from the project, at the request of the Engineer, any person employed in, about, or upon the work, who misconducts himself or is incompetent or negligent in the performance of the duties assigned to him. No person under the age of eighteen (18) years and no convict labor shall be employed to perform any work under this Contract. No person whose age or physical condition is such as to make his employment dangerous to his health or safety or to the health or safety of others shall be employed to perform any work under this Contract, provided that this shall not operate against the employment of physically handicapped persons, otherwise employable, where such persons may be safely assigned to work which they can ably perform. There shall be no discrimination because of race, creed, color or political affiliation in the employment of persons for work under this Contract.

With respect to additional skilled, semi-skilled workers employed to perform work on the project, preference in employment shall be given first to persons who reside in the city in which the work is to be performed, and second to persons residing in the county in which the work is to be performed.

SC 7.03 Services, Materials and Equipment

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

D. The Contractor agrees that he will obtain from the manufacturers of equipment and materials furnished under this Contract guarantees against defective materials and workmanship, and if those guarantees furnished by the manufacturer do not extend for the term of one (1) year from and after the date upon which the final estimate of the Engineer is formally approved by the Owner or other established date as set forth herein (such as the substantial completion date), he shall make the necessary arrangements and assume all cost for extending this guarantee for the required period.

SC 7.04 "Or Equals"

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.1.a.4 in its entirety and insert the following in its place:

[Deleted]

SC 7.06 Concerning Subcontractors, Suppliers and Others

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".

Delete Paragraph 7.06.F in its entirety.

SC-7.06 Add a new paragraph immediately after Paragraph 7.06.O:

P. The Contractor shall not award work valued at more than (50%) percent of the Contract Price to Subcontractor(s), without prior written approval of the Owner.

SC 7.08 Permits

Delete Paragraph 7.08.A in its entirety and insert the following in its place.

Owner shall obtain and pay for all construction permits, including building permits. Contractor is responsible for all utility permits and fees for usage during the construction period. Contractor is responsible for any electrical, plumbing and/or building inspections and fees which may be required.

SC 7.16 Shop Drawings, Samples and Other Submittals

Add the following new paragraphs immediately after Paragraph 7.16D.8:

9. CONTRACTOR shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the ENGINEER'S approval thereof.

10. ENGINEER'S review of submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instruction for installation or performance of equipment of systems, all of which remain the responsibility of the Contractor as required by the Contract Documents.

11. ENGINEER'S review and approval of Shop Drawings or Samples do not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER'S attention to each such variation at the time of each submittal as required by 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 approval, or has issued a Change Order that authorizes the deviation.

ARTICLE 10 - ENGINEER'S STATUS DURING CONSTRUCTION

SC 10.03 Project Representative

SC-10.03

The Engineer will provide Resident Project Representative Services for this project. The Duties, Responsibilities, and Limitations of Authority of the Resident Project Representative will be as stated in Exhibit D of the Agreement Between Owner and Engineer, E-510, 2002 Edition, as amended and executed for this specific project. Owner or Engineer will make available upon request.

ARTICLE 11 - AMENDING THE CONTRACT DOCUMENTS: CHANGES IN THE WORK

SC 11.07 Execution of Change Orders

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.

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

SC 13.02 Allowances

SC 13.02.C Delete Paragraph 13.02.C in its entirety and insert the following in its place:

[Deleted]

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

SC 14.03 Defective Work

SC-14.03

Add the following new paragraph immediately after Paragraph 14.03.D:

1. When the repairs or replacements involve one or more items of installed equipment, Contractor shall provide the services of qualified factory-trained servicemen in the employ of the equipment manufacturers to perform or supervise the repairs or replacements.

SC 14.07 Owner May Correct Defective Work

SC-14.07

Add the following new paragraph immediately after Paragraph 14.07.D:

E. When the Engineer or the Owner deems it necessary, and so orders, such replacements or repairs under this section shall be undertaken by the Contractor within twenty-four (24) hours after service of notice. If the Contractor unnecessarily delays or fails to make the ordered replacements or repairs within the time specified, or if any replacements or repairs within the time specified, or if any replacements or repairs are of such nature as not to admit /of the delay incident to the service of notice, then the Owner shall have the right to make such replacements or repairs and the expense thereof shall be paid by the Contractor or deducted from any moneys due to Contractor.

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

SC 15.01 Progress Payments

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:
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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

Add the following new paragraph immediately after 15.01 D.1

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 14.02.D will become due thirty days after the Application for Payment is presented to the Owner, and the Owner will make payment to the Contractor.

SC 15.02 Contractor's Warranty of Title

SC 15.02.A Amend Paragraph 15.02.A by striking out the following text:

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“no later than seven days after the time of payment by Owner” and insert “no later than the time of payment by Owner.”

ARTICLE 18 - MISCELLANEOUS

SC-18.09 Add the following new paragraph:

A. If this Contract exceeds \$100,000, the Contractor shall comply with all applicable standards, orders, or requirements issued under Section 306 of the Clean Air Act (42 USC §1857(h)), Section 508 of the Clean Water Act (33 USC §1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR Part 15).

SC-18.10 Add the following new paragraph:

A. If the Contractor shall fail or refuse to complete the work within the Contract Time, or extension of time granted by the Owner, then the Contractor agrees as a partial consideration for the awarding of this Contract that the Owner may retain from the compensation otherwise to be paid to the Contractor the amount specified below, not as a penalty but as liquidated damages, for each and every calendar day that the Contractor shall be in default after the time stipulated in the Contract Documents.

SC-18.11 Add the following new paragraph:

18.11 Disruption of water or wastewater operations

A. The Contractor shall take all necessary precautions to minimize the disruption in water and/or wastewater system operations. When a disruption in the operations is required, the Contractor shall coordinate in advance (5 days minimum) the interruption with the Engineer and the Owner; the interruptions shall be held to a minimum by wise and prudent coordination of Contractor work efforts. The Contractor shall be held responsible for all damages brought about by disruption of the operations if such disruptions are a direct cause of Contractor negligence and or a failure of the Contractor to coordinate his work effort with the Engineer and Owner.

SC 18.12 Add the following new paragraph after Paragraph 18.11:

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.

ARTICLE 19 - FEDERAL REQUIREMENTS

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”: *RUS Bulletin 1780-26 Exhibit H Page 5*

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 RUS Bulletin 1780-26 Exhibit H Page 6 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.”
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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:
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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

SECTION 4

SPECIAL CONDITIONS

SECTION 4 - SPECIAL CONDITIONS

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(Stream Crossing Replacements, Service Line Replacements, etc.)**

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SPECIAL CONDITIONS
CONTRACT "H-1" – WATER SYSTEM IMPROVEMENTS
 (Stream Crossing Replacements, Service line Replacements, etc.)

1. Contract Change Order - All changes which affect the cost of the construction of the project must be authorized by means of a CONTRACT CHANGE ORDER. The CONTRACT CHANGE ORDER will include extra work, work for which quantities have been altered from those shown in the bidding schedule, as well as decreases or increases in the quantities of installed units which are different than those shown in the bidding schedule because of final measurements. All changes should be recorded on a CONTRACT CHANGE ORDER as they occur so that they may be included in the partial payment estimate.
2. Pre-Construction Conference - Following award of the CONTRACT, the CONTRACTOR will be required to attend a Pre-Construction Conference with OWNER & ENGINEER, during which items pertinent to performance and management of the project, will be thoroughly discussed and documented.
3. Equal Opportunity - If this contract exceeds \$10,000 the CONTRACTOR is subject to provisions of the equal opportunity requirements set forth in the Supplemental General Conditions, included herein with forms.
4. Labor Regulations - The CONTRACTOR and each of his subcontractors shall comply with the following statutes (and with regulations issued pursuant thereto which are incorporated herein by reference):

Title 18 U.S.C., Section 876: Kickback from public works employees. Whoever, by force, intimidation, or threat of procuring dismissal from employment, or by any other manner whatsoever induces any person employed in the construction, prosecution, completion or repair of any public building, public work, or building or work financed in whole or in part by loans (made, insured, or guaranteed) or grants from the United States, to give up any part of the compensation to which he is entitled under his contract of employment, shall be fined not more than \$5,000 or imprisoned not more than five years, or both.

Title 40 U.S.C., Section 276c: Regulations Governing Contractors and Subcontractors. The Secretary of Labor shall make reasonable regulations for Contractors and Subcontractors engaged in the construction, prosecution, completion or repair of public buildings, public works, or buildings or work financed in whole or in part by loans (made, insured, or guaranteed) or grant from the United States, including a provision that each Contractor and Subcontractor shall furnish weekly a statement with respect to the wages paid each employee during the preceding week. The OWNER shall report all suspected or reported violations to the funding agencies.

5. Protection of Lives and Property - In order to protect the lives and health of his employees under the CONTRACT, the CONTRACTOR shall comply with all pertinent provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc., and shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment or work under the CONTRACT.

The CONTRACTOR alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods, and for any damage which may result from their failure or their improper construction, maintenance or operation.

6. Conflict of Interest - No member of or delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this CONTRACT or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this CONTRACT if made with a corporation for its general benefit.

No official of the OWNER who is authorized in such capacity and on behalf of the OWNER to negotiate, make, accept or approve, or to take part in negotiating, construction or material supply contract or any subcontract in connection with the construction of the project, shall become directly or indirectly interested personally in the CONTRACT or in any part thereof. No officer, employee, architect, attorney, engineer, or inspector of or for the OWNER who is authorized in such capacity and on behalf of the OWNER who is in any legislative, executive, supervisory, or other similar functions in connection with the construction of the project, shall become directly or indirectly interested personally in this CONTRACT or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the project.

7. Partial Payments - Partial Payment estimate forms prepared by the ENGINEER shall be used when estimating periodic payments due the CONTRACTOR.

Computation of quantities that will be the basis for payment estimates, both monthly and final, will be made by the ENGINEER. All payment estimates may be checked and approved by the funding agencies before payment.

Where the computation of areas or volumes by exact geometric methods is unduly laborious or refined, the planimeter shall be held an instrument of precision and may be used in the determination of quantities upon which payments are based.

The measurements of the ENGINEER as to the amount of work done shall be final and conclusive.

Payments shall be made upon the work done within the lines prescribed by the drawings or specifications and in accordance with the unit prices for the items under which the work is done.

To insure the proper performance of the Contract, the OWNER shall retain an amount of each estimate as specified in the General Conditions and/or Supplemental General Conditions.

8. Withholding Payments - The OWNER may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any approved partial payment estimate to such extent as may be necessary to protect the OWNER from loss on account of:

- (a) Defective work not remedied.
- (b) Claims filed or reasonable evidence indicating probable filing of claims.
- (c) Failure of CONTRACTOR to make payments properly to Subcontractors or for material or labor.
- (d) A reasonable doubt that the work can be completed for the balance then unpaid.
- (e) Damage to another CONTRACTOR or the OWNER'S facilities.
- (f) Performance of work in violation of the terms of the CONTRACT DOCUMENTS.
- (g) Where work on unit price items are substantially complete but lack cleanup and/or corrections ordered by the ENGINEER, amounts shall be deducted from unit prices in partial payment estimates to amply cover such clean-up and/or corrections.

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

9. Sanitary Facilities - All necessary temporary sanitary facilities shall be provided for by the Prime

Contractor(s) and shall meet with current requirements of the State Environmental Protection Agency. After the completion of the work, all temporary sanitary facilities shall be properly disposed of by the Prime Contractor(s).

10. Final Inspection - Final inspection of the work shall be made for the OWNER by the ENGINEER in collaboration with the Representatives for the funding agencies. Such inspection shall be made as soon as practicable after the CONTRACTOR has notified the OWNER in writing that the work is ready for such inspection.
11. Project Signs – Contract “H-1” – Water System Improvements (Stream Crossing Replacements, Service Line Replacements, etc.) shall furnish signs as set out in Section 01580 of this Technical Specifications. Location is to be determined by the Engineer at Pre-Construction Conference.
12. Conflicting Requirements - Should conflicting conditions exist within the Specifications, Contract Documents, or Construction Drawings, priorities shall be established as follows:
 - a) Written Contract
 - b) Written Proposal
 - c) Advertisement for Bids
 - d) Instruction to Bidders
 - e) Special Conditions
 - f) General Conditions
 - g) Written Technical Specifications
 - h) Standard Details
 - i) Large Scale Details on Drawings
 - j) General Arrangement Details on Drawings
13. Owner's Right to Award - The OWNER shall retain the right to award or not award any or all of the Contracts covered by these Contract Documents and Specifications.
14. Owner's Right to Increase or Decrease Units - The OWNER shall retain the right to increase or decrease or eliminate up to 20% of any of the units listed in the BID submitted by the CONTRACTOR as may be required to complete the work at any time concurrent with or following the award of the Contract.

Unit prices previously approved in original bid are acceptable for pricing changes of original bid items. However, when changes in quantities exceed 20 percent of the original bid quantity and the total dollar change of that bid item is significant, the unit price may be reviewed by the OWNER to determine if a new unit price should be negotiated for added work performed after the original contract completion date.
15. Workmen's Compensation and Insurance - Workmen's Compensation: As required by State Statutes - See Supplementary Conditions
 - a) Public Liability and Property Damage Including Vehicular Liability: As listed in General Conditions and Supplementary Conditions.
 - b) Builder's Risk or Installation Floater: Full amount of Contract Price.
16. Wage Rates - All Contractors for this project **DO NOT HAVE TO** comply with **Federal or State codes** as they apply to wages and hours - public works projects.
17. Access to Records - Representatives of the funding agencies and the State D.O.W. shall have access

to work whenever it is in preparation or progress. The Comptroller General of the United States, or any authorized representative, shall have access to any books, documents, papers, and records which are pertinent to the project for the purpose of making audit, examination, excerpts, and transcriptions thereof.

18. Time of Completion and Liquidated Damages –

Contract “H-1” – Water System Improvements (Stream Crossing Replacements, Service Line Replacements, etc.) shall be completed within 180 calendar days from date of Notice to Proceed.

Liquidated Damages shall be \$500.00 for each calendar day any Contract remains incomplete after the Time of Contract Completion.

19. Contractor's Obligations - The Contractor shall and will, in good workmanlike manner, do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all the work required by this contract, within the time herein specified, in accordance with the provisions of this Contract and said Specifications and in accordance with the plans and drawings covered by this Contract and any and all supplemental plans and drawings, and in accordance with the directions of the ENGINEER as given from time to time during the progress of the work. He shall furnish, erect, maintain, and remove such construction plants and such temporary works as may be required. The CONTRACTOR shall observe, comply with, and be subject to all the terms, conditions, requirements, and limitations of the Contract and Specifications, and shall do, carry on, and complete the entire work to the satisfaction of the ENGINEER and the OWNER.
20. Quantities of Estimate - Whenever 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, 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.
21. Liens - Neither the final payment nor any part of the retained percentage shall become due until the Contractor, if required, shall deliver to the OWNER, a complete release of all liens arising out of this Contract or receipt in full in lien thereof, and if required in either case, an affidavit that insofar as he has knowledge or information, the releases and receipts include all the labor and materials for which a lien could be filed; but the Contractor may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Owner to indemnify him against any lien. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the OWNER all monies that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.
22. Work Reasonably Inferred But Not Particularly Delineated or Specified - The Contractor shall make a thorough examination of the site and study all drawings and specifications and all conditions relating to the erection of the work, and if any materials or labor are evidently necessary for the proper and complete execution of the work which are not specifically mentioned and included in the drawings and specifications, although reasonably inferred therefrom, unless eliminated by special mention, or if any error or inconsistency appears therein, or in the event of any doubts arising as to the true intent and meaning of the drawings or specifications, he shall report it to the ENGINEER at least five (5) days in advance of receiving the proposals. The ENGINEER will then issue an addendum containing the proper information to all Contractors not later than three (3) days prior to the time for opening of bids, to assure fair competition.

In case the Contractor fails to make such report and the ENGINEER is not otherwise advised of such doubtful matters, the Contractor is hereby made responsible for the furnishing of the necessary labor and material reasonably inferred for any additional work involved in the correction of apparent errors or inconsistencies and in executing the true intent and meaning of the drawings and specifications as interpreted by the ENGINEER, and all such labor and material shall be provided at the Contractor's expense and under no condition will any such labor and material be allowed as an extra.

23. Limit of Liability of Owner to Contractor for Delays, Extra Cost and Damage - If, through no wrongful act or neglect of the OWNER, the Contractor is delayed, stopped, or caused extra cost or damage by injunction, court orders, judgment, or requirements of some other authority or acts beyond the control of the OWNER, he shall not be liable to the Contractor except for extension of time and payments only as reflected in application of quantities, prices, and extra work set forth in these specifications and contract. If sufficient work is otherwise available for application of Contractor's forces, the Owner will not be required to grant extension of time.
24. Requirements for Highway and Railroad Crossings and Rights-of-Way - The specifications herein concerning trenching, pipe laying, jacket pipe crossings, backfilling, maintenance during construction, protection of public, maintaining traffic, tunneling, and re-paving are subject to revision to conform to such requirements as set forth by highway and railroad specifications and such crossings and rights-of-way.
25. Delays and Cost Due to Errors and/or Changes in Lines and Grades - When the OWNER'S engineering forces make errors or changes in lines and grades that cause items of construction to be removed and replaced, the extra cost of such removal and replacement over that of correct construction shall be chargeable as an extra per terms of Article 12 of the General Conditions.

Where the Contractor's forces are delayed only due to ENGINEER'S errors or changes in not more than five in fifty cases of location of points on the whole project, errors and changes will not be above normal to be expected in the execution of the work, and no claims for extra cost due to such delay will be granted. Layout work is considered a normal portion of a construction operation in which it is considered impractical to prevent delays of some of the required labor and equipment while others are performing their portion of the operation. Excessive delay due to such causes shall be chargeable as extra work per terms of Article 12 of the General Conditions. However, to be allowable, time, labor, and equipment delayed must be reported to and approved by the ENGINEER within 24 hours. Labor and equipment must have been applied at the time of stoppage and could not have been applied to other incomplete work during the stoppage.

26. Licenses and Permits - The Owner will secure and pay for permits required for permanent structures and State Highway Encroachment Bonds. The Contractor shall obtain and pay for all other necessary licenses and permits and shall faithfully comply with all laws, ordinances and regulations, Federal, State, or local, which may be applicable to the operations to be conducted hereunder.
27. Conflict With or Damage to Existing Utilities - Insofar as location data is available to the ENGINEER, existing underground utilities (such as water lines, sewer lines, natural gas lines, and underground telephone and electrical conduits) are located on the drawings. However, due to the approximate nature of such data and information, the locations of any particular utility cannot be certified as being correct. In general, locations and elevations are approximate only. The Contractor shall obtain the services of representatives of each of the utilities involved during construction to assist in the location of existing utilities. Lines and grades of lines have been established to minimize interference with utilities as far as possible. However, it shall be the

responsibility of the Contractor to determine any relocations necessary for his performance of the contract, and to pay any fees associated therewith, with no additional cost or liabilities to the OWNER.

28. Shop or Setting Drawings - See Section 01300 of Technical Specifications for further detail. Submittals **must** meet all submittal requirements set out therein or they will be returned to Contractor.
29. Work Hours Beyond Regular Hours - The Contractor shall notify the ENGINEER in writing of any scheduled work beyond regular and normal working hours at least 48 hours in advance of the work. Work performed after regular working hours and without notice to the ENGINEER, shall be considered not in conformance with the Plans and Specifications and may be removed or not paid for.
30. Excavation - All excavation shall be considered unclassified. **Rock excavation is not a separate pay item**, and shall not be cause for claim of additional compensation due to the Contractor.
31. Air and Water Acts - If the contract exceeds \$100,000 the Contractor agrees to comply with all the requirements of Section 114 of the Air Act (41 U.S.C., Section 1857 C-9) and Section 308 of the Water Act (33 U.S.C., Section 1318) relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in Section 114 of the Air Act and Section 308 of the Water Act and all regulations (40CFR 15.4) and guidelines issued thereunder after the award of the contract. In so doing, the Contractor further agrees to:
- a) As a condition for the Award of Contract, to notify the OWNER of the receipt of any communication from the Environmental Protection Agency (EPA) indicating that a facility to be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities. Prompt notification is required prior to contract award.
 - b) The Contractor will include, or cause to be included, the above criteria and requirements in every nonexempt subcontract and that he will take such action as the Government may direct as a means of enforcing such provisions.
 - c) To certify that any facility to be utilized in the performance of any nonexempt contractor is not listed on the EPA List of Violating Facilities pursuant to 40 CFR 15.20 as of the date of contract award.
32. Subcontracting - The following is in addition to and in conjunction with Article 6 of the General Conditions.

Prior to the execution and delivery of the Agreement, the successful Bidder will submit to the OWNER and the ENGINEER for acceptance a list of the names of Subcontractors and such other persons and organizations (including those who are to furnish materials or equipment fabricated to a special design) proposed for those portions of the Work as to which the identity of the Subcontractors and other persons and organizations must be submitted as specified in the Contract Documents. Prior to the execution and delivery of the Agreement, the ENGINEER will notify the successful Bidder in writing if either the OWNER or the ENGINEER, after due investigation, has reasonable objection to any Subcontractor, person or organization on such list. The failure of the OWNER or the ENGINEER to make objection to any Subcontractor, person or organization on the list prior to the execution and delivery of the Agreement shall constitute an acceptance of such Subcontractor, person or organization. Acceptance of any such Subcontractor, person or organization shall not constitute a waiver of any right of the OWNER or the ENGINEER to reject defective Work, material or equipment, not in conformance with the requirements of the Contract Documents.

If, prior to the execution and delivery of the Agreement, the OWNER or the ENGINEER has reasonable objection to and refuses to accept any Subcontractor, person or organization on such list, the successful Bidder may, prior to such execution and delivery, either (a) submit an acceptable substitute without an increase in his Bid Price or (b) withdraw his Bid and forfeit his Bid security. If, after the execution and delivery of the Agreement, the OWNER or the ENGINEER refuses to accept any Subcontractor, person or organization on such list, the CONTRACTOR will submit an acceptable substitute and the Contract Price shall be increased or decreased by the difference in cost occasioned by such substitution and appropriate Change Order shall be issued; however, no such increase in the Contract Price shall be allowed in respect of any substitutions unless the CONTRACTOR has acted promptly and reasonably in submitting a name with respect thereto prior to the execution and delivery of the Agreement.

The CONTRACTOR will not employ any Subcontractor (whether initially or as a substitute) against whom the OWNER or the ENGINEER may have reasonable objection, nor will the CONTRACTOR be required to employ any Subcontractor against whom he has reasonable objection. The CONTRACTOR will not make any substitution for any Subcontractor who has been accepted by the OWNER and the ENGINEER, unless the ENGINEER determines that there is good cause for doing so.

The divisions and sections of the Specifications and the identifications of any drawings shall not control the Contractor in dividing the Work among Subcontractors or delineating the Work to be performed by any trade.

The CONTRACTOR agrees to specifically bind every Subcontractor to all of the applicable terms and conditions of the Contract Documents. Every Subcontractor, by undertaking to perform any of the Work, will thereby automatically be deemed to be bound by such terms and conditions.

All Work performed for the CONTRACTOR by a Subcontractor shall be pursuant to an appropriate agreement between the CONTRACTOR and the Subcontractor which shall contain provisions that waive all rights the contracting parties may have against one another for damages caused by fire or other perils covered by insurance provided in accordance with the General Conditions; except such rights as they may have to the proceeds of such insurance held by the OWNER as trustee under the General Conditions. The CONTRACTOR will pay each Subcontractor a just share of any insurance moneys received by the CONTRACTOR under the General Conditions.

33. Materials, Equipment and Labor; Substitute Material or Equipment - The following is in addition to and in conjunction with Article 6 of the General Conditions.

All materials and equipment will be new. If required by the ENGINEER, the CONTRACTOR will furnish satisfactory evidence as to the kind and quality of materials and equipment.

If it is indicated in the Specifications that the CONTRACTOR may furnish or use a substitute that is equal to any material or equipment specified, and if the CONTRACTOR wishes to furnish or use a proposed substitute, he will, promptly after the award of the contract, make written application to the ENGINEER for approval of such a substitute certifying in writing that the proposed substitute will perform adequately the duties imposed by the general design, be similar and of equal substance to that specified by the general design, be similar and of equal substance to that specified and be suited to the same use and capable of performing the same function as that specified. No substitute shall be ordered or installed without the written approval of the ENGINEER who shall be the judge of equality.

34. Availability of Lands, Physical and Subsurface Conditions; Reference Points - The following is in addition to and in conjunction with Article 4 of the General Conditions.

The OWNER will provide, as indicated in the Contract Documents and not later than the date when needed by the CONTRACTOR, the lands upon which the Work is to be done, rights-of-way for access thereto, and such other lands which are designated for the use of the CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be secured and paid for by the OWNER, unless otherwise specified in the Contract Documents. If the CONTRACTOR believes that any delay in the OWNER'S furnishing these lands or providing such easements entitles him to an extension of the Contract Time, he may make a claim therefore as provided in the General Conditions. The CONTRACTOR will provide all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

The OWNER will, upon request, furnish to the CONTRACTOR copies of all available boundary surveys and subsurface tests.

The CONTRACTOR will promptly notify the OWNER and ENGINEER in writing of any subsurface or latent physical conditions at the site differing materially from those indicated in the Contract Documents. The ENGINEER will promptly investigate those conditions and advise the OWNER in writing if further surveys or subsurface tests are necessary. Promptly thereafter, the OWNER will obtain the necessary additional surveys and tests and furnish copies to the ENGINEER and the CONTRACTOR. If the ENGINEER finds that the results of such surveys or tests indicate subsurface or latent physical conditions differing significantly from those indicated in the Contract Documents, a Change Order shall be issued incorporating the necessary revisions.

The OWNER will establish such general reference points as in his judgment will enable the CONTRACTOR to proceed with the Work. The CONTRACTOR will be responsible for the layout of the Work and will protect and preserve the established reference points and will make no changes or relocations without the prior written approval of the OWNER. He will report to the ENGINEER whenever any reference point is lost or destroyed or requires relocation because of

necessary changes in grades or locations. The CONTRACTOR will replace and accurately relocate all reference points so lost, destroyed or moved.

35. Substantial Completion - Prior to final payment, the CONTRACTOR shall, in writing to the OWNER and the ENGINEER, certify that the entire Project is substantially complete and request that the ENGINEER issue a certificate of Substantial Completion. Within a reasonable time thereafter, the OWNER, CONTRACTOR AND ENGINEER will make an inspection of the Project to determine the status of completion. If the ENGINEER considers the Project substantially complete, he will prepare and deliver to the OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion and the responsibilities between the OWNER and the CONTRACTOR for maintenance, heat and utilities. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment, and the certificate shall fix the time within which such items shall be completed or corrected, said time to be within the Contract Time. The OWNER shall have seven days after receipt of the tentative certificate during which he shall make written objection to the ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, the ENGINEER concludes that the Project is not substantially complete, he shall notify the CONTRACTOR in writing, stating his reasons therefore. If, after said seven days and after consideration of the OWNER'S objections, the ENGINEER considers the Project substantially complete, he will execute and deliver to the OWNER and the CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such

changes from the tentative certificate as he believes justified after consideration of any objections from the OWNER.

The OWNER shall have the right to exclude the CONTRACTOR from the Project after the date of Substantial Completion, but the OWNER may allow the CONTRACTOR reasonable access to complete or correct items on the tentative list.

36. Cleaning Up - The CONTRACTOR will keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work, and at the completion of the Work he will remove all waste materials, rubbish and debris from and about the premises as well as tools, construction equipment and machinery, and surplus materials, and will leave the site clean and ready for occupancy by the OWNER. The CONTRACTOR will restore to their original condition those portions of the site not designated for alteration by the Contract Documents. Also see paragraph 7 of these Special Conditions pertaining to clean-up.
37. Miscellaneous - Whenever any provisions of the Contract Documents requires the giving of written notice it shall be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to him who gives the notice.

The duties and obligations imposed by the General Conditions and the rights and remedies available hereunder, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon the CONTRACTOR and the rights and remedies available to the OWNER and ENGINEER thereunder, shall be in addition to and not a limitation of any otherwise imposed or available by law, by special guarantee or other provisions of the Contract Documents.

Should the OWNER or the CONTRACTOR suffer injury or damage to its person or property because of any error, omission or act of the other or of any of his employees or agents or others for whose acts he is legally liable, claim shall be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The Contract Documents shall be governed by the law of the place of the Project.

38. Safety and Health Regulations - The Contractor shall comply with the Department of Labor Safety and Health Act of 1970 (P.L. 91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (P.L. 91-54).
39. Siltation and Soil Erosion - The Contractor shall make every effort possible to assure a minimum amount of siltation and erosion will occur on the job site during construction.
40. Permanent Reference Points, Bench Marks, and Property Markers - The CONTRACTOR alone will be responsible for the protection and preservation of all permanent reference points, permanent bench marks, property corners, and property line points. The CONTRACTOR will make no changes or relocations without the written approval from the OWNER. The CONTRACTOR will report to the ENGINEER whenever any reference point, etc., is lost, damaged or destroyed or requires relocation and/or establishment of temporary points for relocation of said permanent point. The CONTRACTOR will have a registered land surveyor replace and accurately relocate all permanent points so lost, damaged, destroyed, or moved. The re-establishment of any said point shall be considered incidental to the cost of construction and therefore at no additional cost to the OWNER.
41. Existing Utilities - Also see Technical Specifications, Section 02220.
Special precautions shall be taken by the Contractor to avoid damage to existing overhead and

underground utilities owned and operated by the Owner or by public or private utility companies. The available information concerning the location of existing underground utilities is shown on the Drawings. While it is believed that the locations shown are reasonably correct, neither the Engineer nor the Owner can guarantee the accuracy or adequacy of this information.

Before proceeding with the Work, the Contractor shall confer with all public or private companies, agencies, or departments that own and operate utilities in the vicinity of the Construction Work. The purpose of the conference, or conferences, shall be to notify said companies, agencies, or departments of the proposed construction schedule, verify the location of and possible interference with the existing utilities that are shown on the Drawings, arrange for necessary suspension of service, and make arrangements to locate and avoid interference with all utilities (including house connections) that are not shown on the Drawings. The Engineer and Owner have no objection to the Contractor arranging for the said utility companies, agencies, or departments to locate and uncover their own utilities; however, the Contractor shall bear the entire responsibility and cost for locating and avoiding, or repairing damage to said existing utilities.

Where existing utilities or appurtenant structures, either underground or above-ground, are encountered, they shall not be displaced or disturbed unless necessary, and in such case shall be replaced in as good or better condition than found as quickly as possible. Relocation and/or replacement of all utilities and appurtenant structures to accommodate the construction work shall be at the Contractor's expense, unless such relocation and/or replacement is by statute or agreement the responsibility of the owner of the utility.

Where a sewer line is to be installed within 18 inches vertically or 10 feet horizontally of a water line, that section of the sewer line shall be encased in concrete, according to the requirements of Paragraph 3.10 B, Section 02700.

A list of the utility companies which service the project area are on the cover sheet of the drawings. The utilities are not limited to those on said list.

42. Coordination - All Contractors are advised that various Contracts will be awarded simultaneously with their Contracts. It is imperative that the various Contractors coordinate its activities and cooperate with the other Contractors to assure expedient completion of the Project. Any conflicts should be brought to the attention of the Engineer.
43. Care of Shrubbery - 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 of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.
44. Water for Testing and Disinfecting Purposes - Where water is required for flushing of testing and flushing sewer lines, the Contractor shall be responsible for all costs of said water. In the case where test water is to be purchased, the Contractor shall arrange for the purchase and shall pay all costs associated with the purchase including tap fee if applicable.
45. **USDA Rus-KY Bulletin 1780-2 Guidance for Implementation of American Iron & Steel (AIS) - 21 Pages and Exhibits**

UNITED STATES DEPARTMENT OF AGRICULTURE
Rural Utilities Service
KENTUCKY BULLETIN 1780-2

SUBJECT: Guidance for Implementation of American Iron and Steel (AIS).

TO: Applicants, Consulting Engineers, Contractors, and Manufacturers

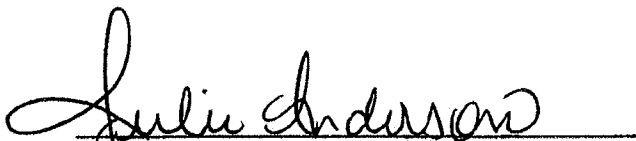
EFFECTIVE DATE: Date of approval.

INSTRUCTIONS: This is a new Bulletin and does not replace any existing Kentucky Bulletin.

AVAILABILITY: This Bulletin, as well as any RD or RUS instructions, regulations, or forms referenced in this Bulletin are available at any RD State Office or Area Office. The State Office staff is familiar with the use of the documents and can answer specific questions or RD requirements.

The basic concept of this new requirement is that all iron and steel products used in projects funded by RUS WEP must be produced in the United States. Iron and steel products are defined on page 14 of this Bulletin.

PURPOSE: This Bulletin provides information and guidance to effected parties regarding the AIS Requirements mandated by Section 746 of Title VII Consolidated Appropriations Act of 2017 (Division A-Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statues mandating domestic preference.



Julie Anderson
State Engineer
Water and Environmental Programs

April 13th, 2018
Date

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1. BACKGROUND

- A. Section 746 of Title VII Consolidated Appropriations Act of 2017 (Division A- Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes mandating domestic preference. It applies a new American Iron and Steel (AIS) requirement on the Rural Development (RD) WEP program.
- B. Statutory Language: SEC 746 Division A Title VII the Consolidated Appropriations Act of 2017.
(1) No Federal funds made available for this fiscal year for the rural water, waste water, waste disposal, and solid waste management programs authorized by sections 306, 306A, 306C, 306D, and 310B of the Consolidated Farm and Rural Development Act (7 USC 1926 et seq.) shall be used for a project for the construction, alteration, maintenance, or repair of a public water or wastewater system unless all of the iron and steel products used in the project are produced in the United States.
(2) In this section, the term "iron and steel products" means the following products made primarily of iron or steel: lined or unlined pipe flanges, manhole covers, and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.

2. APPLICABILITY

- A. The requirements of AIS apply only to projects that construct, alter, enlarge, extend, maintain, repair or otherwise improve rural water, sanitary sewage, solid waste disposal, and storm wastewater disposal facilities.
- B. The requirements apply to projects using funds from RD WEP. Any amount of funding from this program requires compliance with the AIS requirements. Use of funds from this program is not allowed unless the requirements for AIS are met for the entire project. Projects that leverage funds from other funding sources are also subject to the requirements.
- C. The requirements apply in the United States as defined in Section 746 (g) of the statute and therefore do not apply to projects located in Puerto Rico, the Virgin Islands, or Western Pacific Territories.
- D. The requirements apply to any used iron and steel products to be constructed in the project.
- E. The requirements do not apply to projects for which any funds were obligated on or before May 5, 2017. The requirements therefore do not apply to subsequent obligation of funds for projects which had an initial obligation of funds on or before May 5, 2017.
- F. The requirements do not apply to contracts which were executed prior to or on May 5, 2017, regardless of date of obligation.

- G. The requirements do not apply to projects for which contracts were executed and/or construction is already underway and/or completed prior to applying to USDA for funding.
 - H. The requirements do not apply to products primarily composed of iron and/or steel (composed of more than 50%) if they are not listed in the statute.
 - I. The requirements do not apply to raw materials used in the production of iron or steel such as iron ore, limestone, scrap iron and scrap steel.
 - J. The requirements do not apply to any items that are at the construction site temporarily, such as scaffolding, trench boxes, and equipment temporarily used or stored on site.
 - K. The requirements do not apply when the sole purpose of the loan and/or grant is to fund non-construction activities such as capacity/connection fees or the acquisition of a system.
 - L. The requirements supersede any regulation on full and open competition stated in 7 CFR 1780.70 (b) and 2 CFR Part 200.319. For example, if an iron and steel product that is compliant with AIS is made by only one manufacturer, provided documentation is submitted and verified, sole source procurement of said product may be used.
 - M. The requirements only apply to the final product as delivered to the work site and incorporated into the project. The need for compliance of an item with AIS depends on whether or not the final assembled product is listed. Components of a final product, even if they are listed, do not need to comply with the AIS requirements. In the case of an assembled product where the primary component is not listed in the 2017 Consolidated Appropriations Act and includes components/appurtenances that are specifically listed, said assembled product is not subject to AIS (e.g. pump assembly).
3. IMPLEMENTATION (Agency, Owner, Engineer, Contractor, manufacturer's et al)
- A. There are several parties involved in compliance with the AIS requirement and some requirements are specific to a party.
 - B. The parties that have one or more responsibilities under AIS include: the Agency funding recipients under the Water and Waste Disposal Loan and Grant program and Guaranteed Loan Program, consulting engineers, construction contractors, suppliers, distributors, manufacturers; lenders under the Guaranteed Loan Program; and grantees under 306C and ECWAG programs.

4. OWNER RESPONSIBILITIES:

- A. Sign loan resolutions, grant agreements and letters of intent to meet conditions which include AIS language, accepting AIS requirements in those documents and in the letter of conditions.
- B. Sign Agreement for Engineering Services, executed construction contracts and all other appropriate and necessary documents which include AIS language.
- C. Acknowledge responsibility for compliance with AIS requirements by signing change orders (i.e. C-941 of EJCDC or RD Form 1924-7) and partial payment estimates (i.e. C-602 of EJCDC or RD Form 1924-18).
- D. Obtain the certification letters from the Engineer once substantial completion has been achieved and maintain this documentation for the life of the loan.
- E. In special cases where the Owner provides its' own engineering and/or construction services, provide copies of Engineer's Certification Letter (Exhibit B) and Contractor's Certification Letter (Exhibit C) to the Agency. Manufacturer's Certification Letter (Exhibit D) must be obtained by the Owner for each AIS qualifying product. All certification letters must be kept in the Engineer's project file and on site during construction. For Owner Construction (Force Account), all AIS clauses from Section 11 must be included in the Agreement for Engineering Services.

5. ENGINEER RESPONSIBILITIES

- A. Costs of compliance with AIS should be included in the engineering fees (if appropriate) and in Engineer's opinions of probable project costs.
- B. Develop the initial AIS Materials List (Exhibit J) for each contract using project specifications and include the initial qualifying list with the bid documents. An excel version that will compute all totals can be obtained from the RD State Office that can be used as a working copy.
- C. Include AIS language (Section 11) in the Agreement for Engineering Services.
- D. Plans, specifications, bidding documents and bid addenda must include required AIS language (Section 12). For any AIS products specified by brand names, obtain a Manufacturer's Certification Letter (Exhibit D) from the manufacturer to verify the products comply with AIS.
- E. Certify that plans, specifications, and bidding documents comply with AIS and commit that bid addenda, executed contracts and change orders will comply with AIS and submit Engineer's Certification Letter (Exhibit B) to the Agency prior to authorization to advertise for bids.

- F. Provide a copy of the Manufacturer's Certification Letter (Exhibit D) on any specified brand name AIS products in the plans, specifications and bidding documents including any bid addenda to the Contractor.
- G. Coordinate with the Contractor(s) to compile a complete AIS Materials List (Exhibit J) for each contract, sign and date, and provide a copy to the Agency in the construction contract(s).
- H. Review shop drawings and change orders to ensure compliance with AIS. For shop drawings under consideration for any brand name, equal and/or substitute, any iron and steel products subject to AIS, obtain the Manufacturer's Certification Letter (Exhibit D) from the Contractor to verify the products comply with AIS.
- I. Keep all certification letters (including those from the Engineer, Contractor, and any manufacturer providing AIS products) in the Engineer's project file.
- J. Review AIS Materials List (Exhibit J) submitted with each invoice to verify accuracy and sign and date.
- K. For any change order under consideration for any AIS products, obtain a Manufacturer's Certification Letter (Exhibit D) from party submitting the change proposal to ensure compliance with AIS.
- L. Acknowledge responsibility for compliance with AIS requirements by signing change orders (i.e. C-941 of EJCDC or RD Form 1927-7) and partial pay estimates (i.e. C-620 of EJCDC or RD Form 1924-18).
- M. Upon substantial completion of project, obtain the Contractor's Certification Letter (Exhibit C) and a complete and final AIS Materials List (Exhibit J) to submit to the RD State Engineer. Obtain copies of any/all manufacturers' certification letters for all AIS products used in the project to be kept in the Owner's project file.
- N. Resident project representative (RPR) reports must include verification, either by picture or written statement, that an item subject to AIS was installed and was in compliance with requirements.

6. CONTRACTOR RESPONSIBILITIES

- A. Review the Engineer's AIS Materials List (Exhibit J) prior to bid preparation.
- B. Bid submittal with a request for consideration from a proposed equal or substitute should also include a Manufacturer's Certification Letter (see Exhibit D) to verify the products comply with AIS.
- C. Upon award of the contract, obtain copies of any and all manufacturers' certification letters from the Engineer for brand name products specified by the Engineer.

- D. Work with the Engineer to compile a complete AIS Materials List (Exhibit J) for each contract as bid.
 - E. Shop drawing submittals for proposed equals, substitutes, and any iron and steel product subject to AIS, provide a Manufacturer's Certification Letter (Exhibit D) to verify the product complies with AIS.
 - F. Prior to construction, ensure that copies of any and all manufacturers' certification letters, including those from others (e.g. Engineer, Owner, etc.), for any AIS products to be used in the project are in the project file on site prior to installation.
 - G. Pay request must have an updated AIS Materials List (Exhibit J) submitted with each pay request. All columns must be filled out completely as applicable. Do not complete columns under "De Minimis Materials Only" for qualifying materials. Sign and date. An excel version that will compute all totals can be obtained from the RD State Office that can be used as a working copy.
 - H. Change orders for any AIS products must include a Manufacturer's Certification Letter (Exhibit D) to the Engineer to verify the products comply with AIS.
 - I. Acknowledge responsibility for compliance with AIS requirement by signing change orders (i.e. C-941 of EJCDC or RD Form 1924-7) and partial pay estimates (C-620 of EJCDC or RD Form 1924-18).
 - J. Keep all manufacturer certification letters (including those from the Engineer, Contractor and any manufacturer providing AIS products) on site during construction in the construction project file.
 - K. Upon substantial completion of the project, provide Contractor's Certification Letter (Exhibit C) to the Engineer that all iron and steel products installed comply with AIS
7. MANUFACTURER, SUPPLIER, DISTRIBUTOR RESPONSIBILITIES
- A. If iron and steel products are produced in the United States as defined in this Bulletin, prepare (applicable to manufacturers and fabricators) or obtain (applicable to suppliers, distributors, vendors, etc.) Manufacturer's Certification Letters (Exhibit D) and make available upon request to Engineer, Contractor, etc.
8. RESPONSIBILITIES UNDER THE GUARANTEED LOAN PROGRAM
- AIS applies to projects funded by Section 306A- Guaranteed Loan Program
- A. Lenders are responsible to ensure that loan recipients comply with AIS requirements.
 - B. Loan recipients are ultimately responsible for compliance with AIS requirements.

9. ECWAG

- A. If construction contracts were awarded and/or executed or construction began prior to application, these projects are not subject to AIS (Section 2).
- B. If construction contracts were awarded and/or executed or construction began during the application process, these projects are subject to AIS.

10. AGREEMENT BETWEEN OWNER AND ENGINEER (EJCDC E-500) PROVISIONS

- A. Article 5.01.A: Add the following "Opinions of probable cost and any revisions thereof should reflect compliance with American Iron and Steel (AIS) requirements mandated in the Consolidated Appropriations Act of 2017 and any subsequent mandating domestic preferences."
- B. Add paragraph 5.03.B: "Opinions of total project cost and any revisions thereof should reflect compliance with AIS and any subsequent statutes mandating domestic preference."
- C. Add paragraph A.1.03.A.13: "Services required to determine and certify that to the best of the Engineer's knowledge and belief that all iron and steel products referenced in engineering analysis, the plans, specifications, bidding documents, and associated bid addenda requiring design revisions are either produced in the US or are subject to approved waiver. Services required to determine to the best of the Engineer's knowledge and belief that approved substitutes, equals, and all iron and steel products proposed in the shop drawings, change orders and partial payment estimates are either produced in the US, or are subject of an approved waiver. The de minimis and minor components waiver {add project specific waivers if applicable} apply to this contract."
- D. Add paragraph A.1.04.A.10: "Provide copies of all manufacturers' certification letters to the Bidders on brand name iron and steel products along with plans, specifications and bidding documents. Manufacturers' certification letters are to be included in the bidding documents and must be kept in the Engineer's project file and in site during construction."
- E. Add paragraph A.1.04.11: "Provide copies of all manufacturers' certification letters to the Contractor on any brand name iron and steel products along with the plans, specifications, bidding documents. Including any bid addenda and change orders. Manufacturers' certification letters must be kept in the Engineer's project file for the duration of construction."
- F. Add paragraph A.1.04.12: "Develop AIS Materials list (Exhibit J) for bidding purposes and finalize with the Contractor for tracking. Review updated AIS Materials list for accuracy each month and include in each pay request. An excel version that will compute all totals can be obtained from the RD State Office that can be used as a working copy."

- G. Modify A.1.05.A.17: Add the following prior to the first sentence "Review and approve, or take other appropriate action, with respect to shop drawings, samples, and other required Contractor submittals to ensure compliance with AIS requirements and any subsequent statutes mandating domestic preference. Any iron and steel products included in any submittal by the Contractor, must include the Manufacturer's Certification Letter (Exhibit D) to verify the products were produced in the U.S. Copies of these letters must be kept in the Engineer's project file and on site during construction."
- H. Article A.1.05.A.18: Add the following at the end of the paragraph as amended by Kentucky Bulletin 1780-1 "Prior to approval of any substitute "or equal" obtain the Manufacturer's Certification Letter (Exhibit D) to verify the products were produced in the U.S. Manufacturers' certification letters must be kept in Engineer's project file and on site during construction to ensure compliance with AIS requirements and any subsequent statutes mandating domestic preference, if applicable."
- I. Add subparagraph A.1.05.A.19.d: "Receive and review all manufacturers' certification letters for materials required to comply with AIS and any subsequent statutes mandating domestic preference to verify the products were procured in the U.S. Manufacturers' certification letters must be kept in the Engineer's project file on site during construction."
- J. Add subparagraph (c) to the end of A.1.05.A.20: (c) Review change proposals to ensure compliance with AIS requirements and any subsequent statutes mandating domestic preference."
- K. Add item "a" as a deliverable under paragraph A.1.05.A.25: (s) Obtain the Contractor's Certification Letter (Exhibit C) and copies of manufacturers' certification letters for all AIS used in the project. Upon substantial completion, provide copies of Engineer's, Contractor's, and all manufacturers' certification letters to the Owner. Attach Contractor's Certification Letter (Exhibit C) and a final AIS Materials List (Exhibit J) with letter of substantial completion and submit it to the Agency."
- L. Add the following language to B.2.02: "Owners are ultimately responsible for compliance with AIS and any subsequent statutes mandating domestic preference and will be responsible for the following:
 - 1. Signing loan resolutions, grant agreements and letter of intent to meet conditions which include AIS language, accepting AIS requirements in those documents and in the letter of conditions.
 - 2. Signing change orders (i.e. C-941 of EJCDC or RD Form 1924-7) and partial pay estimates (C-620 of EJCDC or RD Form 1924-18) and thereby acknowledging responsibility for compliance with AIS requirements.
 - 3. Obtaining all certification letters from the Engineer upon substantial completion of the project and maintaining this documentation for the life of the loan.

4. Where the Owner provides their own engineering and/or construction services, provide copies of Engineer's, and Contractor's certification letters to the Agency, and obtain all manufacturers' certification letters as required. All certification letters must be kept in the Engineer's project file and on site during construction. For Owner Construction (Force Account), all clauses from Section 11 must be included in the Agreement or Engineering Services.
 5. Where the Owner directly procures AIS products, including AIS clauses in the procurement contracts and obtaining manufacturers' certification letters and providing copies to consulting engineers and contractors.
- M. Add subparagraph D.1.01.C.11.g: "(g) Maintain all manufacturers' certification letters in the project file and on site during construction to ensure compliance with AIS requirements and any subsequent statutes mandating domestic preference, as applicable."
- N. Add the following at the end of D.1.01.c.11b: Daily reports should document installation of an AIS material and verify by picture or statement on the report that the manufacturer was the same as that listed on the AIS materials list and complied with AIS requirements.
11. **BIDDING AND CONSTRUCTION CONTRACT DOCUMENTS (EJCDC C-SERIES, 2013)**
- A. **Advertisement for Bids (C-111)**

Add at the end of C-111 prior to the Owner's name: "Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A- Agriculture, Rural Development, Food and Drug Administration, and Related Agencies, Appropriations Act, 2017) and subsequent statutes mandating domestic preference applies to American Iron and Steel requirement to this project. All listed iron and steel products used in this project must be produced in the United States. The term "iron and steel products" means the following products made primarily of iron and steel: lines or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials. The de minimis and minor components waiver {all project specific waivers as applicable} apply to this contract."
 - B. **Instruction to Bidders (C-200)**
 1. Article 5.01.C: Delete the semicolon at the end of the article and insert the following "included but not limited to the AIS requirements as mandated and any subsequent statutes mandating domestic preference which apply to the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.
 2. Article 11.01: Modify article as previously amended by Kentucky Bulletin 1780-1 by inserting the following sentence after "Each such request shall comply with the requirements of Paragraphs 7.04 and 7.05 of the General Conditions. Each such request shall include the Manufacturer's Certification Letter (Exhibit D) for compliance with AIS requirements and any subsequent statutes mandating domestic preference, if applicable.

3. **Article 24.02: Add paragraph 24.02:Section 746 of Title VII Consolidated Appropriations Act of 2017 (Division A- Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and any subsequent statues mandating domestic preference applies an American Iron and Steel requirement to this project. All iron and steel products used in this project must be procured in the United States. "Iron and Steel Products" is defined in Section 1.b.2. The de minimis and minor components waivers {add project specific waivers as applicable} apply to this contract."**
- C. Bid Form (C-410)
1. **Article 3.01.C: Add language at the end of the sentence "...and including all AIS requirements.**
 2. **Article 7.01: Add 7.01.K "Manufacturer's Certification Letter (Exhibit D) on any approved "or equal" or substitute request to ensure compliance with AIS requirements and any subsequent statutes mandating domestic preference.**
- D. Supplementary General Conditions (C-800)
1. **SC 1.01.A.51: "Manufacture's Certification Letter (Exhibit D) is documentation provided by the manufacturer, supplier, distributor, vendor, fabricator, etc. to various entities stating that the AIS products to be used in the project are produced in the U.S. in accordance with the AIS requirements.**
 2. **SC 1.01.A.52: "AIS refers to requirements mandated by Section 746 Title VII of the Consolidated Appropriation s Act of 2017 and any subsequent statutes mandating domestic preference. "Iron and Steel Products" is defined in Section 1.b.2.**
 3. **SC 7.03: Add sentence "all iron and steel must meet AIS requirements.**
 4. **SC 7.04.B.1: "Contractor shall include the Manufacturer's Certification Letter (Exhibit D) for compliance with AIS requirements to support data, if applicable. In addition, Contractor shall maintain an updated AIS Materials List (Exhibit J), to ensure that for de minimis waiver, cost is less than 5% of total materials cost for project and for minor components waiver, the cost of the non-domestically produced component is less than 5% of the total materials cost of the product." An excel version that will compute all totals can be obtained from the RD State Office that can be used as a working copy.**
 5. **SC 7.05.A.3.a4: "4) comply with AIS by providing the Manufacturer's Certification Letter (Exhibit D), if applicable.**
 6. **SC 7.11.A: Modify by inserting the following after "written interpretations and clarifications,"; "Manufacturer's Certification Letter (Exhibit D) is documentation provided by the manufacturer, supplier, distributor, vendor, fabricator, etc. to various entities stating that the iron and steel products to be used in the project are produced in the U.S. in accordance with AIS requirements.**
 7. **SC 7.16.A.1.e: "e. obtain the Manufacturer's Certification Letter (Exhibit D) for any item in the submittal subject to AIS requirements and include the certificate in the submittal.**
 8. **SC 7.16.D.9: "Engineer's review and approval of shop drawings or sample shall include review of compliance with AIS requirements, as applicable."**

9. SC 7.17.E: "Contractor shall certify upon substantial completion that all work and materials has complied with AIS requirements as mandated and any subsequent statutes mandating domestic preference. Contractor shall provide Contractor's Certification Letter (Exhibit C) to Owner.
10. SC 10.10.A: "A: Services required to determine and certify that, to the best of the Engineer's knowledge and belief, all iron and steel products referenced in the engineering analysis, the plans, specifications, bidding documents, and associated bid addenda requiring design revisions are either produced in the U.S. or are the subject of an approved waiver. Services required to determine, to the best of the Engineer's knowledge and belief, that approved substitutes, equals, and all iron and steel products proposed in the shop drawings, change orders, and partial pay estimates are either produced in the U.S. or are the subject of an approved waiver under the Consolidate Appropriations Act of 2017.
11. SC 11.06.A.1: Modify by inserting the following sentence after "within 15 days after the submittal of the change proposal..." "Include supporting data (project name, name of manufacturer, city and state where the product was manufactured, description of product, signature of authorized manufacturer's representative) in the Manufacturer's Certification Letter (Exhibit D), as applicable."
12. SC 14.03G: Installation of materials that are non-compliant with AIS requirements shall be considered defective work.
13. SC 15.01.B.4: "4. By submitting materials for payment, Contractor is certifying that the submitted materials are compliant with AIS requirements. Manufacturers' Certification letter for Materials satisfy this certification. Refer to Manufacturer's Certification Letter provided in these Contract Documents.
14. SC 15.01.D.2: An updated AIS Materials List (See Exhibit J) included in these contract documents must be dated and signed and submitted with each pay request prior to payment being authorized. An excel version that will compute all totals can be obtained from the RD State Office that can be used as a working copy.
15. SC 15.01.C.2d: "d. The materials presented for payment comply with AIS requirements.
16. SC 15.03.A: Modify by adding the following "Services required to determine and certify that, to the best of the Contractor's knowledge and belief, all substitutes, equals, and iron and steel products proposed in the shop drawings, change orders, and partial payment estimates are produced in the U.S. or are the subject of an approved waiver. Services required to certify that, to the best of the Contractor's knowledge, all those products installed for the project are either produced in the U.S. or are the subject of an approved waiver.
17. SC19.14: Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A- Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and any subsequent statutes mandating domestic preference applies in AIS requirement to this project. All iron and steel products used in this project must be produced in the U.S. The term "iron and steel products" is defined in Section 1.b.2. The de minimis and minor components waivers {add project specific waivers as applicable} apply to this contract."

18. SC 19.15: add Definitions:

"Assistance recipient" is the entity that received funding assistance from programs required to comply with AIS requirements in the Consolidated Appropriations Act of 2017 and any subsequent statutes mandating domestic preference. This term includes owner and/or applicant.

"Certifications" means the following:

- *Manufacturers'* certification is the documentation provided by the manufacturer or fabricator to various entities stating that the iron and steel products to be used in the project are produced in the U.S. in accordance with AIS requirements. If items are purchased via a supplier, distributor, vendor, etc. vs. direct from the manufacturer or fabricator directly, then the supplier, distributor, vendor, etc. will be responsible for obtaining and providing these certification letters to the parties purchasing the product.
- *Engineer's* certification is documentation that plans, specifications, and bidding documents comply with AIS.
- *Contractors'* certification is documentation submitted upon substantial completion of the project that all iron and steel products installed were produced in the U.S.

"Coating" means a covering that is applied to the surface of an object. If a coating is applied to the external surface of a domestic iron or steel component, and the application takes place outside of the U.S., said product will be considered a compliant product under the AIS requirements. Any coating processes that are applied to the external surface of iron and steel components that would otherwise be AIS compliant would not disqualify the product from meeting the AIS requirements regardless of where the coating processes occur, provided that final assembly of the product occurs in the U.S. This exemption only applies to coatings on the *external surface* of iron and steel products, such as the lining of lined pipes. All manufacturing processes for lined pipes, including the application of pipe lining, must occur in U.S. for the product to be compliant with AIS requirements.

"Contractor" is the individual or entity with which the applicant has contracted (or is expected to) to perform construction services (or for water and waste projects funded by the programs which are subject to AIS requirements). This includes bidders and/or contractors that have received an award from the applicant and any party having a direct contractual relationship with the owner/applicant. A general contractor is often referred to as the prime contractor.

"Construction materials" are those articles, materials, or supplies made primarily of iron and steel, that are permanently incorporated into the project, not included mechanical and/or electrical components, equipment and systems. Some of these products may overlap with what is also considered "structural steel".

Note: Mechanical and electrical components, equipment, and systems are not considered construction materials. See definition of mechanical and electrical equipment.

"De minimis incidental components" are various miscellaneous low-cost components that are essential for, but incidental to, the construction and are incorporated into the physical structure of the project. Examples of incidental components could include small washers, screws, fasteners (such as "off the shelf" nuts and bolts, miscellaneous wire, corner bead, ancillary tube, signage, trash bins, door hardware etc.

Costs for de minimis incidental components cumulatively may comprise no more than a total of five percent of the total cost of the materials used in and incorporated into a project. The cost of an individual item may not exceed one percent of the total cost of the materials used in and incorporated into a project.

"Engineer" is an individual or entity with which the owner has contracted to perform engineering/architectural services for water and waste projects funded by the programs subject to AIS requirements.

"Iron and Steel Products" are defined as the following products made primarily of iron and steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials. Only items on the above list made of primarily iron or steel, permanently incorporated into the project must be produced in the U.S. For example; trench boxes, scaffolding or equipment, which are removed from the project site upon completion of the project, are not required to be made of U.S. Iron or Steel.

"Manufacturers" meaning supplier, fabricator, distributor, materialman, or vendor is an entity with which the applicant, general contractor or with any subcontractor has contracted to furnish materials or equipment to be incorporated in the project by the applicant, contractor or subcontractor.

"Manufacturing processes" are processes such as melting, refining, forming, rolling, drawing, finishing, and fabricating. Further, if a domestic iron and steel product is taken out of the U.S. for any part of the manufacturing process, it becomes foreign source material. However, raw materials such as iron ore, limestone, and iron and steel scrap are not covered by the AIS requirements, and the material(s), if any, being applied as coating are similarly not covered. Non-iron or steel components of an iron and steel product may come from non-U.S. sources. For example, for products such as valves and hydrants, the individual non-iron and steel components do not have to be of domestic origin. Raw materials, such as iron ore, limestone, scrap iron, and scrap steel, can come from non-U.S. sources.

"Mechanical equipment" is typically that which has motorized parts and/or is powered by a motor. "Electrical equipment" is typically any machine powered by electricity and included components that are part of the electrical distribution system. AIS does not apply to mechanical equipment.

"Minor components" are components within an iron or steel product otherwise compliant with the AIS requirements. This is different from the de minimis definition where de minimis pertains to the entire project and the minor component definition pertains to a single product. This waiver would allow 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 to be used. However, unless a separate waiver for a product has been approved, all other iron and steel components in said product must still meet the AIS requirements. This waiver does not exempt the whole product from the AIS requirements. Only minor components within said product and the iron or steel components of the product must be produced domestically. Valves and hydrants are also subject to the cost ceiling requirements described here. Examples of minor components could include items such as pins and springs in valves/hydrants, bands/straps in couplings, and other low cost items such as small fasteners etc.

"Municipal castings" are cast iron and steel infrastructure products that are melted and cast. They typically provide access, protection, or housing for components incorporated into utility owned drinking water, storm water, wastewater, and solid waste infrastructure.

"National Office" refers to the office responsible for the oversight and administration of the program nationally. The National Office sets policy, develops program regulations, and provides training and technical assistance to help the state offices administer the program. The National Office is located in Washington, D.C.

"Owner" is the individual or entity with which the general contractor has contracted regarding the work, and which has agreed to pay the general contractor for the performance of the work pursuant to the terms of the contract for water and waste projects funded by the programs subject to AIS requirement. For the purpose of this Bulletin, the 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 programs subject to AIS requirements.

"Primarily iron or steel" is defined as a product made of greater than 50 percent iron or steel, measured by cost. The cost should be based on the material costs. An exception to this definition is reinforced precast concrete (see Definition). All technical specifications and applicable industry standards (e.g. NIST, NSF, AWWA) must be met. If a product is determined to be less than 50 percent iron and steel, the AIS requirements do not apply.

For example, the cost of a fire hydrant includes:

1. The cost of materials used for the iron portion of the fire hydrant (e.g. bonnet, body, and shoe); and
2. The cost to pour and cast and create those components (e.g. labor and energy).

Not included in the cost are:

1. The additional material costs for the non-iron and steel internal working of the hydrant (e.g. stem, coupling, valve, seals, etc.); and
2. The cost to assemble the internal workings into the hydrant body.

"Produced in the United States" means that the production in the United States of the iron or steel products used in the project requires that all manufacturing processes must take place in the United States, with the exception of metallurgical processes involving refinement of steel additives.

"Project" is the total undertaking to be accomplished for the applicant by consulting engineers, general contractors, and others, including the planning, study, design, construction, testing, commissioning, and start-up of which the work to be performed under the contract is a part. A project includes all activity that an applicant is undertaking to be financed in whole or part by programs subject to AIS requirements. The intentional splitting of projects to separate into smaller contracts or obligations to avoid AIS requirements is prohibited.

"Reinforced Precast Concrete" may not consist of at least 50 percent iron or steel, but the reinforcing bar and wire must be produced in the United States and meet the same standards for any other iron or steel product. Additionally, the casting of the concrete product must take place in the United States. The cement and other raw materials used in concrete production are not required to be of domestic origin. If the reinforced concrete is cast at the construction site, the reinforcing bar and wire are considered to be a construction material and must be produced in the United States.

"Steel" means an alloy that includes at least 50 percent iron between 0.02 and 2 percent carbon, and may include other elements. Metallic elements such as chromium, nickel, molybdenum, manganese, and silicon may be added during the melting of steel for the purpose of enhancing properties such as corrosion resistance, hardness, or strength. The definition of steel covers carbon steel, alloy steel, stainless steel, tool steel, and other specialty steels.

"Structural steel" is rolled flanged shapes, having at least one dimension of their cross-section three inches or greater, which are used in the construction of bridges, buildings, ships, railroad rolling stock, and for numerous other constructional purposes. Such shapes are designated as wide-flange shapes, standard I beams, channels, angles, tees, and zees. Other shapes include but are not limited to, H-piles, sheet piling, tie plates, cross ties, and those for other special purposes.

"United States" means each of the several states, the District of Columbia, and each Federally Recognized Indian Tribe.

12. PURCHASE OF EQUIPMENT AND MATERIALS

Irrespective of who purchases AIS products, owner, contractor or other parties must ensure that the products were produced in the United States as defined in this Bulletin. It is the manufacturers' responsibility to provide manufacturers' certification letters to ensure compliance with AIS requirements. The AIS requirements supersede any regulation on full and open free competition stated in 7 CFR 1780.70(b) and (d) and 2 CFR Part 200.319. For example, if an iron and steel product that is compliant with AIS is made by only one manufacturer, sole source procurement of said product may be used.

13. WAIVER PROCESS

A. General

Each entity that receives financial assistance for the construction, alteration, maintenance, or repair of water and waste infrastructure from programs mandated to comply with the statute, must use iron and steel products produced in the United States. A waiver is a legal document granting a project an exception to AIS requirements, to use iron and steel products of non-domestic origin specified in the waiver(s). More than one waiver could be applied to a project.

Any funding recipient subject to AIS requirements are eligible to apply for waivers as outlined in the statute which states:

"A waiver may be granted by the Secretary of Agriculture or designee, if one or more of the following conditions are met:

1. Applying the American Iron and Steel requirements of the Act would be inconsistent with the public interest;
2. Iron and Steel products are not produced in the United States in sufficient and reasonably available quantities or of satisfactory quality; or
3. Inclusion of iron and steel products produced in the United States will increase the overall cost of the project by more than 25 percent."

Until a waiver is granted by USDA, the AIS requirement stands except with respect to municipalities covered by international agreements (see Section 17).

One public interest waiver has been granted by the Secretary of Agriculture or designee that addresses: (1) de minimis items and (2) minor components. This waiver is national in scope and applies to all projects. The term de minimis applies to products when they occur as a de minimis incidental components as intended for assistance recipients to use for their projects. The term minor components applies to minor components within an iron and/or steel product and is intended for manufacturers to certify that their products comply with AIS requirements. For definitions of de minimis and minor components see Definitions.

B. Application

To request a project specific waiver, proper and sufficient documentation must be provided by the assistance recipient (see Exhibit H).

To apply for a waiver under condition one (public interest), applicants and their consulting engineers must demonstrate definitive impacts on the community if a specified product is not utilized. Information must be submitted to the National Office (via ESEEngineering@wdc.usda.gov), copy to the RD State Engineer and approved by the Administrator of RUS. Public interest waivers national in scope will be identified and approved by the Administrator of RUS.

To apply for a waiver under special condition two (quality or quantity), applicants and their consulting engineers must submit information outlined in Exhibit I and J to the National Office (via ESEEngineering@wdc.usda.gov).

All waiver applications must be submitted to National Office. If RD State Office receives any waiver requests, the request must be submitted to National Office for approval.

C. Timing

Waivers should be submitted prior to and no later than the submission of final plans, specifications, and bidding documents for any iron and steel products of known foreign origin. All waiver requests must be approved by the Agency prior to authorization to advertise for bids. In the event that a waiver is requested during construction such as via change order, it must be approved by the Agency prior to installation.

D. Evaluation by USDA

After receiving an application for a waiver of the AIS requirements, USDA National Office will publish the request on its website for 15 days and receive informal comment. National Office will evaluate whether the application adequately documents the statutory basis cited for the waiver. The Secretary or designee will determine whether or not to grant the waiver.

Approved and disapproved waivers will be posted on the USDA AIS website.

For project specific waivers where EPA and USDA are co-funding and the applicant has already submitted a request to and received an approval waiver from EPA, USDA will review said waiver for the co-funded project. Applicants/owners or their representatives are required to submit approved waiver to ESEngineerig@wdc.usda.gov for USDA RD review and concurrence.

All approved waivers must be included in the bidding documents, any bid addenda, change orders, and partial estimates. All information presented in waiver requests are subject to verification. Waiver requests deliberately containing false information will be rejected.

14. MONITORING

In order to comply with the Executive Order 13788 "Buy American, Hire American", dated April 18, 2017, and AIS requirements, monitoring activities will be completed by the State Office and/or National Office.

15. NON-COMPLIANCE

No Federal funds made available for the rural water, waste water, waste disposal, and solid waste management programs authorized by sections 306, 306A, 306C, 306D, 306E, and 310B of the Consolidated Farm and Rural Development Act (7 U.S.C. 1926 et seq.) shall be used for a project for the construction, alteration, maintenance, or repair of a public utility system unless all of the iron and steel products used in the project are produced in the United States.

Noncompliance occurs when funds are used from these programs for construction, alteration, maintenance, or repair using non-domestic iron or steel products and the product is not covered by either a project-specific or a national waiver. Loan and grant recipients should avoid non-compliance at all times as it is a violation of a Federal statute.

Process for Noncompliance

- (1) Identify the noncompliant product.
- (2) The loan or grant recipient notifies appropriate USDA RD State or National Office contact.
- (3) If USDA RD State Office is notified, the Program Director will notify the National Office, Director of EES.
- (4) USDA will apply remedies for noncompliance as per 2 CFR 200 338-342.

16. INTERNATIONAL AGREEMENTS

The AIS requirements apply in a manner consistent with United States obligations under international agreements. In a few cases where such an agreement exists between a loan and/or grant recipient and an international entity, the recipient is under the obligation to determine the applicability of the AIS requirements and document the actions taken to comply with these requirements.

17. USE OF EXHIBITS

The following explains the purpose of each Exhibit to this Bulletin:

- A. **AMERICAN IRON AND STEEL:** Exhibit A is to be read by the RD Specialist at the pre-construction and signed by all parties subject to the AIS requirements on the project. Signature of this form will serve as certification of advisement and acknowledgement of the AIS requirements.
- B. **ENGINEER'S CERTIFICATION OF COMPLIANCE:** Exhibit B consists of a letter to be completed and signed by the consulting engineer certifying that he/she will ensure that plans, specifications, bidding documents, and associated bid addenda, executed contracts and change orders for this project will comply with the AIS requirements. This certification letter is to be submitted to the Agency for approval prior to the Advertisement for Bids and must be kept in the engineer's project file and on-site during construction.
- C. **GENERAL (PRIME) CONTRACTOR'S CERTIFICATION OF COMPLIANCE**
Exhibit C consists of a letter to be completed and signed by the general contractor certifying that he/she will ensure that all iron and steel products installed for this project, comply with the AIS requirements. This includes not only installation and/or construction by their own company, but any and all subcontractors and manufacturers their company has contracted with on this project. This certification letter is to be submitted upon substantial completion of the project to the project engineer.
- D. **EXAMPLE OF A MANUFACTURER'S CERTIFICATION LETTER OF COMPLIANCE:** Exhibit D is an example of a letter to be completed and signed by the manufacturer certifying that he/she will ensure that all iron and steel products and/or materials shipped or provided for the subject project are in full compliance with the AIS requirements. This includes listing each individual item/product/material provided to the project and providing the location of this/these item(s) being manufactured, including assembly. All manufacturers' certification letters must be kept in the engineer's project file and on site during construction.
- E. **EXAMPLES OF MUNICIPAL CASTINGS:** Exhibit E provides a sample list of iron and steel products that are subject to the AIS requirements. This list is not exhaustive and is meant only to provide examples. A unique list should be completed for each specific project/contract.

- F. **EXAMPLES OF CONSTRUCTION MATERIALS:** Exhibit F provides a sample list of construction materials that are subject to the AIS requirements. This list is not exhaustive and is meant only to provide examples.
- G. **EXAMPLES OF NON-CONSTRUCTION MATERIALS:** Exhibit G provides a sample list of items that are not subject to AIS requirements. This list is not exhaustive and is meant only to provide examples.
- H. **INFORMATIONAL CHECKLIST FOR PROJECT SPECIFIC WAIVER REQUEST:** Exhibit I is a checklist that is to be completed by the applicant and/or consulting engineer to help ensure that all appropriate and necessary information is submitted with the request to USDA. This checklist should not be used for public interest waiver. It is for informational purposes only and does not need to be included as part of the waiver application. Project specific waivers may be requested if one or more of the following conditions applies: (1) The iron and/or steel products are not produced in the United States in sufficient and reasonably available quantities and of satisfactory quality; (2) The inclusion of iron and/or steel products produced in the United States will increase the overall cost of the project by more than 25 percent. All approved waivers must be included in the bidding documents, any bid addenda, change orders, and partial estimates. All information presented in waiver requests are subject to evaluation. Waiver requests deliberately containing false information will be rejected.
- I. **EXAMPLE COST TABLE FOR A PROJECT COST WAIVER:** Exhibit I is an example of a table that must be included with any cost based project waiver request. Information included in the table; product reference in the specification, brief description of the product, quantity, unit, unit price and two costs of the item: (1) cost of an AIS compliant product and (2) cost of a non-domestic product. The total cost for all items will be part of the evaluation. Waiver requests deliberately containing false information in order to receive a project cost waiver will be rejected.
- J. **AIS MATERIALS TRACKING:** Exhibit J is a spreadsheet to track all AIS products, de minimis components, and minor components. An updated list must be signed and dated and submitted to the Engineer by the Contractor with each pay request. Once reviewed for accuracy, the signed and updated list must be submitted to the Agency with each pay request. If an AIS qualifying or de minimis material is delivered more than once, a new line will be required for each delivery of that material. An excel version that will compute all totals can be obtained from the RD State Office that can be used as a working copy.

AMERICAN IRON AND STEEL COMPLIANCE STATEMENT

"Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A- Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statues mandating domestic preference applies an American Iron and Steel requirement to this project.

All parties are required to comply with these requirements and to ensure that all iron and steel products used on this project are produced in the United States. The term "iron and steel products" means the following products made of primarily iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials."

RD Specialist Signature

Date

Printed Name

Borrower Signature or Approved Representative

Date

Printed Name

Engineer's Signature

Date

Printed Name

Contractor's Signature

Date

Printed Name

ENGINEER'S CERTIFICATION LETTER

DATE:

RE: APPLICANT
PROJECT NAME
CONTRACT NUMBER

I hereby certify that to the best of my knowledge and belief, iron and steel products referenced in the Plans, Specifications, and Bidding Documents for this project comply with Section 746 of Title VII of the Consolidated Appropriations Act of 2017 and any subsequent statutes mandating domestic preference or are the subject of a waiver approved by the Secretary of Agriculture or designee. This certification is not intended to be a warranty in any way, but rather the designer's professional opinion that to the best of their knowledge, the products comply.

I hereby commit that to the best of my ability, all iron and steel products that will be referenced in the Bid Addenda, Executed contracts, and Change Orders will comply with Section 746 of the Title VII of the Consolidated Appropriations Act, 2017 and any subsequent statutes mandating domestic preference or are/will be the subject of a waiver approved by the Secretary of Agriculture or designee.

Name of Engineering Firm (Print)

By Authorized Representative (Signature)

Title

This document is to be submitted prior to Agency authorization for Advertisement for Bids.

CONTRACTOR'S CERTIFICATION LETTER

DATE:

**RE: APPLICANT
PROJECT NAME
CONTRACT NUMBER**

I hereby certify that, to the best of my knowledge and belief, all iron and steel products installed for this project by my company and by any and all subcontractors and manufacturers my company has contracted with for this project, comply with Section 746 of Title VII of the Consolidated Appropriations Act of 2017 and any subsequent statutes mandating domestic preference or are the subject of a waiver approved by the Secretary of Agriculture or designee.

Name of Construction Company (Print)

By Authorized Representative (Signature)

Title

This certification is to be submitted upon completion of the project to the project engineer.

MANUFACTURER'S CERTIFICATION LETTER

Date:

Company Name:

Company Address:

Subject: AIS Step Certification for Project (X), Owner's Name, and Contract Number

I, (company representative), certify that the (melting, bending, galvanizing, cutting, etc.) processes for (manufacturing or fabricating) the following products and/or material shipped or provided for the subject project is in full compliance with the mandated AIS requirements.

Item, Products and/or Materials, and location of delivery (City, State)

- 1.
- 2.
- 3.

Such process for AIS took place in the following location:

City, State

This certification is to be submitted upon request to interested parties (e.g. municipalities, consulting engineers, general contractors, etc.)

If any of the above compliance statements change while providing materials to this project, please immediately notify the person(s) who is requesting to use your product(s).

Authorized Company Representative

(Note: Authorized signature shall be manufacturer's representative and not the materials distributor or supplier)

EXAMPLES OF MUNICIPAL CASTINGS *(includes but not limited to):*

Access Hatches
Ballast Screen
Benches (Iron or Steel)
Bollards
Cast Bases
Cast Iron Hinged Hatches, Square and Rectangular
Cast Iron Riser Rings
Catch Basin Inlet
Cleanout/Monument Boxes
Construction Covers and Frames
Curb Corner Guards
Curb Openings
Detectable Warning Plates
Downspout Shoes (Boot, Inlet)
Drainage Grates, Frames and Curb Inlets
Inlets
Junction Boxes
Lampposts
Manhole Covers, Rings and Frames, Risers
Meter Boxes
Service Boxes
Steel Hinged Hatches, Square and Rectangular
Steel Riser Rings
Trash Receptacles
Tree Grates
Tree Guards
Trench Grates
Valve Boxes, Covers and Risers

EXAMPLES OF CONSTRUCTION MATERIALS (included but not limited to)

Wire rod, bar, angles
Concrete reinforcing bar, wire, wire cloth
Wire rope and cables
Tubing
Framing
Joists
Trusses
Fasteners (i.e., nuts and bolts)
Welding rods
Decking
Grating
Railings
Stairs
Access ramps
Fire escapes
Ladders
Wall panels
Dome structures
Roofing
Ductwork
Surface drains
Cable hanging systems
Manhole steps
Fencing and fence tubing
Guardrails
Doors
Stationary screens

EXAMPLES OF NON-CONSTRUCTION MATERIALS- (includes but not limited to):

(Note: includes appurtenances necessary for their intended use and operation and are not subject to AIS requirements)

Pumps
Motors
Gear Reducers
Drives (including variable frequency drives (VFD's)
Electric/pneumatic/manual accessories used to operate valves (such as electric valve actuators).
Mixers
Gates (e.g. sluice and slide gates)
Motorized screens (such as traveling screens)
Blowers/aeration equipment
Compressors
Meters (flow and water meters)
Sensors
Controls and switches
Supervisory control data acquisition (SCADA)
Membrane filtration systems (includes RO package plants)
Filters
Clarifier arms and clarifier mechanisms
Rakes
Grinders
Disinfection systems
Presses (including belt presses)
Conveyors
Cranes
HVAC (excluding network)
Water heaters
Heat exchangers
Generators
Cabinetry and housing (such as electrical boxes/enclosures)
Lighting fixtures
Electrical conduit
Emergency life systems
Metal office furniture
Shelving
Laboratory equipment
Analytical instrumentation
Dewatering equipment

INFORMATIONAL CHECKLIST FOR PROJECT SPECIFIC WAIVER REQUEST

Please reference the specifications of the product.

Information	<input type="checkbox"/>	Note
<p>General</p> <ul style="list-style-type: none"> • Waiver request includes the following information: <ul style="list-style-type: none"> — Description of the foreign and domestic construction materials — Unit of measure — Quantity — Price — Date that product is needed (e.g. time of delivery or availability) — Location of the construction project — Name and address of the proposed supplier — A detailed justification for the use of foreign construction materials • Waiver request was submitted according to the instructions in the memorandum • Assistance recipient made a good faith effort to solicit bids for domestic iron and steel products, as demonstrated by language in requests for proposals, contracts, and communications with the prime 		
<p>Cost Waiver Requests</p> <ul style="list-style-type: none"> • Waiver request includes the following information: <ul style="list-style-type: none"> — Comparison of overall cost of project with domestic iron and steel products to overall cost of project with foreign iron and steel products (Exhibit J) — Relevant excerpts from the bid documents used by the contractors to complete the comparison — Supporting documentation indicating that the contractor made a reasonable survey of the market, such as a description of the process for identifying suppliers and a list of contacted suppliers 		
<p>Availability Waiver Requests</p> <ul style="list-style-type: none"> • Waiver request includes the following supporting documentation necessary to demonstrate the availability, quantity, and/or quality of the materials for which the waiver is requested: <ul style="list-style-type: none"> — Supplier information or pricing information from a reasonable number of domestic suppliers indicating availability/delivery date for construction materials — Documentation of the assistance recipient's efforts to find available domestic sources, such as a description of the process for identifying suppliers and a list of contacted suppliers. — Date that product is needed (e.g. time of delivery or availability) to provide justification — Relevant excerpts from project plans, specifications, and permits indicating the required quantity and quality of construction materials • Waiver request includes a statement from the prime contractor and/or supplier confirming the non-availability of the domestic construction materials for which the waiver is sought • Has the State received other waiver requests for the materials described in this waiver request, for comparable projects? 		

EXAMPLE COST TABLE FOR A PROJECT COST WAIVER

AIS/Non-AIS Cost Comparison Table								
Specification	Item or Description	Quantity	Unit	Unit Price	Cost if applying AIS	Cost if a waiver to AIS is applied		
					\$ -	\$ -		
					\$ -	\$ -		
					\$ -	\$ -		
					\$ -	\$ -		
					\$ -	\$ -		
					\$ -	\$ -		
					\$ -	\$ -		
					\$ -	\$ -		
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					\$ -	\$ -		
					\$ -	\$ -		
					\$ -	\$ -		
					\$ -	\$ -		
					\$ -	\$ -		
					\$ -	\$ -		
					\$ -	\$ -		

TOTAL COST: \$0.00

\$0.00

SECTION 5

TECHNICAL SPECIFICATIONS

SECTION 5

TECHNICAL SPECIFICATIONS

CONTRACT "H-1" – WATER SYSTEM IMPROVEMENTS
 (Stream Crossing Replacements, Service Line Replacements, etc.)

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SECTION 01010

GENERAL REQUIREMENTS

CONTRACT "H-1" – WATER SYSTEM IMPROVEMENTS
(Stream Crossing Replacements, Service Line Replacements, etc.)

SUMMARY OF WORK

PART 1 - GENERAL

1.0 WORK COVERED BY CONTRACT DOCUMENTS

1.1 SCOPE

Division 1 - General Requirements shall apply to all Divisions of the Specifications. Any conflict shall be called to the attention of the Engineer for clarification and ruling.

1.2 GENERAL DESCRIPTION

- A. These Specifications and Drawings accompanying them describe the work to be done and the materials to be furnished for installation of all specified work, on **Contract "H-1" WATER SYSTEM IMPROVEMENTS (Stream Crossing Replacements, Service Line Replacements, etc.)**
- B. By submission of his bid, the Contractor acknowledges that he has acquainted himself with all conditions which may affect the work as would be evident from a thorough investigation of the job site, and these Specifications covering the work for the purpose of coordinating his work and cost, and agrees that the Owner will not be held liable for any additional costs incurred by the Contractor for causes or conditions which could or should have been determined by such an investigation.

1.3 MANAGER'S NAME AND PHONE NUMBER

Mr. Sherman "Randy" McDaniel
Big Sandy Water District
18200 S.R. No. 3
Catlettsburg, Kentucky 41129
(606) 928-2075

1.4 The Drawings and Specifications are intended to be fully explanatory, however, should anything be shown, indicated or specified on one and not the other, it shall be done the same as if shown, indicated or specified in both.

1.5 It shall be the responsibility of all Contractors and subcontractors to carefully examine all Drawings, Specifications and Contract Documents pertaining to all phases of the

construction in order that Contractor and Subcontractors may foresee all requirements for coordination of their work. Submission of a bid shall be construed as evidence that such an examination has been made. Claims based on unforeseen requirements will not be considered.

- 1.6 Should any error or inconsistency appear in Drawings or Specifications, the Contractor, before proceeding with the work, must make mention of the same to the Engineer for proper adjustment, and in no case proceed with the work in uncertainty or with insufficient drawings.
- 1.7 Contractors shall follow sizes in Specifications or figures on Drawings, in preference to scale measurements and follow detail drawings in preference to general drawings.
- 1.8 Where it is obvious that a drawing illustrates only a part of a given work or of a number of items, the remainder shall be deemed repetitious and so constructed.

PART 2 - SCOPE OF WORK

2.1 WORK COVERED BY CONTRACT DOCUMENTS

2.2 GENERAL

- A. The work to be performed consists of furnishing all materials, labor, equipment and the execution of all operations necessary for the completion of **Contract "H-1" - Water System Improvements (Stream Crossing Replacements, Service Line Replacements, etc.)**

The major items of work include but are not limited to:

1. Construction of **Contract "H-1" - Water System Improvements (Stream Crossing Replacements, Service Line Replacements, etc.)**. All miscellaneous items of work shown by the drawings and/or described in the Specifications.

2.3 NOTICE AND SERVICE THEREOF

- A. Any notice to the Contractor from the Owner relative to any part of this Contract, shall be in writing and considered delivered and the service thereof completed, when such notice is posted, by mail, to the Contractor at his last given address, or delivered in person to the Contractor or his authorized representative on the work site.

2.4 DIVISION OF SPECIFICATIONS

Division of Specifications into sections is done for convenience of reference and is not intended to control Contractors in dividing work among subcontractors or to limit scope

of work performed by any trade under any given section.

2.5 CONFLICTS

- A. If and when doubt exists in the mind of the Bidder as to the true meaning of any part of the Bidding Documents, the Bidder shall request interpretation thereof in accordance with the Instructions to Bidders. Alleged "answers by telephone" will not be adjudged as legitimate interpretations of conflicting information. Official interpretations shall be by Addendum only, within the time frame indicated in the Instructions to Bidders and/or the individual sections of the Specifications.
- B. If a conflict occurs in or between bidding documents regarding methods of performing the work or the material required, and the Bidder does not obtain a written decision (official Addendum) with respect thereto prior to submitting his proposal, he shall be deemed to have bid upon the more expensive way of doing the work and the better quality of material. If the Owner and/or Engineer later elects to use the less expensive method, less expensive quality or less quantity of material the Owner shall receive a suitable credit.
- C. Refer to the General Conditions and Special Conditions for Contract requirements.
- D. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the work. Anything called for in the Specifications and not shown on the Drawings or shown on the Drawings and not called for in the Specifications, shall be included in the Contractor's work, the same as if included in both. In the event of a doubt arising as to the true intent and meaning of the Drawings and Specifications, the Contractor shall report it at once to the Engineer. The Engineer shall furnish, with reasonable promptness, additional instructions, by means of drawings or otherwise, necessary for the proper execution of the work. All such drawings and instructions shall be consistent with the Contract Documents, true developments thereof and reasonably inferable therefrom. The work shall be executed in conformity therewith and the Contractor shall do no work without proper drawings and instructions. In case of conflicts between the various Contract Documents, the order of precedence will be set out in Special Conditions at paragraph 12.
- E. The Contractor shall make a thorough examination of the site and study all Drawings and Specifications and all conditions relating to the erection of the work. Materials or labor evidently necessary for the proper and complete execution of the work, which are not specifically mentioned although reasonably inferred therefrom, shall be included in the work.

2.6 BENEFICIAL USAGE (SUBSTANTIAL COMPLETION)

- A. The date of beneficial usage of the project, or a designated portion thereof, is the date where construction is sufficiently completed on the project for the use for which it is intended.
- B. Corrective work and the replacement of defective equipment or materials and the adjustment of control apparatus shall not delay the determination of beneficial usage.
- C. When the majority of the work is complete and ready for operation, but cannot be certified as substantially complete because of incomplete items impossible to complete due to weather conditions, payments will be authorized for the amount of work completed, withholding reasonable amounts to cover the incomplete work. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims, and shall not terminate the contract.
- D. When the Owner begins to use the facilities or any portion thereof, prior to Contract completion, the operation, maintenance, utilities and insurance become the responsibility of the Owner.

2.7 LIQUIDATED DAMAGES

Should the Contractor fail to complete the work under his Contract and make the Project available for Beneficial Usage on or before the date stipulated for Beneficial Usage (or such later date as may result from extensions in the Contract Time granted by the Owner), the Contractor agrees that the Owner is entitled to, and shall pay the Owner, as liquidated damages, the sum of **Three Hundred Dollars (\$300.00)** for each consecutive calendar day until Beneficial Usage (Substantial Completion) is reached as described herein.

2.8 SUBSTITUTION - MATERIALS AND EQUIPMENT

- A. Substitution of major equipment and materials previously submitted by the Contractor and reviewed by the Engineer will be considered only for the following reasons:
 - 1. Unavailability of the material or equipment due to conditions beyond the control of the supplier.
 - 2. Inability of the supplier to meet Contract schedule.
 - 3. Technical noncompliance to Specifications.
- B. Substitution of other equipment and materials named in the Specifications will be considered, provided the proposed substitution will perform adequately the

functions called for by the general design, be similar and of equal substance to that specified and be suited to the same use and capable of performing the same function of that specified. The burden for proving equality is that of the Contractor.

- C. Inclusion of a certain make or type of materials or equipment in the Contractor's estimate shall not obligate the Owner to accept such material or equipment if it does not meet the requirements of the Plans and Specifications.
- D. Also, see Section 01600.

PART 3 - CONTRACTOR USE OF PREMISES

3.1 RELEASE OF SITE

- A. All access to the site shall be as defined by the Owner.
- B. Contractor shall insure that no hazardous situations exist at the site during working hours or are left during non-working hours.

3.2 SCHEDULING OF WORK

- A. The work shall be scheduled so the project can be put into service at the earliest possible date.
- B. All work shall be completed within time limits established in other portions of the Contract Documents.

3.3 TRAFFIC MAINTENANCE

- A. All traffic must be maintained at all times on public streets and roadways. No road or street shall be closed without special written permission from the Owner.
- B. Traffic must be maintained on State maintained roads in accordance with the Standard Drawings, details and Specification Section 01570. Contractor will be required to adhere to all provisions of the Kentucky Transportation Cabinet Permit for the project.

END OF SECTION

SECTION 01030
LABOR PROVISIONS

PART 1 - GENERAL

1.1 FUNDING SOURCES

This project is being funded by USDA – Rural Development grant and loan and local Contributions.

1.2 WORK INCLUDED

The Contractor shall conform to all provisions of the Kentucky Department of Labor and Revised Statutes as they may apply to the work to be accomplished under these Specifications. The Contractor shall also conform to all provisions of Federal Labor Laws and Regulations that govern the work that supplement or supplant the Kentucky Department of Labor regulations.

1.3 WAGE RATES

The Applicable State and Federal Wage Decisions **DO NOT APPLY** to this project.

1.4 HOURS OF WORK

Hours of work shall be as set by the latest State and Federal Wage Laws and Regulations. Overtime shall be determined and paid pursuant to the latest State Wage Laws.

Whenever overtime work is scheduled, the Contractor shall give prior notice to the Owner & Engineer.

1.5 NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246 AND 41 CFR PART 60-41)

The following Notice shall be included in, and shall be a part of all solicitations for offers and bids in all Federal and federally assisted construction contracts or subcontracts in excess of \$10,000.00.

The Contractor's or Bidder's attention is called to the "Equal Opportunity Clause" and the Standard Federal Equal Employment Opportunity Construction Contract Specifications set forth herein.

PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION - NOT USED

- END OF SECTION -

SECTION 01040

COORDINATION

PART 1 - GENERAL

1.1 COORDINATION OF THE WORK

The Contractor shall coordinate the work of all the crafts, trades, and subcontractors engaged on the Work, and he shall have final responsibility as regards the schedule, workmanship, and completeness of each and all parts of the Work.

All crafts, trades, and subcontractors shall be made to cooperate with each other and with others as they may be involved in the installation of work which adjoins, incorporates, precedes, or follows the work of another. It shall be the Contractor's responsibility to point out areas of cooperation prior to the execution of subcontract agreements and the assignment of the parts of the Work. Each craft, trade, and subcontractor shall be made responsible to the Owner, for furnishing embedded items, giving directions for doing all cutting and fitting, making all provisions for accommodating the Work, and for protecting, patching, repairing, and cleaning as required to satisfactorily perform the Work.

The Contractor shall be responsible for all cutting, digging, and other action of his subcontractors and workmen. Where such action impairs the safety or function of any structure or component of the Project, the Contractor shall make such repairs, alterations, and additions as will, in the opinion of the Engineer, bring said structure or component back to its original design condition at no additional cost to the Owner.

Each subcontractor is expected to be familiar with the General requirements and all sections of the Detailed Specifications for all other trades and to study all Drawings applicable to his work and to the end that complete coordination between trades will be affected. Each Contractor shall consult with the Engineer if conflicts exist on the Drawings.

END OF SECTION

SECTION 01060

REGULATORY REQUIREMENTS

1.0 CODES

All construction work shall be done in strict accordance with the latest edition of the Kentucky Building Code, National Electrical Code (NEC) and supplements, the requirements of the local electrical utility company, local codes, and as specified herein. All work shall be performed by skilled workmen in a neat manner and all equipment shall be cleaned before final acceptance. A partial list of codes is as follows:

- Kentucky Building Code
- City and/or County Building Inspector
- National and Local Electrical Codes
- National Fire Protection Association (NFPA)
- State Fire Marshal
- Local Fire Marshal
- Standards of Safety
- O.S.H.A.
- KY Division of Water

END OF SECTION

SECTION 01070

ABBREVIATIONS AND SYMBOLS

PART 1 - GENERAL

1.1. REQUIREMENTS INCLUDED

Where any of the following abbreviations are used in the Contract Documents, they shall have the meaning set forth as follows.

1.2. QUALITY ASSURANCE

- A. For the products or workmanship specified by association, trades, or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. The date of the standard is that in effect as of the Bid date, or date of Owner-Contractor Agreement when there are no bids, except when a specific date is specified.
- C. When required by individual Specifications section, obtain a copy of standard. Maintain a copy at job site during submittals, planning and progress of the specific work, until Substantial Completion.

1.3. SCHEDULE OF REFERENCES

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturers Association.
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
IEEE	Institute of Electrical and Electronic Engineers, Inc.
AISC	American Institute of Steel Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
API	American Petroleum Institute
ASCE	American Society of Civil Engineers

ASHRAE Engineers	American Society of Heating, Refrigerating and Air Conditioning
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
CS	Commercial Standard
IBR	Institute of Boiler and Radiator Manufacturers
IPS	Iron Pipe Size
JIC	Joint Industry Conference Standards
KDOH	Kentucky Department of Highways
NBS	National Bureau of Standards
NEC	National Electrical Code; latest edition
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc.
Fed.	Federal Specifications issued by the Federal Supply Spec. Service of the General Services Administration, Washington, D.C.
125-lb ANSI	American National Standard for Cast-Iron Pipe
150-lb ANSI	Flanges and Flanged Fittings, Designation B16.24 (1991), for the appropriate class
AWG	American or Brown and Sharpe Wire Gage
NPT	National Pipe Thread
OS&Y	Outside screw and yoke
Stl.Wg	U. S. Steel Wire, Washburn and Moen, American Steel and Wire or Roebling Gage
UL	Underwriters' Laboratories
USS	United States Standard Gage

WOG Water, Oil, Gas

WSP Working Steam Pressure

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION

SECTION 01090

REFERENCE STANDARDS

PART 1 - GENERAL

1.1. QUALITY ASSURANCE

- A. For Products or workmanship specified by association, trades, or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Material shall bear Underwriters' Laboratories label where such a standard has been established and listed by Underwriters' Laboratories, Inc. All materials, equipment and appliances shall conform to requirements of standards referenced here.
- C. Conform to reference standard by date of issue current on date of Contract Documents.
- D. Should specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- E. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.2. SCHEDULE OF REFERENCES

- ACI American Concrete Institute
Box 19150
Reford Station
Detroit, MI 48219
- AGC Associated General Contractors of America
1957 E Street, N.W.
Washington, DC 20006
- AITC American Institute of Timber Construction
7012 South Revere Parkway, Suite 140
Englewood, CO 80112
- ANSI American National Standards Institute
1819 L. Street, N.W. (6th Floor)
Washington, D.C. 20036

- ASTM American Society for Testing and Materials
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959
- CDA Copper Development Association
260 Madison Avenue
New York, NY 10016
- CRSI Concrete Reinforcing Steel Institute
933 Plum Grove Road
Schaumburg, IL 60173-4758
- FCC Federal Communications Commission
DOT, M443.2
Utilization and Storage Section
Washington, DC 20590
- FM Factory Mutual System
500 River ridge Drive
Norwood, MA 02062
- IEEE Institute of Electrical and Electronics Engineers
445 Hoes Lane, P.O. Box 1331
Piscataway, N.J. 08855-1331
- NEMA National Electrical Manufacturers' Association
1300 N. 17th Street, Suite 1847
Rosslyn, VA 22209
- NFPA National Fire Protection Association
1 Buttermarch Park
P.O. Box 9101
Quincy, MA 02269-9101
- PCA Portland Cement Association
5420 Old Orchard Road
Skokie, IL 60077
- REA Rural Electrification Administration
USDA-REA-ASD
Room 0180
ATTN: Publications
14th and Independence Avenue, S.W.
Washington, DC 20250

UL Underwriters' Laboratories, Inc.
333 Pfingston Road
Northbrook, IL 60062-2096

PART 2 - REFERENCED STANDARDS

All work performed in connection with this contract shall be in accordance with the latest version of the following standards:

Occupational Safety and Health Administration (OSHA)

Applicable Telecommunications Standards

National Fire Protection Association

National Electrical Code (NEC)

National Electrical Safety Code (NESC)

Federal Communications Commission

National Telecommunications and Information Administration

Electronics Industries Association (EIA)

American National Standards Institute

Rural Electrification Administration

PART 3 - EXECUTION

NOT USED.

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.1. WORK INCLUDED

Shop drawings, descriptive literature, project data and samples (when samples are specifically requested) for all manufactured or fabricated items shall be submitted by the Contractor to the Engineer for examination and review in the form and in the manner required by the Engineer. All submittals shall be furnished as set out in paragraph 1.5 hereinafter and shall be checked and reviewed and stamped and signed as approved by the Contractor before submission to the Engineer. The review of the Drawings by the Engineer shall not be construed as a complete check, but will indicate only that the general method of construction and detailing is satisfactory. Review of such drawings will not relieve the Contractor of the responsibility for any errors which may exist, as the Contractor shall be responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work.

1.2. RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. General Conditions.
- B. Section 01720 - Project Record Documents (As Built).

1.3. DEFINITIONS

The term "submittals" shall mean shop drawings, manufacturer's drawings, catalog sheets, brochures, descriptive literature, diagrams, schedules, calculations, material lists, performance charts, test reports, office and field samples, and items of similar nature which are normally submitted for the Engineer's review for conformance with the design concept and compliance with the Contract Documents.

1.4. GENERAL CONDITIONS

Review by the Engineer of shop drawings or submittals of material and equipment shall not relieve the Contractor from the responsibilities of furnishing same of proper dimension, size, quality, quantity, materials, and all performance characteristics to efficiently perform the requirements and intent of the Contract Documents. Review shall not relieve the Contractor from the responsibility for errors of any kind on the shop drawings. Review is intended only to assure conformance with the design concept of the Project and compliance with the information given in the Contract Documents.

Review of shop drawings shall not be construed as releasing the Contractor from the responsibility of complying with the Specifications.

1.5. GENERAL REQUIREMENTS FOR SUBMITTALS

A. Shop Drawings

1. Shop drawings shall be prepared by a qualified detailer. Details shall be identified by reference to sheet and detail numbers shown on Contract Drawings. Where applicable, show fabrication, layout, setting, and erection details.
2. Shop drawings are defined as original drawings prepared by the Contractor, subcontractors, suppliers, or distributors performing work under this Contract. Shop drawings illustrate some portion of the work and show fabrication, layout, setting, or erection details of equipment, materials, and components. The Contractor shall, except as otherwise noted, have prepared the number of reviewed copies required for contractor distribution plus three (3), which will be retained by the Engineer. Shop drawings shall be folded to an approximate size of 8-1/2" x 11" and in such manner that the title block will be located in the lower right-hand corner of the exposed surface.

B. Project data shall include manufacturer's standard schematic drawings modified to delete information which is not applicable to the Project, and shall be supplemented to provide additional information applicable to the Project. Each copy of descriptive literature shall be clearly marked to identify pertinent information as it applies to the Project.

C. Where samples are required, they shall be adequate to illustrate materials, equipment, or workmanship, and to establish standards by which completed work is judged. Provide sufficient size and quantity to clearly illustrate functional characteristics of product and material, with integrally related parts and attachment devices, along with a full range of color samples.

D. All submittals shall be referenced to the applicable item, section, and division of the Specifications, and to the applicable Drawing(s) or Drawing schedule(s). All submittals shall bear the Engineer's project code as noted in the upper right corner of this sheet.

- E. The Contractor shall review and check submittals. Including those of any subcontractor(s) and shall indicate his review and approval by placing and executing the following on all shop drawings:

This shop drawing has been reviewed by [*Name of Contractor*] and approved with respect to the mean, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incidental thereto. [*Name of Contractor*] also warrants that this shop drawing complies with contract documents and comprises no variation thereto.

By: _____

Date: _____

- F. In the event the Engineer does not specifically reject the use of material or equipment at variance to that which is shown on the Drawings or specified, the Contractor shall, at no additional expense to the Owner, and using methods reviewed by the Engineer, make any changes to structures, piping, controls, electrical work, mechanical work etc., that may be necessary to accommodate this equipment or material. Should equipment other than that on which design drawings are based be accepted by the Engineers, shop drawings shall be submitted detailing all modification work and equipment changes made necessary by the substituted items.
- G. Additional information If the submittals deviate from the Contract Drawings and/or Specifications, the Contractor shall advise the Engineer, in letter of transmittal of the deviation and the reasons therefore. All changes shall be clearly marked on the submittal with a bold red mark. Any additional costs for modifications shall be borne by the Contractor.
- H. In the event the Engineer does not specifically reject the use of material or equipment at variance to that which is shown on the Drawings or specified, the Contractor shall, at no additional expense to the Owner, and using methods reviewed by the Engineer, on particular items, such as special drawings, schedules, calculations, performance curves, and material details, shall be provided when specifically requested in the technical Specifications.
- I. Submittals for all electrically operated items (including instrumentation and controls) shall include complete wiring diagrams showing leads, runs, number of wires, wire size, color coding, all terminations and connections, and coordination with related equipment.
- J. Equipment shop drawings shall indicate all factory or shop paint coatings applied by suppliers, manufacturers, and fabricators; the Contractor shall be responsible for ensuring the compatibility of such coatings with the field-applied paint products and systems.

- K. Fastener specifications of manufacturer shall be indicated on equipment shop drawings.
- L. Where manufacturers' brand names are given in the Specifications for building and construction materials and products, such as grout, bonding compounds, curing compounds, masonry cleaners, waterproofing solutions, and similar products, the Contractor shall submit names and descriptive literature of such materials and products he proposes to use in this Contract.
- M. No material shall be fabricated or shipped unless the applicable drawings or submittals have been reviewed by the Engineer and returned to the Contractor.
- N. All bulletins, brochures, instructions, parts lists, and warranties packaged with and accompanying materials and products delivered to and installed in the Project shall be saved and transmitted to the Owner through the Engineer.

1.6. CONTRACTOR RESPONSIBILITIES

- A. Verify field measurements, field construction criteria, catalog numbers, and similar data.
- B. Coordinate each submittal with requirements of Work and of Contract Documents.
- C. Notify Engineer, in writing at time of submission, of deviation in submittals from requirement of Contract Documents.
- D. Begin no work, and have no material or products fabricated or shipped which require submittals until return of submittals with Engineer's stamp and initials or signature indicating review.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION

SECTION 01410

TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1. REQUIREMENTS

- A. The Contractor shall employ and pay for the services of a certified independent testing laboratory to perform specified services and testing.
- B. It is the Contractors responsibility to verify that the laboratory meets the required standards and qualifications.

1.2. RELATED REQUIREMENTS

- A. CONDITIONS OF THE CONTRACT
- B. Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities.
- C. Testing laboratory inspection, sampling and testing is required for the following sections and as specified:

Section 03300: Concrete

1.3. QUALIFICATION OF LABORATORY

- A. Meet "Recommended Requirements for Independent Laboratory Qualification": published by American Council of Independent Laboratories.
- B. Meet basic requirements of ASTM E329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction."
- C. Authorized to operate in the state in which the project is located.
- D. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during the most recent tour of inspection with memorandum of remedies of any deficiencies reported by the inspection.
- E. Test Equipment
 - 1. Calibrated at reasonable intervals by devices of accuracy traceable to either:
 - a. National Bureau of Standards.
 - b. Accepted values of natural physical constants.

1.4. LABORATORY DUTIES.

- A. Cooperate with Owner, Engineer and Contractor; provide qualified personnel after due notice.
- B. Perform specified inspections, sampling and testing of materials and methods of construction:
 - 1. Comply with specified standards.
 - 2. Ascertain compliance of materials with requirements of Contract Documents.
- C. Promptly notify Engineer and Contractor of observed irregularities or deficiencies of work or products.
- D. Promptly submit written report of each test and inspection; one copy each to Engineer, Owner, Contractor, and one copy to Record Documents File. Submittal schedule for each time of test shall be approved by Engineer prior to construction of any item that requires testing. Each report shall include:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Testing laboratory name, address and telephone number.
 - 4. Name and signature of laboratory inspector.
 - 5. Date and time of sampling or inspection.
 - 6. Record of temperature and weather conditions.
 - 7. Date of test.
 - 8. Identification of product and specification section.
 - 9. Location of sample or test in the project.
 - 10. Type of inspection or test.
 - 11. Results of tests and compliance with Contract Documents.
 - 12. Interpretation of test results, when requested by Engineer or owner.
- E. Perform additional tests required by Engineer or the Owner.

1.5. LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory is not authorized to:
 - 1. Release, revoke, alter or enlarge on requirements of Contract Documents.
 - 2. Approve or accept any portion of the work.
 - 3. Perform any duties of the Contractor.

1.6. CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel and provide access to work as required.
- B. Secure and deliver to the laboratory adequate quantities of representational sam-

ples of materials proposed to be used and which require testing.

- C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other materials mixes which require control by the testing laboratory.
- D. Furnish copies of products test reports as required.
- E. Furnish incidental labor and facilities:
 - 1. To provide access to work to be tested.
 - 2. To obtain and handle samples at the project site or at the source of the product to be tested.
 - 3. To facilities inspections and tests.
 - 4. For storage and curing of test samples.
- F. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
 - 1. When tests of inspections cannot be performed after such notice, reimburse laboratory personnel for expenses incurred due to negligence.
- G. Employ and pay for the services of a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing required.
 - 1. For convenience.
 - 2. When initial tests indicate work does not comply with Contract Documents.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED.

END OF SECTION

SECTION 01440

CONTRACTOR QUALITY CONTROL

PART 1 - GENERAL

1.1. WORK INCLUDED

- A. The General Contractor shall set forth for immediate execution a detailed and well organized quality control plan and implementation program.

1.2. CODES, STANDARDS AND INDUSTRY SPECIFICATIONS

- A. Material or operations specified by reference to published specifications of a manufacturer, testing agency, society, association or other published standards shall comply with requirements in latest revisions thereof and amendments or supplements thereto in effect on date of (Advertisement for Bids).

- B. Discrepancies between referenced codes, standards, specifications and Contract Documents shall be governed by the latter unless written interpretation is obtained from Engineer.

- C. Material or work specified by reference to conform to a standard, code, law or regulation shall be governed by Contract Documents when they exceed requirements of such references; referenced standards shall govern when they exceed Contract Documents.

- D. Proof of Compliance

Whenever Contract Documents require that a project be in accordance with Federal Specification, ASTM designation, ANSI specification, or other association standard, at Engineer request, Contractor shall present an affidavit from manufacturer certifying that product complies therewith. Where requested or specified, submit supporting test data to substantiate.

- E. PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices and/or lump-sum prices contained in the Bidding Schedule.

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices and/or lump-sum prices contained in the Bidding Schedule.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

3.1. GENERAL

The General Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract. The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both on-site and off-site, and shall be keyed to the proposed construction sequence.

3.2. QUALITY CONTROL PLAN

A. General

The General Contractor shall furnish for review by the Engineer and Owner not later than 30 days after receipt of notice to proceed, a Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract. The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Engineer will consider an interim plan for the first 30 days of operation.

B. Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Engineer/Owner reserves the right to require the Contractor to make changes in his CQC plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.3. SUBMITTALS

Submittals shall be as specified in Section 01300 SUBMITTAL. The CQC organization shall be responsible for certifying that all submittals are in compliance with the contract requirements.

3.4. CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the

requirements of the contract. The controls shall be adequate to cover all construction operations, including both on-site and off-site fabrication, and will be keyed to the proposed construction sequence.

3.5. TESTS

A. Testing Procedure

The Contractor shall perform tests specified or required to verify that control measures are adequate to provide a product which conforms to contract requirements. Testing includes operation and/or acceptance tests when specified. A list of tests to be performed shall be furnished as a part of the CQC plan. The list shall give the test name, frequency, specification paragraph containing the test requirements, the personnel and laboratory responsible for each type of test, and an estimate of the number of tests required. The Contractor shall perform the following activities and record and provide the following data:

1. Verify that testing procedures comply with contract requirements.
2. Verify that facilities and testing equipment are available and comply with testing standards.
3. Check test instrument calibration data against certified standards.
4. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
5. Results of all tests taken, both passing and failing tests, will be recorded on the Quality Control report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test will be given. Actual test reports may be submitted later, if approved by the Engineer, with a reference to the test number and date taken. An information copy of tests performed by an off-site or commercial test facility will be provided directly to the Engineer. Failure to submit timely test reports, as stated, may result in nonpayment for related work performed and disapproval of the test facility for this contract.

B. Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials will be borne by the Contractor.

3.6. COMPLETION INSPECTION

At the completion of all work or any increment thereof established by a completion time, the Contractor shall conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved plans and specifications. Such a list of deficiencies shall be included in the CQC documentation, and shall include the estimated date by which the deficiencies will be corrected. The Contractor shall make a second

inspection to ascertain that all deficiencies have been corrected and so notify the Engineer. These inspections and any deficiency corrections required by this paragraph will be accomplished within the time stated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

3.7. DOCUMENTATION

The Contractor shall maintain current records of quality control operations, activities, and tests performed, including the work of subcontractors and suppliers. These records shall be on an acceptable form and shall include factual evidence that required quality control activities and/or tests have been performed, including but not limited to the following:

- A. Contractor/subcontractor and their area of responsibility.
- B. Operating plant/equipment with hours worked, idle, or down for repair.
- C. Work performed today, giving location, description, and by whom.
- D. Test and/or control activities performed with results and references to specifications/plan requirements.
- E. Material received with statement as to its acceptability and storage.
- F. Identify submittals reviewed, with contract reference, by whom, and action taken.
- G. Off-site surveillance activities, including actions taken.
- H. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- I. List instructions given/received and conflicts in plans and/or specifications.
- J. Contractor's verification statement.
- K. These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Engineer weekly within 20 hours after the date(s) covered by the report, except that reports need not be submitted for days on which no work is performed. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the Contractor. The report from the Contractor shall include copies of test reports

and copies of reports prepared by all subordinate quality control personnel.

3.8. SAMPLE FORMS

Sample forms for Daily Construction Quality Control Report and Deficiency shall be provided by the General Contractor and submitted to Engineer for acceptance.

3.9. LINES AND GRADES

- A. Be responsible for properly laying out work, and for lines and measurements for the work executed under Contract Documents. Verify figures indicated on Drawings before laying out work, and report errors or inaccuracies in writing to the Engineer before commencing work.
- B. All trades shall be responsible for layout of their work, based on reference lines and measurements established by the General Contractor.
- C. Establish and maintain permanent hubs and other control points throughout construction.

END OF SECTION

SECTION 01530

BARRIERS

PART 1 - GENERAL

1.1. DESCRIPTION

- A. Temporary Railing: Temporary railing shall be provided around open pits and other locations where needed, to prevent accidents or injury to workers and/or public.
- B. Temporary Barriers: Temporary barriers shall be provided for safety for traffic control purposes.

1.2. COST

- A. The Contractor shall pay all costs for barriers and railings used on this project

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION

SECTION 01540

SECURITY

PART I - GENERAL

1.1. WORK INCLUDED

- A. Provide barricades, lanterns, and other signs and signals as may be necessary to warn of the dangers in connection with open excavation and obstructions.
- B. Temporary Railing: Temporary railing shall be provided around open pits and other locations where needed, to prevent accidents or injury to workers and/or public.
- C. Perimeter of the site shall be secured with a 6' chain link fence at all times when Owner or Contractor personnel are not present.

1.2. COSTS

- A. Contractor shall pay all costs for protection and security systems.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION

SECTION 01570
TRAFFIC REGULATION

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Construction parking control.
- B. Flagmen.
- C. Flares and lights.
- D. Haul routes.
- E. Traffic signs and signals.
- F. Removal.

1.02 RELATED REQUIREMENTS

- A. Section 01530 - Barriers.
- B. Section 01580 - Project Identification and Signs.

PART 2 - PRODUCTS

2.01 SIGNS, SIGNALS, AND DEVICES

- A. Post-mounted and wall-mounted traffic control and informational signs.
- B. Automatic Traffic Control Signals: As approved by local jurisdictions.
- C. Traffic Cones and Drums, Flares, and Lights: As approved by local jurisdictions.
- D. Flagman and Equipment: As required by local jurisdictions.
- E. All traffic control means and methods on state roads shall meet KDOH Standards.

PART 3 - EXECUTION

3.01 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and Owner's operations.
- B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.
- C. Prevent parking on or adjacent to access roads or in nondesignated areas.

3.02 TRAFFIC CONTROL

- A. Whenever and wherever, in the Engineer's opinion, traffic is sufficiently congested or public safety is endangered, Contractor shall furnish uniformed officers to direct traffic and to keep traffic off the highway area affected by construction operations.
- B. Contractor shall abide by local regulations governing utility construction work.
- C. **Traffic control shall be provided according to the Kentucky Department of Highways Manual for Uniform Traffic Control Devices for Streets and Highways. Traffic control will be strictly enforced by KDOH. Also see attached KDOT details: Figure 6H-3, Figure 6H-10, and Tables 6H-2, 6H-3, 6H-4.**
- D. **The KDOH will strictly enforce the tracking of mud or dirt onto State Roads or allowing drainage caused by construction to run onto roadways. Necessary brooms or other equipment for keeping roads clean is required.**

3.03 FLAGMEN

Provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroach on public traffic lanes.

3.04 FLARES AND LIGHTS

Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.05 HAUL ROUTES

- A. Consult with authorities, establish public thoroughfares to be used for haul routes and site access.

- B. Confine construction traffic to designated haul routes.
- C. Provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.

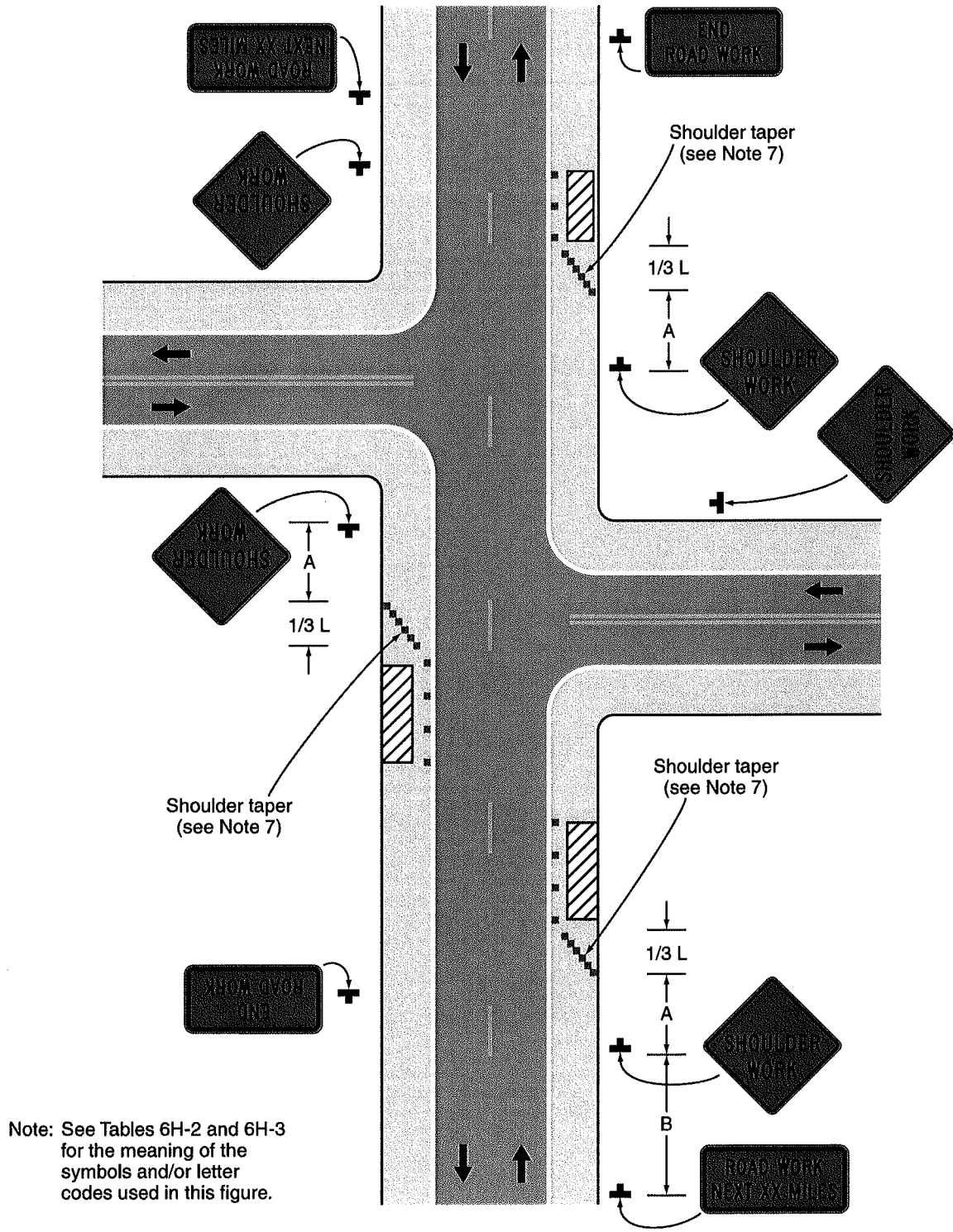
3.06 TRAFFIC SIGNS AND SIGNALS

- A. At approaches to site and on site, install at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.
- B. Install and operate traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control, and areas affected by Contractor's operations.
- C. Relocate as work progresses, to maintain effective traffic control.

3.07 REMOVAL

Remove equipment and devices when no longer required. Repair damage caused by installation. Remove post settings to a depth of 2 feet.

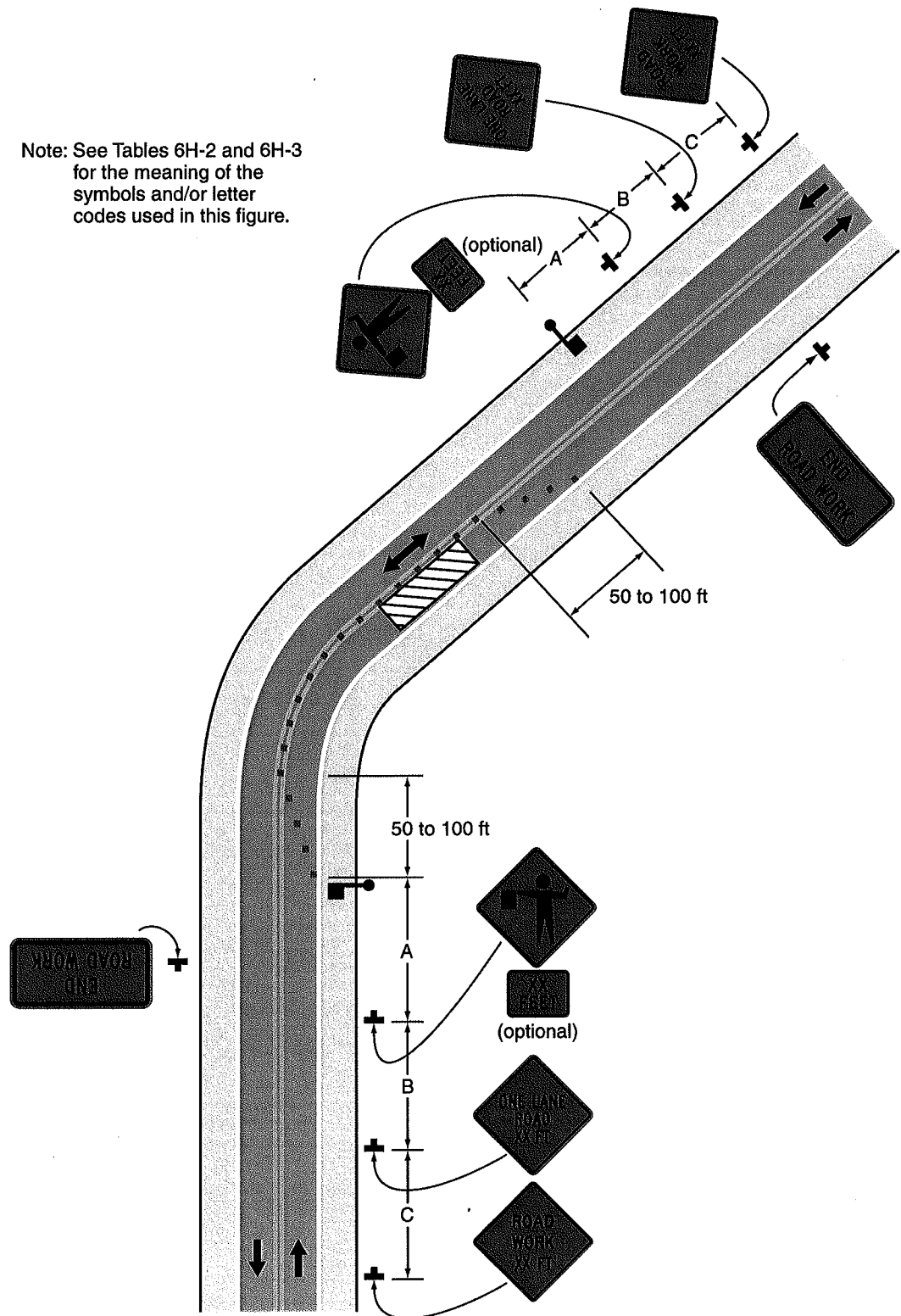
Figure 6H-3. Work on the Shoulders (TA-3)



Typical Application 3

Figure 6H-10. Lane Closure on a Two-Lane Road Using Flaggers (TA-10)

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.



Typical Application 10

01570 - 5

Table 6H-2. Meaning of Symbols on Typical Application Diagrams




















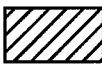



	Arrow board		Shadow vehicle
	Arrow board support or trailer (shown facing down)		Sign (shown facing left)
	Changeable message sign or support trailer		Surveyor
	Channelizing device		Temporary barrier
	Crash cushion		Temporary barrier with warning light
	Direction of temporary traffic detour		Traffic or pedestrian signal
	Direction of traffic		Truck-mounted attenuator
	Flagger		Type 3 barricade
	High-level warning device (Flag tree)		Warning light
	Longitudinal channelizing device		Work space
	Luminaire		Work vehicle
	Pavement markings that should be removed for a long-term project		

Table 6H-3. Meaning of Letter Codes on Typical Application Diagrams

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed)*	100 feet	100 feet	100 feet
Urban (high speed)*	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

* Speed category to be determined by highway agency

** The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)

Table 6H-4. Formulas for Determining Taper Length

Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet
 W = width of offset in feet
 S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

END OF SECTION

SECTION 01580

PROJECT IDENTIFICATION AND SIGN

PART 1 - GENERAL

1.1. WORK INCLUDED

- A. The Contractor shall provide signs required by these Specifications near the site of the work. The signs shall set forth the description of the work and the names of the Owner, Engineer and Contractor as shown hereinafter in these Specifications.
- B. The Contractor for **Contract "H-1" – Water System Improvements (Stream Crossing Replacements, Service Line Replacements, etc.)** shall furnish and install (2) two project signs as described in previous paragraph and as detailed hereafter form.

PART 2 - PRODUCTS

2.1. SIGNS.

- A. The signs shall be constructed of 3/4" thick APA A-B Exterior grade or marine plywood. Posts shall be 4" x 4" of fencing type material. Prime all wood with white primer.

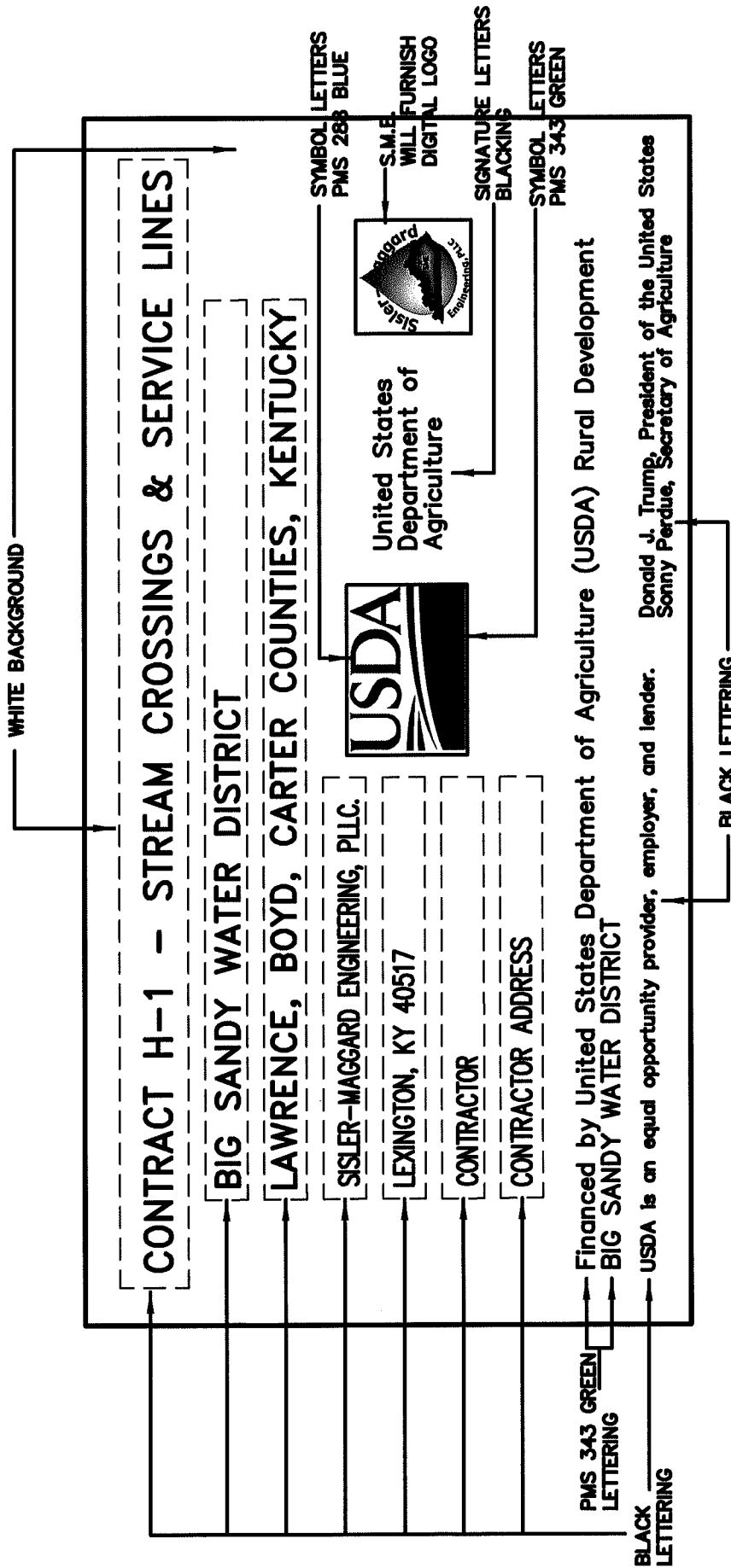
PART 3 - EXECUTION

3.1. MAINTENANCE

- A. The signs shall be maintained in good condition until completion of the Project. The signs shall be removed at completion of project.

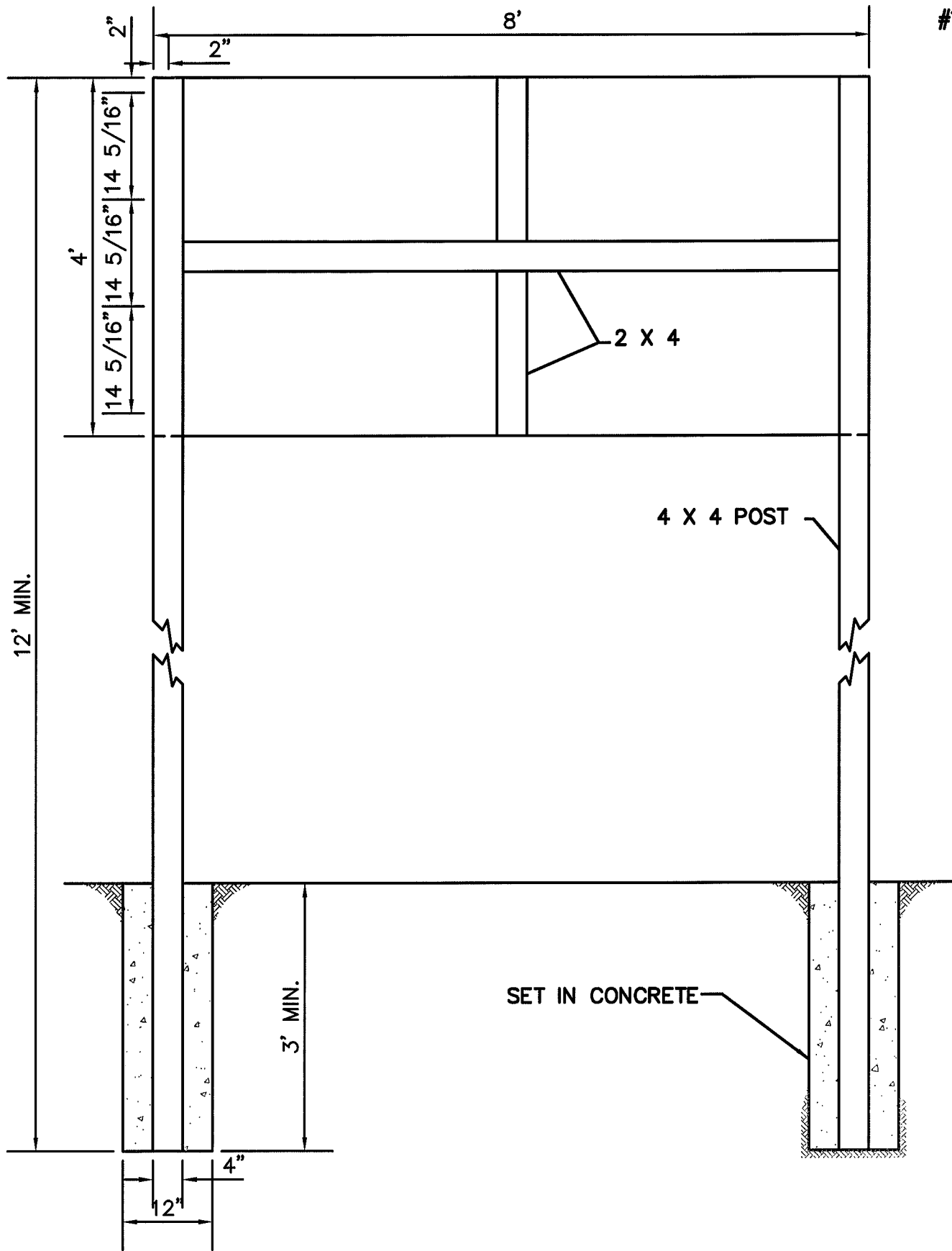
3.2. LOCATION OF SIGNS.

The signs called for in these Specifications shall be placed at the locations selected by the Engineer.



SIGN DIMENSIONS: 1200mm X 2400mm X 19mm (approx. 4' X 8' X 3/4")
 PLYWOOD PANEL (APA RATED A-B GRADE - EXTERIOR)

#15030



ASSEMBLY OF PLYWOOD SIGN

NOT TO SCALE

END OF SECTION
01580-3

SECTION 01600

SPECIAL PROVISIONS FOR MATERIALS AND EQUIPMENT

- 1.01 SERVICES OF MANUFACTURERS' REPRESENTATIVE AND OPERATING MANUALS
- A. Bid prices for equipment furnished under Divisions 11, 13, 15 and 16, shall include the cost of written operation and maintenance instructions and the cost of a competent representative of the manufacturers of all equipment to supervise the installation, adjustment, and testing of the equipment and to instruct the OWNER'S operating personnel and the ENGINEER'S representative on operation and maintenance. This supervision and instruction may be divided into two or more time periods as required by the installation program, and shall be scheduled at the convenience of the OWNER.
 - B. Unless otherwise specified with the equipment, equipment manufacturers shall provide a minimum of 2 separate repeated training sessions for the OWNER'S staff. Each session shall be at least 2 hours in length, but not more than 4 hours. Manufacturer's agenda and schedule for the training shall be submitted to and approved by the OWNER prior to conducting the training. No training will be scheduled until the equipment has been installed, satisfactorily tested, and is ready for operation.
 - C. The manufacturer's representative shall have complete knowledge of the proper installation, lubrication, operation and maintenance of the equipment provided and shall be capable of instructing the representatives of the OWNER and ENGINEER on proper start-up, shut-down, on-line operations, lubrication and preventive maintenance of the equipment. Outlines of lesson plans and proposed training schedule shall be submitted to the ENGINEER for review 30 days prior to the desired instructional period. Specific requirements for furnishing the services of manufacturer's representatives are indicated under detailed Specifications. This work may be conducted in conjunction with Inspection and Testing, whenever possible, as provided under Part 3 of EXECUTION of detailed specification. Should difficulties in operation of the equipment arise due to the manufacturer's design or fabrication, additional services shall be provided at no cost to the OWNER.
 - D. A certificate from the manufacturer stating that the installation of the equipment is satisfactory, that the unit has been satisfactorily tested, is ready for operation, and that the operating personnel have been suitably instructed in the operation, lubrication, and care of the unit shall be submitted to the ENGINEER.
 - E. For equipment furnished under other Divisions, the CONTRACTOR, unless otherwise specified, shall furnish the services of accredited representatives of the

manufacturer only when some evident malfunction or over-heating makes such services necessary.

F. Four complete sets of operation and maintenance instructions covering all equipment furnished under Divisions 11, 13, 15 and 16, shall be delivered directly to the ENGINEER, unless a different number are called for in an item's section of the Specifications.

1. The manual for each piece of equipment shall be a separate document with the following specific requirements:

a. Contents:

Table of contents and index

Brief description of each system and components

Starting and stopping procedures

Special operating instructions

Routine maintenance procedures

Manufacturer's printed operating and maintenance instructions, parts list, illustrations, and diagrams. These shall be specific to the material supplied under the Contract, and not a manufacturer general brochure.

One copy of each wiring diagram

One final accepted copy of each shop drawing and each CONTRACTOR'S coordination and layout drawing

List of spare parts, manufacturer's price, and recommended quantity

Manufacturer's name, address, and telephone number

Name, address, and telephone number of manufacturer's local representative

B. Material:

Loose leaf on punched paper. Holes reinforced with plastic, cloth or metal. 8-1/2" x 11" paper size.

Diagrams and illustrations, attached foldouts as required of original quality, reproducible by dry copy method

Covers: oil, moisture, and wear resistant 9" x 12" size

c. Submittals to the ENGINEER:

- (1) Three preliminary copies of manuals, no later than 15 days following final review of the shop drawings for each piece of equipment and 4 final copies of complete manuals prior to Field Tests.

1.02 INSTALLATION OF EQUIPMENT

- A. Special care shall be taken to ensure proper alignment of all equipment with particular reference to the pumps, blowers and electric drives. The units shall be carefully aligned on their foundations by qualified millwrights after their sole plates have been shimmed to true alignment at the anchor bolts. The anchor bolts shall be set in place and the nuts tightened against the shims. After the foundation alignments have been reviewed by the ENGINEER, the bedplates or wing feet of the equipment shall be securely bolted in place. The alignment of equipment shall be further checked after securing to the foundations, and after conformation of all alignments, the sole plates shall be finally grouted in place. The CONTRACTOR shall be responsible for the exact alignment of equipment with associated piping, and under no circumstances, will "pipe springing" be allowed.
- B. All wedges, shims, filling pieces, keys, packing, red or white lead grout, or other materials necessary to properly align, level, and secure apparatus in place shall be furnished by the CONTRACTOR. All parts intended to be plumb or level must be proven exactly so. Any grinding necessary to bring parts to proper bearing after erection shall be done at the expense of the CONTRACTOR.

1.03 GREASE, OIL AND FUEL

- A. All grease, oil, and fuel required for testing of equipment shall be furnished with the respective equipment. The OWNER shall be furnished with a one year's supply of required lubricants including grease and oil of the type recommended by the manufacturer with each item of equipment supplied under Divisions 11, 13, 15 and 16.
- B. All lubricants and fuels shall be properly labeled, using an indelible marker and writing on the lubricant container or drum, specifying the type and brand name of the lubricant supplied. A Master Lubrication list must be submitted to the ENGINEER for approval clearly stating which lubricants are to be used in the various pieces of plant equipment and the quantity supplied for one years' use by each unit.

1.04 TOOLS AND SPARE PARTS

- A. Any special tools (including grease guns or other lubricating devices) which may be necessary for the adjustment, operation, and maintenance of any equipment shall be furnished with the respective equipment.
- B. All spare parts shall be properly protected for long periods of storage (contained in plastic bags or cardboard containers) and labeled for easy identification without opening.

1.05 MAINTENANCE AND LUBRICATION SCHEDULES

- A. The CONTRACTOR'S attention is directed to the General Conditions and Section 01300 for all requirements relative to the submission of shop drawings for the mechanical equipment. For all mechanical and electrical equipment furnished, the CONTRACTOR shall provide a list including the equipment name, and address and telephone number of the manufacturer's representative and service company so that service and/or spare parts can be readily obtained. In addition, a maintenance and lubrication schedule for each piece of equipment shall be submitted along with shop drawings. Submission shall be in 4 copies.

1.06 STORAGE AND HANDLING OF EQUIPMENT

- A. Special attention shall be given to the storage and handling of equipment. As a minimum, the procedure outlined below shall be followed:
 1. Equipment shall not be shipped until all pertinent shop drawings are reviewed by the ENGINEER.
 2. All equipment having moving parts such as gears, electric motors, etc., and/or instruments shall be properly stored until such time as the equipment is to be installed.
 3. All equipment shall be stored fully lubricated with oil, grease, etc. unless otherwise instructed by the manufacturer.
 4. Manufacturer's storage instructions shall be carefully studied by the CONTRACTOR and reviewed with the ENGINEER. These instructions shall be followed and a written record of this kept by the CONTRACTOR.
 5. Moving parts shall be rotated a minimum of once weekly to ensure proper lubrication and to avoid metal-to-metal "welding." Upon installation of the equipment, the CONTRACTOR shall start the equipment, at least half load, once weekly for an adequate period of time to ensure that the equipment does not deteriorate from lack of use.

6. Lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. New lubricants shall be put into the equipment at the time of acceptance.
 7. Prior to acceptance of the equipment, the CONTRACTOR shall have the manufacturer inspect the equipment and certify in writing that its condition has not been detrimentally affected by the long storage period. Such certifications by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested and accepted in a minimum time period. As such, the manufacturer will guarantee the equipment equally in both instances. If such a written certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at the CONTRACTOR'S expense.
- B. The OWNER reserves the right to withhold payment for any materials improperly stored and maintained.

1.07 PARTIAL UTILIZATION

- A. During the course of construction partial occupation and utilization of completed portions of the work may be required.
- B. When deemed necessary, the OWNER or the CONTRACTOR may request use of completed work.

1.08 EQUIPMENT WARRANTY

- A. The CONTRACTOR shall provide the OWNER a minimum 1 year warranty on all equipment, or a warranty of the length as is specified in the specific equipment section of the Specifications, in accordance with the General Conditions. The warranty period for each item of equipment shall be a minimum of 1 year, or as specified otherwise, from the date of the OWNER'S acceptance of the equipment item.

1.09 ADJUSTMENTS AND CORRECTIONS OF EQUIPMENT AND APPURTENANCES DURING OPERATION

- A. Some items of functional nature included in this Contract cannot be tested as to performance and quality at the time of completion of their installation. They must wait for necessary testing and proper performance until such functions are possible during later portions of this Contract. Such testing, specified performance and proper instructions to the OWNER's operators (as to their maintenance and operation) is deemed a portion of this Contract, and payment shall be retained by the OWNER for equipment delivered to the site and for Work completed to cover

such service. Such service replacements and performance shall take precedence over expiration of the one year guarantee period.

- B. The CONTRACTOR shall expedite the completion of such service by all Suppliers and Subcontractors and shall render competent supervision of such service. The CONTRACTOR shall also expedite the replacement of defective and unaccepted parts and equipment. Unnecessary delay in delivery and installation of corrective parts and equipment may constitute damage to the OWNER for which the CONTRACTOR can be held liable.

1.10 INSTALLING NEW EQUIPMENT IN EXISTING STRUCTURES

- A. Where new equipment is planned and/or specified as being installed in existing structures, the CONTRACTOR shall verify all dimensions and locations of existing facilities prior to ordering the new equipment. Existing anchor bolts shall be used when possible, and new equipment shall be fabricated to conform to the existing dimensions, shapes, and locations as required.

END OF SECTION

SECTION 01610

TRANSPORTATION AND HANDLING

PART 1 - GENERAL

1.1. WORK INCLUDED

A. Handling and Distribution:

1. The Contractor shall handle, haul, and distribute all materials and all surplus materials on the different portions of the work, as necessary or required; shall provide suitable and adequate storage room for materials and equipment during the progress of the work, and be responsible for the protection, loss of, or damage to materials and equipment furnished by him, until the final completion and acceptance of the work.
2. Storage and demurrage charges by transportation companies and vendors shall be borne by the Contractor.

B. Storage of Materials and Equipment

1. All excavated materials and equipment to be incorporated in the work shall be placed so as not to injure any part of the work or existing facilities and so that free access can be had at all times to all parts of the work and to all public utility installations in the vicinity of the work.
2. Materials and equipment shall be kept neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to public travel and adjoining owners, tenants, and occupants.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION

SECTION 01700
PROJECT CLOSEOUT

PART 1 - GENERAL

1.1. RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Liquidated Damages: BID PROPOSAL, AGREEMENT AND GENERAL CONDITIONS
- B. Cleaning: Section 01710
- C. Project Record Documents: Section 01720

1.2. SUBSTANTIAL COMPLETION

- A. Contractor:
 - 1. Submit written certification to Engineer that Project is substantially complete.
 - 2. Submit list of items to be completed or corrected.
- B. Engineer will make an inspection within seven days after receipt of certification, together with Owner's and Contractor's Representatives.
- C. Should Engineer consider the project substantially complete:
 - 1. Contractor shall prepare and submit to Engineer a list of items to be completed or corrected, as determined by the inspection.
 - 2. Engineer will prepare and issue a Certificate of Substantial Completion containing:
 - a. Date of Substantial Completion.
 - b. Contractor's list of items to be completed or corrected, verified and/or amended by Engineer.
 - c. The time within which Contractor shall complete or correct work of listed items.
 - d. Time and date Owner will assume possession of project or designated portion thereof.
 - e. Responsibilities of Owner and Contractor for:
 - i. Insurance
 - ii. Utilities
 - iii. Operation of mechanical, electrical, and other systems
 - iv. Maintenance and cleaning
 - v. Security

- f. Signatures of:
 - i. Contractor
 - ii. Engineer
 - iii. Owner

3. Owner occupancy of Project or Designated Portion of Project:

- a. Contractor shall:
 - i. Obtain certificate of occupancy.
 - ii. Perform final cleaning in accordance with Section 01710.
- b. Owner will occupy Project under provisions stated in Certificate of Substantial Completion.

4. Contractor: Complete work listed for completion or correction, within designated time.

D. Should Engineer consider that work is not substantially complete:

- 1. He shall immediately notify Contractor, in writing, stating reasons.
- 2. Contractor: Complete work, and send second written notice to Engineer, certifying that Project, or designated portion of Project is substantially complete.
- 3. Engineer and Owner will re-inspect work.

1.3. FINAL INSPECTION

A. Contractor shall submit written certification that:

- 1. Contract Documents have been reviewed.
- 2. Project has been inspected for compliance with Contract Documents.
- 3. Work has been completed in accordance with Contract Documents.
- 4. Equipment and systems have been tested in presence of Engineer and Owner's Representative and are operational.
- 5. Project is completed and ready for final inspection.

B. Engineer will make final inspection within seven (7) days after receipt of certification.

C. Should Engineer consider that work is finally complete in accordance with requirements of Contract Documents, he shall request Contractor to make Project Closeout submittals.

D. Should Engineer consider that work is not finally complete:

1. He shall notify Contractor, in writing, stating reasons.
2. Contractor shall take immediate steps to remedy the stated deficiencies, and send second written notice to Engineer certifying that work is complete.
3. Engineer and Owner will re-inspect work.

1.4. FINAL CLEANING UP

The Work will not be considered as completed and final payment made until all final clean up has been done by the Contractor in a manner satisfactory to the Engineer and Owner. See Section 01710 for detailed requirements.

1.5. CLOSEOUT SUBMITTALS

Project Record Documents: See requirements of Section 01720.

1.6. FINAL APPLICATION FOR PAYMENT

Contractor shall submit final applications for payment in accordance with requirements of GENERAL CONDITIONS (Section 19).

1.7. FINAL CERTIFICATE FOR PAYMENT

- A. Engineer will issue final certificate in accordance with provisions of GENERAL CONDITIONS.
- B. Should final completion be materially delayed through no fault of Contractor, Engineer may issue a Semi-Final Certificate for Payment.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION

SECTION 01710

CLEANING

PART 1 - GENERAL

1.1. WORK INCLUDED

- A. During its progress, the work and the adjacent areas affected thereby shall be kept cleaned up and all rubbish, surplus materials, and unneeded construction equipment shall be removed and all damage repaired so that the public and property owners will be inconvenienced as little as possible.
- B. Where material or debris has washed or flowed into or been placed in existing watercourses, ditches, gutters, drains, pipes, structures, work done under this contract, or elsewhere during the course of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the project. The ditches, channels, drains, pipes, structures, and any other work shall, upon completion of the work, be left in a clean and neat condition.
- C. On or before the completion of the project, the Contractor shall, unless otherwise specifically directed or permitted in writing, tear down and remove all temporary buildings and structures built by him; shall remove all temporary works, tools, and machinery or other construction equipment furnished by him; shall remove, acceptably disinfect, and cover all organic matter and material containing organic in, under, and around privies, hoses and other buildings used by him; shall remove all rubbish from any grounds which he has occupied; and shall leave the roads and all parts of the premises and adjacent property affected by his operations in a neat and satisfactory condition.
- D. The Contractor shall thoroughly clean all materials and equipment installed by him and his subcontractors, and on completion of the project shall deliver it undamaged and in fresh and new appearing conditions.
- E. The Contractor shall restore or replace, when and as directed, any public or private property damaged by his work, equipment, or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end the Contractor shall do as required all necessary highway or driveway, walk, and landscaping work. Suitable materials, equipment, and methods shall be used for such restoration. The restoration of existing property or structures shall be done as promptly as practicable as work progresses and shall not be left until the end of the contract period.

1.2. DESCRIPTION

A. Related Requirements Specified Elsewhere:

Project Closeout: Section 01700.

- B. On a continuous basis, maintain premises free from accumulations of waste, debris, and rubbish caused by operations.
- C. At completion of project, remove waste materials, rubbish, tools, equipment, machinery, and surplus materials, and clean all sight-exposed surfaces; leave Project clean and ready for occupancy.

1.3. SAFETY REQUIREMENTS.

A. Hazards Control:

- 1. Store volatile wastes in covered metal containers, and remove from premises daily.
- 2. Prevent accumulation of wastes which create hazardous conditions.
- 3. Provide adequate ventilation during use of volatile or noxious substances.

B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

- 1. Do not burn or bury rubbish and waste materials on Project site without written permission from the Owner.
- 2. Do not dispose of volatile wastes such as mineral spirits, oil, or fuel in open drainage ditches or storm or sanitary drains.
- 3. Do not dispose of wastes in streams or waterways.

PART 2 - PRODUCTS

2.1. MATERIALS

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

PART 3 - EXECUTION

3.1. DURING CONSTRUCTION

- A. Execute cleaning to ensure that grounds and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- C. At reasonable intervals during progress of Work, clean site and public properties, and properly dispose of waste materials, debris, and rubbish.
- D. Provide on-site containers for collection of waste materials, debris, and rubbish.
- E. Remove waste materials, debris, and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.
- F. The Contractor shall thoroughly clean all materials and equipment installed.

3.2. FINAL CLEANING

- A. Employ experienced workmen, or professional cleaners, for final cleaning.
- B. The Contractor shall restore or replace existing property or structures as promptly and practicable as work progresses.

END OF SECTION

SECTION 01720

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1. WORK INCLUDED

The Contractor shall obtain from the Engineer one (1) set of blueline prints of the Contract Drawings. These prints shall be kept and maintained in good condition at the project site and qualified representative of the Contractor shall enter upon these prints, from day-to-day, the actual "as built" record of the construction progress. Entries and notations shall be made in a neat and legible manner and these prints shall be delivered to the Engineer upon completion of the construction. APPROVAL FOR FINAL PAYMENT WILL BE CONTINGENT UPON COMPLIANCE WITH THIS PROVISION.

1.2. RELATED REQUIREMENTS SPECIFIED ELSEWHERE:

- A. Maintain at job site, one copy of:
 - 1. Contract Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Reviewed Shop Drawings
 - 5. Change Orders
 - 6. Other Modifications to Contract.
- B. Store documents in approved location, apart from documents used for construction.
- C. Provide files and racks for storage of documents.
- D. Maintain documents in clean, dry, legible condition.
- E. Do not use record documents for construction purposes.
- F. Make documents available at all times for inspection by Engineer and Owner.

1.3. MARKING DEVICES

Provide colored pencil or felt-tip pen for all marking.

1.4. RECORDING

- A. Label each document "PROJECT RECORD" in 2-inch high printed letters.
- B. Keep record documents current.

- C. Do not permanently conceal any work until required information has been recorded.
- D. Contract Drawings: Legibly mark to record actual construction:
 - 1. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 - 2. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - 3. Field changes of dimension and detail.
 - 4. Changes made by Change Order or Field Order.
 - 5. Details not on original Contract Drawings.
- E. Specifications and Addenda: Legibly mark up each Section to record:
 - 1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 - 2. Changes made by Change Order or Field Order.
 - 3. Other matters not originally specified.
- F. Shop Drawings: Maintain as record documents; legibly annotate Shop Drawings to record changes made after review.

1.5. SUBMITTAL

- A. At completion of project, deliver record documents to Engineer.
- B. Accompany submittal with transmittal letter, in duplicate, containing:
 - 1. Date Project Title and Number Contractor's Name and Address
 - 2. Title and Number of each Record Document
 - 3. Certification that each Document as Submitted is Complete and Accurate
 - 4. Signature of Contractor or his authorized Representative.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED.

END OF SECTION

SECTION 01740
BASIS FOR PAYMENT

**CONTRACT "H-1" – WATER SYSTEM IMPROVEMENTS
(Stream Crossing Replacements, Service Line Replacements, etc.)**

PART 1 - GENERAL

All payment for work done under the provisions of this Contract shall be in accordance with the basis for payment for the specific items listed herein and in the bid proposal. The item numbers in this section correspond with the item numbers in the bid proposal.

Items 1 thru 3 and 24 – HDPE Horizontal Directional Drilling (HDD) – Stream Crossings

Payment for these items shall be based on unit price bid per linear foot, to furnish and install HDPE waterlines by the horizontal directional drilling method (HDD), measured in place, as shown on plans, regardless of depth. These items shall include all work and materials necessary to excavate trenches/bore pits (including rock excavation) to required depth, and installing the pipe, transition fittings from HDPE to the PVC waterline, backfilling, trenching, seeding, testing, disinfection and cleanup all in accordance with the Technical Specification and details.

The cost of all items not specifically listed for separate payment in the proposal shall be included as an incidental expense.

Rock excavation or drilling is **not** a separate pay item.

Item 4 – 12” Steel Casing - Bore & Jack w/6” PVC Waterline

Payment for this item shall be made at the unit price bid per linear foot, length to be measured in place, including excavation for bore pits, all boring, casing, spacers, sealing of casing, carrier pipe, testing, disinfection, clean up and seeding in accordance with the Technical Specifications and details. Please note that the payment for this item includes the furnishing and installation of the **carrier pipe** on the inside and the closure of the end of the casing with boots.

The cost of all associated items not specifically listed for separate payment shall be included as an incidental expense.

Rock boring is not a separate pay item.

Item 5 – Proposed New Service Line

Payment for this item shall be based on the unit price bid per linear foot, measured in place, as shown on plans, regardless of depth. This item shall include all work and materials necessary to excavate trenches (including pavement removal and rock excavation) to required depth, install the pipe, backfilling, seeding, testing, disinfection and cleanup, all in accordance with the Technical Specifications and details.

The cost of all associated items not specifically listed for separate payment in the proposal shall be included as an incidental expense.

Pipe lengths shall be measured in place. Where pipelines diverge, measurement shall be from the center of the pipe to the end of the diverging line. No deduction in pipe length shall be made for fittings.

Rock excavation is **not** a separate pay item.

Items 6, 7 and 25 – PVC Waterlines

Payment for these items shall be based on the unit price bid per linear foot to furnish and install waterlines, measured in place, as shown on plans, regardless of depth. This item shall include all work and materials necessary to excavate trenches (including pavement removal and rock excavation) to required depth, install bedding as per detail and installing the pipe with tracer wire and ductile iron fittings with mechanical joint retainer glands, blocking, backfilling, trenching, seeding, testing, disinfection and cleanup, all in accordance with the Technical Specifications and details.

The cost of all associated items not specifically listed for separate payment in the proposal shall be included as an incidental expense.

Pipe lengths shall be measured in place. Where pipelines diverge, measurement shall be from the center of the pipemain to the end of the diverging line. No deduction in pipe length shall be made for fittings.

Rock excavation is **not** a separate pay item.

Items 8, 9 and 26 – Gate Valves

Payment for these items shall be made at the unit price bid each for the size of gate valve installed and shall include all work and materials necessary for complete installation, including excavating, bedding, gate valve, valve box, cover, collar, mechanical joint retainer glands, blocking, backfill, clean up and seeding in accordance with the Technical Specifications and Details.

The cost of all associated items not specifically listed for separate payment in the proposal shall be included as an incidental expense.

Rock excavation is **not** a separate pay item.

Item 10 – Leak Detector Assembly

Payment for this item shall be made at the unit price bid each and shall include all work and materials necessary for the complete installation, including excavation, bedding, meter box, lid, taps, meter setting equipment, gate valve, backfill, cleanup and seeding in accordance with the Technical Specification and detail. **This installation does not include meter.**

The cost of all items not specifically listed for separate payment in the proposal shall be included as an incidental expense.

Rock excavation is **not** a separate pay item.

Items 11 and 27 – Blow Off Valve Assembly

Payment for these items shall be made at the unit price bid each and shall include all work and materials necessary for the complete installation, including excavation, bedding, boxes, covers, fittings, gate valves, flap valve, backfill, clean up and seeding in accordance with the Technical Specifications and details.

The cost of all associated items not specifically listed for separate payment in the proposal shall be included as an incidental expense.

Rock excavation is **not** a separate pay item.

Items 12 thru 14 and 28 – Tie New Line to Existing Line

Payment for these items shall include all work and materials, excavation, backfill, clean up, seeding, fittings and equipment necessary to locate and connect the new water line with the existing system.

The cost of all associated items not specifically listed for separate payment shall be included as incidental expenses.

Gate Valves where shown to be required as a part of the tie-in, are a separate pay item except in the case of wet taps.

Rock excavation is **not** a separate pay item.

Item 15 – Re-Connect Existing Meter

Payment for this item shall be made at the unit price bid each installed and shall include all work and materials necessary for the complete reconnection of an existing water meter, including excavation, bedding, tapped connection with service clamp and corporation stop, backfill, clean-up and seeding all in accordance with the Technical Specifications and details.

The cost of all associated items not specifically listed for separate payment in the proposal shall be included as an incidental expense.

Rock excavation is **not** a separate pay item.

Items 16 and 17 – End Caps

Payment for these items shall be made at the unit price bid each and shall include all work and material necessary for furnishing and installation of each end cap as shown on the plans and in accordance with the detail drawings.

The cost of all associated items not specifically listed for separate payment in the proposal shall be included as an incidental expense

Rock excavation is **not** a separate pay item.

Item 18 – Fiberglass Markers

Payment for this item shall be made at the unit price bid each and shall include all work and material necessary for furnishing and installation of the fiberglass markers on waterlines as shown on the plans and in the details, at the location determined in the field by the Engineer during construction and in accordance with the Technical Specifications. These markers are proposed for (but not limited to) stream crossings.

The cost of all associated items not specifically listed for separate payment in the proposal shall be included as an incidental expense.

Rock excavation is **not** a separate pay item.

Item 19 – ¾” Service Line Replacements – Short Side less than 30 L.F.

Payment for this item shall be based on the unit price bid per linear foot, measured in place, as shown on plans, regardless of depth. This item shall include all work and materials necessary to excavate trenches by **Open Cut** (including pavement removal and rock excavation) to required depth, locate and remove old pipe, install the new pipe, backfilling, seeding, testing, disinfection and cleanup, all in accordance with the Technical Specifications and details. **Bid item #23 includes re-connection of meters and corporation stop.**

The cost of all associated items not specifically listed for separate payment in the proposal shall be included as an incidental expense.

Pipe lengths shall be measured in place. Where pipelines diverge, measurement shall be from the center of the pipe to the end of the diverging line. No deduction in pipe length shall be made for fittings.

Rock excavation is **not** a separate pay item.

Item 20 – ¾” Service Line Replacements – Short or Long Side – 30 L.F. to 100 L.F.

Payment for this item shall be based on the unit price bid per linear foot, measured in place, as shown on plans, regardless of depth. This item shall include all work and materials necessary to excavate trenches (including pavement removal and rock excavation) and/or bore pit to required depth, install the pipe by the **Trenchless Service Line Replacement Tool method**, backfilling, seeding, testing, disinfection and cleanup, all in accordance with the Technical Specifications and details. **See Specification Section 15085 – Service Line.**

The cost of all associated items not specifically listed for separate payment in the proposal shall be included as an incidental expense.

Pipe lengths shall be measured in place. Where pipelines diverge, measurement shall be from the center of the pipe to the end of the diverging line. No deduction in pipe length shall be made for fittings.

Rock excavation is **not** a separate pay item.

Item 21 – ¾” Service Line Replacements – Short or Long Side over 100 L.F.

Payment for this item shall be based on the unit price bid per linear foot, measured in place, as shown on plans, regardless of depth. This item shall include all work and materials necessary to excavate trenches (including pavement removal and rock excavation) and/or bore pit to required depth, install the pipe by **Horizontal Directional Drilling (HDD) method**, backfilling, seeding, testing, disinfection and cleanup, all in accordance with the Technical Specifications and details.

The cost of all associated items not specifically listed for separate payment in the proposal shall be included as an incidental expense.

Pipe lengths shall be measured in place. Where pipelines diverge, measurement shall be from the center of the pipe to the end of the diverging line. No deduction in pipe length shall be made for fittings.

Rock excavation is **not** a separate pay item.

Item 22 – 1” Service Line Replacements – Short & Long Side

Payment for this item shall be based on the unit price bid per linear foot, measured in place, as shown on plans, regardless of depth. This item shall include all work and materials necessary to excavate trenches (including pavement removal and rock excavation) and/or bore pit to required depth, install the pipe by **Horizontal Directional Drilling (HDD) method**, backfilling, seeding, testing, disinfection and cleanup, all in accordance with the Technical Specifications and details.

The cost of all associated items not specifically listed for separate payment in the proposal shall be included as an incidental expense.

Pipe lengths shall be measured in place. Where pipelines diverge, measurement shall be from the center of the pipe to the end of the diverging line. No deduction in pipe length shall be made for fittings.

Rock excavation is **not** a separate pay item.

Item 23 – Reconnect Meters

Payment for this item shall be made at the unit price bid each installed and shall include all work, excavation and materials necessary for the complete location and disconnection and reconnection to the existing water meter, including, bedding, locating the tapped connection and corporation stop, and connecting new service lines, testing, backfill, clean-up and seeding all in accordance with the Technical Specifications and details.

The cost of all associated items not specifically listed for separate payment in the proposal shall be included as an incidental expense.

Rock excavation is **not** a separate pay item.

END OF SECTION

Basis of Payment

Bid Items 19 through 23 - Information Only

The type, location and length of service line replacement is in “Chart Form” located at end of Service Line Specifications Section 15080, (51 pages). It is the intent of these bid documents that the **best and most economical** installation of these service line replacements be provided. Furthermore, it is intended that the least surface disturbance be made as it relates to the existing Water Customers. This should subsequently decrease substantial cleanup and restoration by the Contractor. In order to achieve the above installation, as simply as possible, we recommend Footage Tools, Inc., Wedge SE – Trenchless Service Line Replacement Tool **or approved equal**. A sample “cut sheet” on the TSLR tool is attached. Two separate YouTube videos of the tool being used may be accessed at https://youtu.be/6ZJAKYJ_ncE and <https://youtu.be/nGHclt4USCA>. The realistic limitation of this tool for crushing/splitting existing PVC service pipe and pulling new ¾” service line is +/- 100 L.F. based on friction. In cases where services are longer, it will be necessary to open a trench and complete the installation by another trenchless run, or horizontal directional drilling (HDD).



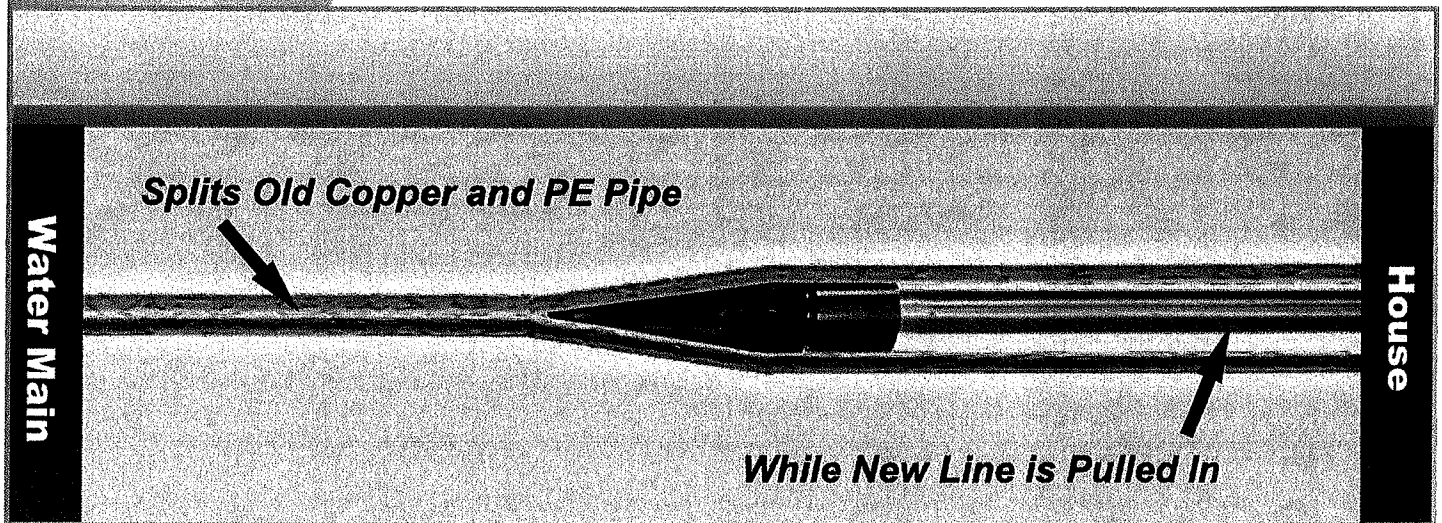
Trenchless Service Line Replacement Tool

- Designed to replace water and gas service lines at a fraction of the cost of conventional methods.
- **NEW!** Single cutting edge works effectively to split copper and PE lines by reducing resistance, allowing more force to be applied to the cutting edge.
- Minimizes property damage and street disturbance.
- Can be used with a backhoe, winch or truck.
- Pulls out lead and galvanized lines.
- New streamline connectors for replacement copper and PE lines.

716-383-2562
Don Paddock
(SALESMAN)
Per salesman
125'
MAX



How it Works



The Wedge service line replacement tool is ideal for replacing 3/4" and 1" water services quickly and easily. Operation of the Wedge is simple - just feed the aircraft cable through the existing service and then pull the Wedge through the ground using a backhoe, truck or winch. No special equipment is required! The new service can be easily attached to the back of the Wedge so the old line can be split or pulled out and the new line pulled in, all in one operation!

The Wedge will split existing copper and PE lines and will pull out lead or galvanized lines. This tool is a must for any utility contractor or plumber who is looking for an efficient and low cost alternative to costly excavation.

The Wedge SE

Footage

TOOLS INC.

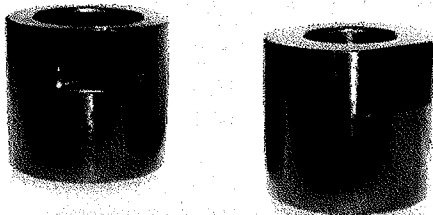
New 'Single Blade' Technology!



W090-03
Replaces 3/4" & 1" Service Lines

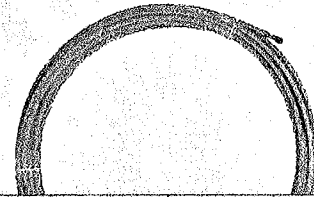
Accessories

Streamline Copper Pipe Connectors



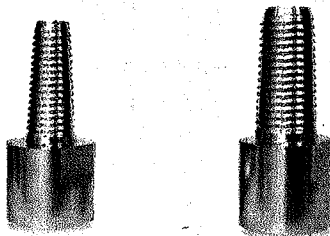
3/4"	W090-14
1"	W090-15

Aircraft Cable



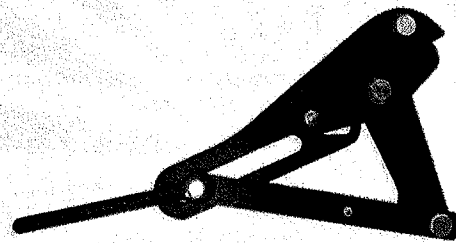
50'	W090-50
75'	W090-75
100'	W090-100
Custom cable sizes available upon request	

PE Pipe Pullers



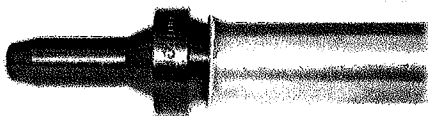
3/4"	W095-08
1"	W095-09

Pulling Grip



K1684-5

Flaring Tool for 3/4" & 1" Copper



W090-04

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MADE IN THE U.S.A.

POW-R MOLE

BUILT TO LAST

PRODUCT FEATURES

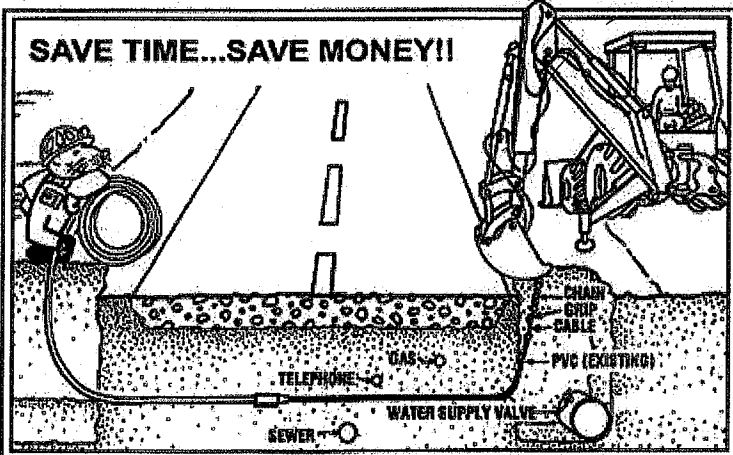
SPLITS OR REMOVES POLYETHYLENE, LEAD, COPPER OR GALVANIZED WATER SERVICE LINES AND PULLS IN NEW COPPER OR POLYETHYLENE TUBING IN ONE OPERATION

NO NEED TO DIG UP ENTIRE SERVICE LINE. MINIMIZES DAMAGE TO STREETS, SIDEWALKS, ETC

CUT REPLACEMENT TIME 50% TO 75%

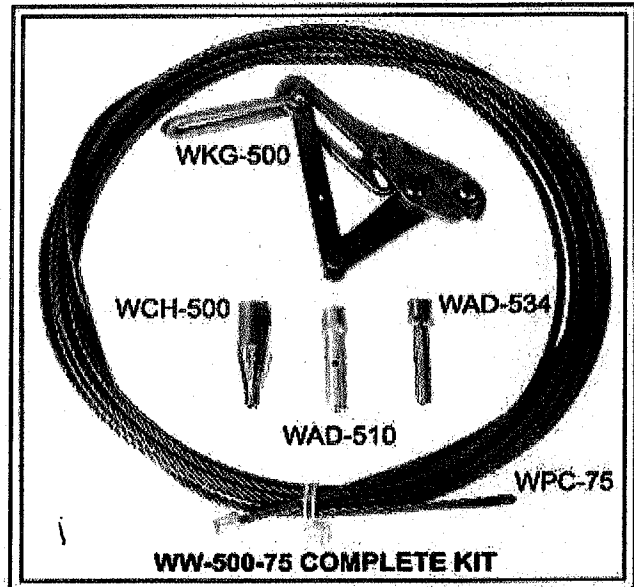
CUT MATERIAL & MANPOWER COSTS

PART #	PRODUCT DESCRIPTION
WW-500-50	Waterline kit w/ 3/8" x 50' pulling cable
WW-500-75	Waterline kit w/ 3/8" x 75' pulling cable
WW-500-100	Waterline kit w/ 3/8" x 100' pulling cable
WKG-500	Klein grip for pulling cable 8000 lb. cap. ✓
WKG-1600	H.D. Klein grip 16,000 lb. cap. (not shown)
WPC-50	3/8" x 50' heavy-duty pulling cable
WPC-75	3/8" x 75' heavy-duty pulling cable
WPC-100	3/8" x 100' heavy-duty pulling cable ✓
WCH-558	Cutter head for 5/8" & 3/4" pipe
WCH-500	Cutter head for 3/4" & 1" pipe ✓
WCH-512	Cutter head for 1 1/2" pipe
WCH-520	Cutter head for 2" pipe
WAD-534	3/4" copper tubing adapter
WAD-510	1" copper tubing adapter
WFA-500	Adapter for WFG-500/600 (Pulling Sock) ✓
WFG-500	Wire pulling sock for 3/4" to 1" pipe ✓
WFG-600	Wire pulling sock for 1 1/4" to 2" pipe

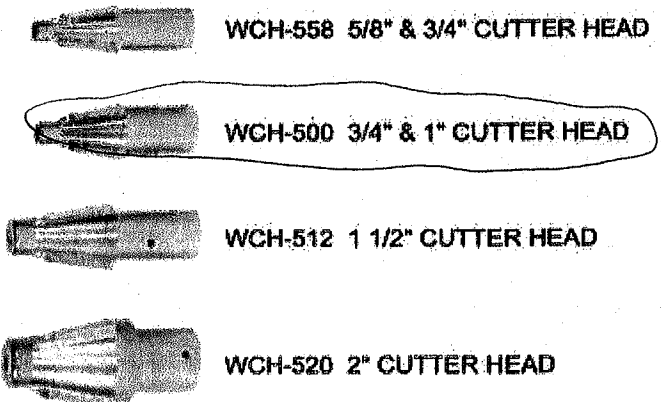


WATERLINE REPLACEMENT KIT

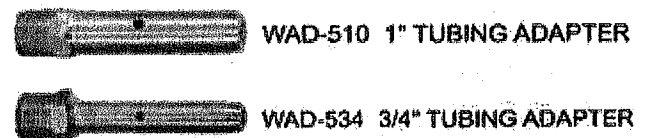
THE ORIGINAL & STILL THE BEST!



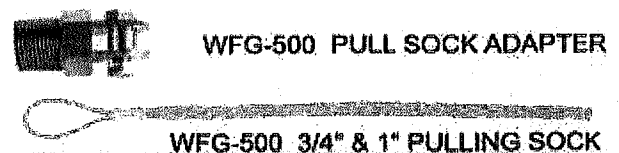
AVAILABLE CUTTERHEAD SIZES



STANDARD TUBING ADAPTERS (INCLUDED IN KIT)



OPTIONAL PULLING SOCK



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Service Line Replacement

LEARN MORE ABOUT OUR SERVICE LINE REPLACEMENT EQUIPMENT

If you need service line replacement equipment, please view our products below and be sure to direct any questions you may have to our staff. We can help you choose the correct replacement equipment for your needs. [Contact us](#) today.

CABLES, SPLITTING HEADS AND GRIPS

PD-22

PD-2

CABLES, SPLITTING HEADS AND GRIPS

Waterline Replacement Kit - Simple and cost effective water line replacement system

Service Line Replacement Tools

- Designed to replace water and gas service lines at a fraction of the cost of conventional methods.
- New! Single cutting edge works effectively to split copper and lines by reducing resistance, allowing more force to be applied to the cutting edge.
 - Many different sizes and designs of two and three blade heads.
 - Minimizes property damage and street disturbance.
 - Can be used with a backhoe, winch or truck.
 - Pulls out lead and galvanized lines.
 - New streamline connectors for replacement copper and PE lines.

SECTION 02110

CLEARING AND GRUBBING

PART 1 - GENERAL

1.1. WORK INCLUDED

A. DEFINITIONS

1. Clearing

Clearing shall consist of the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees and other vegetation designated for removal, including down timber, snags, brush, and rubbish occurring in the areas to be cleared.

2. Grubbing

Grubbing shall consist of the removal and disposal of stumps, roots larger than 3 inches in diameter, and matted roots from the designated grubbing areas.

B. PAYMENT

1. Cost associated with Clearing and Grubbing shall be incidental to facilities being placed.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

3.1. CLEARING

- A. Trees, stumps, roots, brush, and other vegetation in areas to be cleared shall be cut off flush with or below the original ground surface, except such trees and vegetation as may be indicated or directed to be left standing. Trees designated to be left standing within the cleared areas shall be trimmed of dead branches 1-1/2 inches or more in diameter and shall be trimmed of all branches the heights indicated or directed. Limbs and branches to be trimmed shall be neatly cut close to the bole of the tree or main branches. Cuts more than 1-1/2 inches in diameter shall be painted with an approved tree-wound paint. Trees and vegetation to be left standing shall be protected from damage incident to clearing, grubbing, and

construction operations by the erection of barriers or by such other means as the circumstances require.

- B. Clearing shall also include the removal and disposal of structures that obtrude, encroach upon, or otherwise obstruct the work.

3.2. GRUBBING

- A. Material to be grubbed, together with logs and other organic or metallic debris not suitable for foundation purposes, shall be removed to a depth of not less than 18 inches below the original surface level of the ground in areas indicated to be grubbed and in areas indicated as construction areas under this contract, such as areas for buildings, and areas to be paved.
- B. Depressions made by grubbing shall be filled with suitable material and compacted to make the surface conform with the original adjacent surface of the ground.

3.3. TREE REMOVAL

- A. Where indicated or directed, trees and stumps that are designated as trees shall be removed from areas outside those areas designated for clearing and grubbing. This work shall include the felling of such trees and the removal of their stumps and roots as specified in paragraph GRUBBING.
- B. Where Trees shall be disposed of in an approved manner.

3.4. DISPOSAL OF MATERIALS

- A. Logs, stumps, roots, brush, rotten wood, and other refuse from the clearing and grubbing operations shall be disposed of by the Contractor in an approved manner. The Contractor shall be responsible for compliance with all Federal and State laws and regulations and with reasonable practice relative to the disposal of the material.
- B. Disposal of refuse and debris and any accidental loss or damage attendant thereto shall be the Contractor's responsibility.

END OF SECTION

SECTION 02202
ROCK REMOVAL

PART 1 - GENERAL

1.1. WORK INCLUDED

- A. Removal of discovered rock during excavation.
- B. Use of explosives for rock removal.

1.2. RELATED WORK

- A. Geotechnical data as indicated on the Drawings.
- B. Section 02221 - Excavation.
- C. Section 02070 - Selective Demolition.

1.3. QUALITY ASSURANCE

- A. Explosives Firm: Company specializing in explosives for disintegration of subsurface rock with a certified blaster in the State of Kentucky.
- B. Contractor shall conform to all State, Federal, and Local laws, ordinances and regulations in regard to transportation, use, and handling of explosives.

1.4. OUTSIDE SERVICES

- A. Contractor shall employ the above mentioned experts if necessary during blasting, to protect workers, property and public.

1.5. SHOP DRAWINGS

- A. Submit means and methods under provisions of Section 01300.
- B. Indicated proposed method of blasting, delay pattern, explosives types, type of blasting mat or cover, and intended rock recovery method.

PART 2 - PRODUCTS

2.1. MATERIALS

- A. Rock Definition: Solid mineral material or man made material that cannot be removed with a power shovel or as defined by KDOH specifications.
- B. Explosives: Type recommended by explosives firm and required by authorities having jurisdiction.
- C. Delay Devices: Type recommended by explosives firm and conforming to State regulations.
- D. Blasting Materials: Type recommended by explosives firm and conforming to State regulations.

PART 3 - EXECUTION

3.1. INSPECTION

- A. Verify site conditions and note irregularities affecting work of this Section.
- B. Beginning work of this Section means acceptance of existing condition.

3.2. ROCK REMOVAL

- A. Excavate for and remove rock by a mechanical method.
- B. Cut away rock at excavation bottom to form even surface.
- C. In utility trenches, excavate to 6 inches below invert elevation of pipe and 24 inches wider than pipe diameter.
- D. Correct unauthorized rock removal in accordance with backfilling and compaction requirements of Section 02221, paragraph 3.04.

3.3. ROCK REMOVAL – EXPLOSIVES METHODS

- A. If rock is uncovered requiring the explosives method for rock disintegration, notify the Engineer.
- B. Advise Owners of adjacent building or structures in writing prior to setting up seismographs. Describe blasting and seismic operations.
- C. Peak particle velocity will be limited to 4.0 in./sec.

D. Provide seismographic monitoring during progress of all blasting operations, or as required by State regulations.

E. Distinguish rock and remove from excavation.

3.4. FIELD QUALITY CONTROL.

A. Engineer or his representative shall approve the depth of the final rock cut.

3.5. HAUL

A. No payment will be made separately or directly for haul on any part of the work for removed rock. All haul will be considered a necessary and incidental part of the work, and the cost thereof shall be considered by the Contractor in the contract unit price for the pay items of the work involved.

3.6. **ROCK REMOVAL**

A. **Rock removal is not a pay item. Cost associated with rock removal shall be incidental to the project and shall be considered by the contractor in the unit price for the pay items of the work involved.**

END OF SECTION

SECTION 02220

EXCAVATION

PART 1 - GENERAL

All excavation on this project is unclassified.

Rock removal is not a pay item.

PART 2 - PRODUCTS

Not used.

PART 3 - EXCAVATION FOR TRENCHES

3.1. INSPECTION

- A. All excavation on this project is unclassified. Rock removal is not a pay item.
- B. If the foundation is good firm earth and the machine excavation has been accomplished, the remainder of the material shall be excavated by hand and the earth pared or molded to give full support to the lower quadrant of the barrel of each pipe. Where bell and spigot pipe are involved, bell holes shall be excavated during this latter operation to prevent the bells from being supported on undisturbed earth. If for any reason the machine excavation in earth is carried below an evaluation that will permit the type of bedding in undisturbed earth, then a layer of granular material shall be placed so that the lower quadrant of the pipe will be securely bedded in the granular fill as described in Section 02700, Part 3, Article 3.03.
- C. If the foundation is rock and the excavation has been undercut as set out hereinbefore, a bed of No. 9 crushed stone aggregate shall be placed to provide continuous support for the lower quadrant of the pipe. This bedding is incidental cost of construction and is not a pay item.
- D. Trenches shall be of sufficient width to provide free working space on each side of the pipe and to permit proper backfilling around the pipe, but unless specifically authorized by the Engineer, trenches shall in no case be excavated or permitted to become wider than 2'6" plus the nominal diameters of the pipe at the level of or below the top of the pipe. Trenches cut in roads and streets shall not exceed a maximum width of 3'6" plus the nominal diameters of the pipe at the level of the road or street surface.
- E. All excavated materials shall be placed a minimum of 2 feet back from the edge of the trench.
- F. Unless specifically directed otherwise by the Engineer, not more than 500 feet of trench shall be opened ahead of the pipe laying work of any one crew, and not

more than 500 feet or open ditch shall be left behind the pipe laying work of any one crew or a total of 1000 feet or open ditch. Watchmen or barricades, lanterns, and other such signs and signals as may be necessary to warn the public of the dangers in connection with open trenches, excavations, and other obstructions, shall be provided by and at the expense of the Contractor.

- G. When so required, or when directed by the Engineer, only one-half of street crossings and road crossings shall be excavated before placing temporary bridges over the side excavated, for the convenience of the traveling public. All backfilled ditches shall be maintained in such manner that they will offer no hazard to the passage of traffic. The convenience of the traveling public and the property owners abutting the improvements shall be taken into consideration. All public or private drives shall be promptly backfilled or bridged at the direction of the Engineer.
- H. Where existing drainage ditches coincide with the proposed gravity sewer alignment, the Contractor shall re-establish the drainage ditch after the sewer line has been laid and properly backfilled. The drainage ditch shall be of equal size as the previously existing one and free of any restrictions which might impede flow.

3.2. REMOVAL OF WATER

- A. The Contractor, at his own expense, shall provide adequate facilities for promptly and continuously removing water from all excavation.
- B. To ensure proper conditions at all times during construction, the Contractor shall provide and maintain ample means and devices (including spare units kept ready for immediate use in case of breakdowns) with which to intercept and/or remove promptly and dispose properly for all water entering trenches and other excavations. Such excavation shall be kept dry until the structures, pipes, and appurtenances to be built therein have been completed to such extent that they will not be floated or otherwise damaged.
- C. All water pumped or drained from the work shall be disposed of in a suitable manner without undue interference with other work, damage to pavements, other surfaces, or property. Suitable temporary pipes, flumes, or channels shall be provided for water that may flow along or across the site of work.
- D. If necessary, The Contractor shall dewater the excavations by means of an efficient drainage wellpoint system which will drain the soil and prevent saturated soil from flowing into the excavation. The wellpoints shall be designed especially for this type of service. The pumping unit shall be designed for use with the wellpoints, and shall be capable of maintaining a high vacuum and of handling large volumes of air and water at the same time.

- E. The installation of the wellpoints and pump shall be done under the supervision of a competent representative of the manufacturer. The Contractor shall do all special work such as surrounding the wellpoints with sand or gravel or other work which is necessary for the wellpoint system to operate for the successful dewatering of the excavation

3.03 DISPOSITION OF EXCAVATED MATERIAL

Material excavated for gravity sewers, manholes, or other structures shall be disposed of by the Contractor at his own expense. All excavated material which is not needed or is unacceptable for backfilling purposes shall be disposed of by the Contractor in a manner satisfactory to the Engineer.

3.04 UNAUTHORIZED EXCAVATION

Whenever the excavation is carried beyond or below the required lines and grades, the Contractor, at his own expense, shall refill said excavated space with suitable material in a manner approved by the Engineer.

3.05 EXISTING UTILITIES AND OTHER OBSTRUCTIONS

The Engineer has endeavored to show all existing utilities and or obstructions to the best of his ability within the confines of information furnished by others. It is the full responsibility of the Contractor to verify locations as set out hereinafter and open sufficient ditch in advance to assure no conflicts. Relocations, adjustments, and damages due to improper planned methods and procedures will be at the cost of the Contractor. Any conflicts or damages by this project with existing utilities shall be immediately brought to the attention of the Engineer. If any utility is damaged or disrupted the Contractor must take what ever measures necessary to restore service immediately at his cost.

Prior to the commencement of construction on the project, the Contractor shall contact the utility companies whose lines (above and below ground) may be affected during construction and verify the locations of the utilities as shown on the Contract Drawings. The Contractor shall ascertain from said companies if he will be allowed to displace or alter, by necessity, those lines encountered or replace those lines disturbed by accident during construction, or if the companies themselves are only permitted by policy to perform such work. If the Contractor is permitted to perform such work, he shall leave the lines in as good condition as were originally encountered and complete the work as quickly as possible. All such lines or underground structures damaged or disrupted in the construction shall be replaced at the Contractors expense, unless, in the opinion of the Engineer, such damage was caused through no fault of the Contractor.

END OF SECTION

SECTION 02221

EXCAVATION, TRENCHING, AND BACKFILLING
FOR UTILITIES SYSTEMS

PART 1 – GENERAL

1.01 WORK INCLUDED, EXCAVATION, TRENCHING AND BACKFILLING FOR THE FOLLOWING SYSTEMS

- A. Water Systems.

1.02 RELATED WORK

- A. Section 02202 - Rock Removal
- B. Section 02270 - Erosion Control
- C. Section 02480 - Seeding

1.03 Applicable Publications

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

- A. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO T 180 (1986) Moisture-Density Relations of Soils Using a 10-lb. Rammer and 18-in Drop

- B. AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM)

ASTM D 2487 (1985) Classification of Soils for Engineering Purposes

1.04 DEFINITIONS

Degree of Compaction

Degree of compaction shall be expressed as a percentage of the maximum density obtained by the test procedure presented in -AASHTO T 180-, Method D.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Satisfactory Materials

Satisfactory materials shall consist of any material classified by -ASTM D 2487- as GW, GP, and SW.

B. Unsatisfactory Materials

Unsatisfactory materials shall be materials that do not comply with the requirements for satisfactory materials. Unsatisfactory materials include but are not limited to those materials containing roots and other organic matter, trash, debris, frozen materials and stones larger than 3 inches, and materials classified in ASTM D 2487, as PT, OH, and OL. Unsatisfactory materials also include man-made fills, refuse, or backfills from previous construction.

C. Cohesionless and Cohesive Materials

Cohesionless materials shall include materials classified in -ASTM D 2487- as GW, GP, SW, and SP. Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesionless only when the fines are non-plastic.

D. Rock - See Section 02202**E. Unyielding Material**

Unyielding material shall consist of rock and gravelly soils with stones greater than 3 inches in any dimension or as defined by the pipe manufacturer, whichever is smaller.

F. Unstable Material

Unstable material shall consist of materials too wet to properly support the utility pipe, conduit, or appurtenant structure.

G. Select Granular Material

Select granular material shall consist of well-graded sand, gravel, crushed gravel, crushed stone or crushed slag composed of hard, tough and durable particles, and shall contain not more than 10 percent by weight of material passing a No. 200 mesh sieve and no less than 95 percent by weight passing the 1-inch sieve. The maximum allowable aggregate size shall be 1 inch, or the maximum size recommended by the pipe manufacturer, whichever is smaller.

H. Initial Backfill Material

Initial backfill shall consist of select granular material or satisfactory materials free from rocks 3 inches or larger in any dimension or free from rocks of such size as recommended by the pipe manufacturer, whichever is smaller. When the pipe is coated or wrapped for corrosion protection, the initial backfill material shall be free of stones larger than 2 inches in any dimension or as recommended by the pipe manufacturer, whichever is smaller.

PART 3 – EXECUTION

3.01 EXCAVATION

Excavation shall be performed to the lines and grades indicated. Rock excavation shall include removal and disposition of material. Earth excavation shall include removal and disposal of material not classified as rock excavation. During excavation, material satisfactory for backfilling shall be stockpiled in an orderly manner at a distance from the banks of the trench equal to 1/2 the depth of the excavation, but in no instance closer than 2 feet. Excavated material not required or not satisfactory for backfill shall be removed from the site. Grading shall be done as may be necessary to prevent surface water from flowing into the excavation, and any water accumulating therein shall be removed to maintain the stability of the bottom and sides of the excavation.

3.02 Trench Excavation

The trench shall be excavated as specified for applicable utility. Trench walls below the top of the pipe shall be sloped, or made vertical, and of such width as recommended in the manufacturer's installation manual. Where no manufacturer's installation manual is available, trench walls shall be made vertical. Trench walls more than 4 feet high shall be shored, cut back to a stable slope, or provided with equivalent means of protection for employees who may be exposed to moving ground or cave in. Vertical trench walls more than 4 feet high shall be shored. Trench walls which are cut back shall be excavated to at least the angle of repose of the soil. Special attention shall be given to slopes which may be adversely affected by weather or moisture content. The trench width below the top of pipe or cable shall not exceed 24 inches plus pipe outside diameter (O.D.) for pipes of less than 24 inches inside diameter and shall not exceed 36 inches plus pipe outside diameter for sizes larger than 24 inches inside diameter. Where recommended trench widths are exceeded, redesign, stronger pipe, or special installation procedures shall be utilized by the Contractor. The cost of redesign, stronger pipe, or special installation procedures shall be borne by the Contractor without any additional cost to the Owner.

3.03 Bottom Preparation

The bottoms of trenches shall be accurately graded to provide uniform bearing and support for the bottom quadrant of each section of the pipe. Bell holes shall be excavated to the necessary size at each joint or coupling to eliminate point bearing. Stones of 3 inches or greater in any dimension, or as recommended by the pipe manufacturer, whichever is smaller, shall be removed to avoid point bearing.

3.04 Removal of Unyielding Material

Where over-depth is not indicated and unyielding material is encountered in the bottom of the trench, such material shall be removed 4 inches below the required grade and replaced with suitable materials as provided in paragraph "BACKFILLING AND COMPACTION."

3.05 Removal of Unstable Material

Where unstable material is encountered in the bottom of the trench, such material shall be removed to the depth directed and replaced to the proper grade with select granular material as provided in paragraph "BACKFILLING AND COMPACTION." When removal of unstable material is required due to the fault or neglect of the Contractor in his performance of the work, the resulting material shall be excavated and replaced by the Contractor without additional cost to the Government.

3.06 Jacking, Boring, and Tunneling

Unless otherwise indicated, excavation shall be by open cut except that sections of a trench may be jacked, bored, or tunneled if, in the opinion of the Engineer, the pipe, cable, or duct can be safely and properly installed and backfill can be properly compacted in such sections.

3.07 Stockpiles

Stockpiles of satisfactory and wasted materials shall be placed and graded. Stockpiles shall be kept in a neat and well drained condition, giving due consideration to drainage at all times. The ground surface at stockpile locations shall be cleared, grubbed, and sealed by rubber-tired equipment, excavated satisfactory and unsatisfactory materials shall be separately stockpiled. Stockpiles of satisfactory materials shall be protected from contamination which may destroy the quality and fitness of the stockpiled material. If the Contractor fails to protect the stockpiles, and any material becomes unsatisfactory, such material shall be removed and replaced with satisfactory material from approved sources at no additional cost to the Government.

3.08 Placement of facilities (pipe, cable, ducts) may be on solid good clean compacted earth. See details.

3.09 BACKFILLING AND COMPACTION

Backfill material shall consist of satisfactory material, select granular material, or initial backfill material as required. Backfill shall be placed in layers not exceeding 6 inches loose thickness for compaction by hand operated machine compactors, and 8 inches loose thickness for other than hand operated machines, unless otherwise specified. Each layer shall be compacted to at least 95 percent maximum density for cohesionless soils and 90 percent maximum density for cohesive soils, unless otherwise specified.

3.10 Trench Backfill

Trenches shall be backfilled to the grade shown. The trench shall be backfilled to 2 feet above the top of pipe prior to performing the required pressure tests. The joints and couplings shall be left uncovered during the pressure test.

A. Replacement of Unyielding Material

Unyielding material removed from the bottom of the trench shall be replaced with select granular material or initial backfill material.

B. Replacement of Unstable Material

Unstable material removed from the bottom of the trench or excavation shall be replaced with select granular material placed in layers not exceeding 6 inches loose thickness.

C. Bedding and Initial Backfill

Bedding of bank run sand or #9 gravel 4" thick shall be placed under water lines. Initial backfill material shall be placed and compacted with approved tampers to a height of at least one foot above the utility pipe or cable. The backfill shall be brought up evenly on both sides of the pipe for the full length of the pipe. Care shall be taken to ensure thorough compaction of the fill under the haunches of the pipe.

D. Final Backfill

The remainder of the trench, shall be filled with satisfactory material. Backfill material shall be placed and compacted as follows:

Sidewalks, Turfed or Seeded Areas and Miscellaneous Areas: Backfill shall be deposited in layers of a maximum of 12-inch loose thickness, and compacted to 85 percent maximum density for cohesive soils and 90 percent maximum density for cohesionless soils. Compaction by water flooding or jetting will not be permitted. This requirement shall also apply to all other areas not specifically designated above.

END OF SECTION

SECTION 02270

EROSION CONTROL, SEDIMENTATION, AND CONTAINMENT
OF CONSTRUCTION MATERIALS

PART 1 - GENERAL

1.1. WORK INCLUDED

- A. The Contractor shall do all work and take all measures necessary to control soil erosion resulting from construction operations, shall prevent the flow of sediment from the construction site, and shall contain construction materials (including excavation and backfill) within his protected working area so as to prevent damage to the adjacent wetlands.
- B. The Contractor shall not employ any construction method that violates a rule, regulation, guideline, or procedure established by Federal, State or local agencies having jurisdiction over the environmental effects of construction.
- C. Pollutants such as chemicals, fuels, lubricants, bitumen, raw sewage, and other harmful waste shall not be discharged into or alongside of any body of water or into natural or man-made channels leading thereto.

PART 2 - PRODUCTS

2.1. METHODS OF CONSTRUCTION

- A. The Contractor shall use any of the acceptable methods necessary to control soil erosion and prevent the flow of sediment to the maximum extent possible. These methods shall include, but not be limited to, the use of water diversion structures, diversion ditches, and settling basins.
- B. Construction operations shall be restricted to the areas of work indicated on the Drawings and to the area, which must be entered for the construction of temporary, or permanent facilities. The Engineer has the authority to limit the surface area of awardable earth material erodible by clearing and grubbing, excavation, borrow and fill operations, and to direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of the wetlands and adjacent watercourses. Such work may involve the construction of temporary berms, dikes, dams, sediment basins, slope drains, and use of temporary mulches, mats, or other control devices or methods as necessary to control erosion.
- C. Excavated soil material shall not be placed adjacent to the wetlands or watercourses in a manner that will cause it to be washed away by high water or

runoff. Earth berms or diversions constructed to intercept outlets shall be stable or shall be stabilized by means acceptable to the Engineer. If for any reason construction materials are washed away during the course of construction, the Contractor shall remove those materials from the fouled areas as directed by the Engineer.

- D. For work within easements, all materials used on construction such as excavation, backfill, roadway and pipe bedding and equipment, shall be kept within the limits of the easements.
- E. The Contractor shall not pump silt-laden water from trenches or other excavations into the wetlands or adjacent watercourses. Instead, silt-laden water from his excavations shall be discharged within areas surrounded by baled hay or into sediment traps to ensure the only sediment-free water is returned to the watercourses. Damage to vegetation by excessive watering or silt accumulation in the discharge area shall be avoided.
- F. Prohibited construction procedures include, but are not limited to, the following:
 - 1. Dumping of spoil material into any streams, wetlands, surface waters, or unspecified locations.
 - 2. Indiscriminate, arbitrary, or capricious operation of equipment in wetlands or surface waters.
 - 3. Pumping of silt-laden water from trenches or excavations into surface waters or wetlands.
 - 4. Damaging vegetation adjacent to our outside of the construction area limits.
 - 5. Disposal of trees, brush, debris, paints, chemicals, asphalt products, concrete curing compounds, fuels, lubricants, insecticides, washwater from concrete trucks or hydroseeders, or any other pollutant in wetlands, surface waters, or unspecified locations.
 - 6. Open burning of debris from the construction work.
- G. Any temporary working roadways required shall consist of clean fill approved by the Engineer. In the event fill is used, the Contractor shall take every precaution to prevent the fill from mixing with native materials of the site. All such foreign materials shall be removed from the site following construction.

2.2. EROSION CHECKS

- A. The Contractor shall furnish and install baled hay or straw erosion checks in all locations indicated on the Drawings, surrounding the base of all deposits of stored excavated material outside of the disturbed area, and where indicated by the Engineer.
- B. Checks, where indicated on the Drawings, shall be installed immediately after the

site is cleared and before trench excavation is begun at the location indicated. Checks located surrounding stored material shall be located approximately 6 feet from that material.

- C. Bales shall be held in place with two 2-inch by 2-inch by 4-foot wooden stakes. Each bale shall be butted tightly against the adjoining bale to preclude short-circuiting of the erosion check.

END OF SECTION

SECTION 02480

SEEDING, FERTILIZING AND MULCHING

PART 1 - GENERAL

1.1. WORK INCLUDED

A. CONDITIONS

1. General provisions of CONTRACT DOCUMENTS apply to this section.

B. DESCRIPTION OF WORK

1. Provide labor, material, equipment and services necessary for proper and complete seeding, fertilizing and mulching.
2. Seed all new and disturbed lawn areas not otherwise indicated to be sodded.

1.2. QUALITY ASSURANCE

- A. The intent of these Specifications is to require the Contractor to provide, in all areas to be seeded, fertilized and mulched, a smooth uniform turf of the grasses specified free from bare spots, eroded areas, weeds or other deficiencies. Acceptance by the Engineer is conditional upon compliance with this intent after initial growing season.
- B. Areas outside limits of construction, damaged by work under this Contract, shall be repaired as required to match existing conditions. This includes borrow areas for excavation.

PART 2 - PRODUCTS

2.1. MATERIALS

- A. Mulch shall be straw or hay mulch, tacked with asphalt, straw or hay mulch fixed in place with disk land packers or disk harrows; or fiber mulch applied simultaneously with grass seed and fertilizer by the use of hydroseeding machinery.
1. Straw shall be stalks from oats, wheat, rye, barley, or rice that are free from noxious weeds, mold, or other objectionable material. Straw shall be in an air-dry condition suitable for placing with blower equipment.
 2. Hay shall be native hay, sudan-grass hay, broomsedge hay, or other herbaceous mowings, free from noxious weeds, mold or other

objectionable material. Hay shall be in an air-dry condition and suitable for placing with blower equipment.

3. Wood cellulose fiber for use with hydraulic application or grass seed and fertilizer shall consist of specially prepared wood cellulose fiber or a combination of wood cellulose and recycled newsprint fibers, processed to contain no growth or germination - inhibiting factors and dyed an appropriate color to facilitate visual metering of the application of materials. On an air-dry weight basis, the wood cellulose fiber shall contain a maximum of 12 percent moisture, plus or minus 3 percent at the time manufactured. The combination of wood cellulose and recycled newsprint fibers shall contain a maximum of 10 percent moisture plus or minus 3 percent at the time of manufacture. The pH range for either mix shall be between 4.5 and 6.5.

- B. Commercial fertilizer shall be a complete commercial fertilizer of 10-10-10 formula, uniform in composition, dry and free flowing. Fertilizer which becomes caked or otherwise damaged making it unsuitable for use will not be accepted.
- C. Limestone shall be finely pulverized (calcium carbonate) containing equivalent of at least 45% calcium oxide, and so pulverized that the residue on #30 and #200 sieves is not more than 0.5% and 15% respectively.
- D. Seed Mixture
Lawn seed shall be guaranteed by dealer and distributed as follows:

50% Fine Leaf Falcon Fescue
20% Kentucky Bluegrass "Ken-Blue"
30% Perennial Ryegrass

2.2 SOIL IMPROVEMENTS

- A. A soil test shall be performed for pH, chemical analysis and mechanical analysis to establish the quantities and type of soil amendments required to meet local growing conditions for the type and variety of turf specified. Cost of soil tests is not a pay item and is an incidental cost to the Contractor.
- B. Lime shall be applied at the rate recommended by the soil test. Lime shall be incorporated into the soil to a minimum depth of 4 inches or may be incorporated as part of the tillage operation.
- C. Fertilizer shall be applied at the rate recommended by the soil test. Fertilizer shall be incorporated into the soil to a minimum depth of 4 inches or may be incorporated as part of the tillage or hydroseeding operation.

2.3 SEEDING AND MULCHING

- A. Planting Seasons and Conditions: Planting shall not be done when the ground is frozen, snow-covered, or in an unsatisfactory condition for planting. Spring seeding season shall be between February 15 and April 15. Fall seeding shall be between August 15 and October 15.
- B. Seeding seasons may be extended only at direction of Engineer.
1. Seeding:
 - a. Seed shall be broadcast uniformly by approved sowing equipment at the rate of 5 pounds per 1,000 square feet over a designated area. One half of the seed shall be sown in one direction, and the remainder shall be sown at right angles to the first sowing. The seed shall be covered to an average depth of (0.2-0.4) inch by means of spike tooth harrow, cultipacker, or other approved device. Seed shall not be broadcast when winds are above 10 miles per hour.
 - b. Drill seeding shall be accomplished using approved equipment such as cultipacker seeders and grass seed drills. The seed shall be drilled uniformly to an average depth of (0.2-0.4) inch at a rate of 5 pounds per 1,000 square feet.
 - c. When hydroseeding, the (seed and fertilizer), (seed, fertilizer, and approved mulch material) shall be mixed in the required amount of water to produce a homogeneous slurry and then uniformly applied. Wood cellulose or straw mulch shall be added after the seed and fertilizer have been thoroughly mixed. Lime, when applied hydraulically, shall be a single, separate operation.
 - d. Immediately after seeding, the entire area shall be firmed with a roller not exceeding 90 pounds for each foot of roller width. If seeding is performed with a cultipacker-type seeder or if seed is applied in combination with hydromulching, rolling will not be required.
 2. Mulching (Straw and Asphalt):
 - a. All seeded areas indicated or directed by the Engineer shall be mulched with a straw and asphalt mat. Mulching shall follow seeding operation not later than 48 hours. The asphalt mat will not be required on areas adjacent to buildings, sidewalks or concrete curbs.
 - b. Straw and asphalt mat shall be applied at rate of two and one-half (2½) tons of straw per acre, and 200 gallons of asphalt per acre. Asphalt shall either be emulsified RS-1 grade or cutback RC-1 grade. Method of application may be:

- 1) by spreading straw evenly over seeded area after which asphalt tie-down is sprayed over straw in a solid pattern, or
- 2) by applying mat in one operation by a jet type mulch spreader in which straw and asphalt are sprayed in mixture evenly over area.

2.4 SEED PROTECTION ON SLOPES

- A. Cover seeded slopes where grade is 3:1 or greater with jute matting. Roll matting down over slopes without stretching or pulling.
- B. Lay matting smoothly on soil surface, boring top end of each section in narrow 6-inch trench. Leave 12 inches overlap from top roll over bottom roll. Leave 4 inches overlap over adjacent section.
- C. Staple outside edges and overlaps at 36-inch intervals.
- D. Lightly dress slopes with topsoil to ensure close contact between matting and soil.
- E. In ditches, unroll matting in direction of flow. Overlap ends of strips 6 inches with upstream section on top.

2.5 WATERING

- A. Immediately following seeding, the Contractor shall water areas thoroughly, including subgrade.
- B. The prepared area is to be watered a minimum of two times per week until it has been accepted. This will not be required if sufficient rain occurs during the week.

2.6 CLEAN-UP

- A. Soil, peat or similar material which has been brought onto paved areas within or outside construction limit by hauling operations or otherwise shall be removed promptly, keeping these areas clean at all times.
- B. Upon completion of seeding, all excess soil, stones and debris which have not previously been cleaned up shall be removed from site or disposed of as directed by the Engineer.
- C. All attended areas shall be prepared for final inspection.

2.7 MAINTENANCE

- A. Maintenance shall begin immediately following last operation of seeding and shall continue until turf is formally accepted.

- B. Maintenance shall include watering, weeding, cultivating, mulching, regular mowing or seeded areas, and removal of dead materials.

2.8 INSPECTION FOR ACCEPTANCE

- A. Inspection of work of this section to determine completion, exclusive of possible replacement of seed, will be made by the Engineer upon written notice requesting such inspection submitted at least ten (10) days prior to anticipated date of inspection and provided that an 80% minimum coverage per square foot for all seeded areas has been established. Contractor shall guarantee, at the time of compliance with the intent of this Specification described herein. This guarantee shall apply to all permanent seeding performed in conjunction with project, regardless of type protection used or season in which seeding performed.
- B. When seeding does not meet guarantee requirements at time of inspection, the Contractor will be advised of amount and location of corrective work deemed necessary. Additional work required may include preparation of a new seedbed, refertilizing, reseeding, remulching, or any erosion control items that were originally required. Contractor shall perform all corrective work as soon as favorable working conditions occur after being advised of corrective work required. Corrective work and materials required to fulfill guarantee requirements will not be paid for, except as hereinafter provided for unavoidable damage.
- C. When unavoidable damage occurs after date project is declared complete and before inspection previously described, then payment will be made at original contract unit prices for additional seeding and protection work ordered by the Engineer. Unavoidable damage may result from slides, vehicular traffic, fires, and deluges. Failure of seed to sprout and grow will not be considered unavoidable damage.
- D. From time seeding and protection work begins until date project is declared complete, keep all seeded areas in good condition at all times. Damage to seeded areas or to mulch materials shall be promptly repaired as directed. All work and materials necessary to protect, maintain and restore seeded areas during life of contract shall be performed at no additional cost to Owner, except additional work caused by changes in project by the Engineer.
- E. When it becomes necessary to disturb previously seeded areas at direction of the Engineer, payment for a reasonable amount of additional work, as determined by the Engineer, will be made at original contract unit price. No payment will be made for additional work due to changes made for benefit of Contractor, nor will payment be made for corrective work required because Contractor has failed to properly coordinate his entire erosion control schedule thus causing previously seeded areas to be disturbed by operations that could have been performed prior to seeding.

- F. After inspection, Contractor will be notified in writing by Engineer or acceptance of all work of this Section and Contractor will be notified in writing if there are deficiencies of requirements for completion of work. Replacements, maintenance or repair work remaining to be done shall be subject to re-inspection before acceptance.

2.9 PLANT WARRANTY AND REPLACEMENT

- A. The Contractor shall warrant 80% coverage per square foot of established grass area for duration of one (1) growing season after final acceptance of seeding by Owner. Seed shall be alive and in satisfactory growth at end of warranty period.
- B. Owner will be responsible for all maintenance necessary to keep grass alive and healthy between time lawns are accepted and end of warranty period. Basic needs of lawn during this period are for adequate water and protection from insects and other similar pests.
- C. Should contractor find lawn is not receiving proper maintenance at any time prior to end of the warranty period, he shall advise Engineer and Owner immediately in writing so corrective measures may be initiated.

END OF SECTION

SECTION 02701

POLYVINYL CHLORIDE PIPE
(WATER MAINS)

PART 1 GENERAL

1.01 DESCRIPTION

- A. Polyvinyl chloride (PVC) pressure pipe two inches through twelve inch shall conform to the American Society for Testing and Materials (ASTM) Standard ASTM D-2241.
- B. Pressure class shall be 200 psi with a standard dimension ration (SDR) of 21 or 250 psi with SDR of 17 as called for on plans and of the size noted on the Plans and/or C900 DR 18.
- C. Molecular oriented PVC pressure pipe (PVCO) may be substituted as an "or equal" for **six inch Class 200 PVC pipe only**.

1.02 RELATED SECTIONS

- A. Section 01300 Submittals
- B. Section 01600 Material & Equipment

PART 2 PRODUCTS

2.01 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

- A. **Unless shown otherwise on the Plans** or in the Contract Documents, the Contractor may use any of the following types of PVC pipe.
 - 1. PVC pipe meeting the requirements of AWWA C 900, Standard Specification for Polyvinyl Chloride (PVC) Pressure Pipe, 4-Inch through 12-inch. PVC pipe meeting the requirements of AWWA C 905, Standard Specification for Polyvinyl Chloride (PVC) Water Transmission Pipe, Nominal Diameters 14-inch through 36-inch. The minimum pressure class allowed shall be Class 200 (DR 18).

Joints shall be gasket, bell and spigot, push-on types, which meet the requirements of AWWA C 900. Gaskets shall meet the requirements of ASTM F 477, Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

2. PVC pipe meeting the requirements of ASTM D 2241, Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series). The minimum pressure rating shall be 200 psi.

Joints shall be gasket, bell and spigot, push-on types which meet the requirements of ASTM D 3139, Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals. Gaskets shall meet the requirements of ASTM F 477, Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

3. Molecular oriented PVC pressure pipe (PVCO) may be substituted as an "or equal" for **six inch and above Class 200 PVC pipe only**. Molecular oriented PVC pressure pipe, PVCO, shall conform to latest revisions of ASTM F-1483. Pipe must be manufactured from rigid poly (vinyl chloride) compound having a cell classification of 1245-B in conformance with ASTM D-1784 having a hydrostatic design stress (HDS) of 2,000 psi. The finished PVCO pipe shall have a HDS of 3,550-psi minimum. The pipe shall have steel pipe (IPS) O.D.'s. PVCO pipe shall have an operating pressure of 200 psi and shall be as manufactured by Uponor-ETI or approved equal.

2.02 ANCHORING ASSEMBLIES

- A. Anchoring assemblies will be required for all fire hydrants and hydrant valves. Anchoring assemblies will be required for setting other valves and bends, as shown on the drawings and details.
- B. Special anchoring will be required at other places along the pipelines. Where the construction drawings call for special anchoring, it shall include ductile iron pipe with mechanical joint anchoring fittings, locked mechanical joints, pipe or positively restrained push-on joint type ductile iron pipe and fittings which allow for the deflection at the joint after assembly, such as "Super-Lock" manufactured by the Clow Corporation or approved equal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. The installation of PVC pipelines is intended to conform to AWWA Specifications C900 latest revision and Appendix A as if they were totally incorporated herein, except where these specifications direct otherwise.

3.02 FITTINGS

- A. All fittings for 3" and above PVC pipe shall be a ductile iron push-on joint Class 250 tar coated outside, cement lined inside in accordance with ANSI/AWWA

Specifications C110/A21.10, C111/A21.11 or ductile iron fittings in accordance with AWWA C153. All fittings for C900 called for on Drawings shall be ductile iron as called for above with mechanical joints.

- B. All fittings for PVC pipe smaller than 3" shall be PVC push-on socket type with rubber gasket, SDR 21, 200 psi based on SDR working pressure. Fittings shall meet all requirements of ASTM Specifications D3139 and shall be suitable for a working pressure of 200 psi unless the water line is designated Class 250. If the water line is designated Class 250 then fittings must be Class 250.

3.03 TIE-INS TO EXISTING LINES

- A. The Contractor, in conjunction with the Owner may shut the specific line down for prearranged minimum periods, to make these connections. However, the Contractor will be required to disinfect and flush the affected lines to assure proper levels of chlorine residual.

END OF SECTION

SECTION 02702**HIGH DENSITY POLYETHYLENE (HDPE) PIPE AND FITTINGS****PART 1 – GENERAL****1.01 DESCRIPTION****A. SCOPE**

1. This section specifies high density polyethylene (HDPE) pipe and fittings, including acceptable fusion technique and practice, and safe handling and storage.

B. PIPE DESCRIPTION

1. Pipe Supplier shall furnish high density polyethylene (HDPE) pipe and fittings conforming to all applicable standards and procedures as referenced in this specification, and meeting all applicable testing and material properties as described by the applicable standards referenced in this specification or as required within this specification.

1.02 QUALITY ASSURANCE**A. REFERENCES:**

1. This section contains references to the following documents. They are a part of this section to the extent referenced in this specification. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of a conflict between the requirements of this section and those of the referenced documents, the requirements of this specification shall prevail.
2. Unless otherwise specified, references to documents shall mean the latest published edition of the referenced document in effect at the time of construction.

Reference	Title
AWWA C651	Standard for Disinfecting Water Mains
ANSI/AWWA C901	Polyethylene (PE) Pressure Pipe and Tubing, ½ In. (13 mm) Through 3 In. (76 mm) for Water Service
ASTM C923	Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals
AWWA M55	Manual of Water Supply Practices, PE Pipe—Design and Installation
ASTM D1603	Standard Test Method for Carbon Black in Olefin Plastics
ASTM D2321	Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
ASTM D2774	Standard Practice for Underground Installation of Thermoplastic Pressure Piping
ASTM D3035	Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter
ASTM D3261	Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing
ASTM D3350	Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
ASTM D4218	Standard Test method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique
ASTM F585	Standard Practice for Insertion of Flexible Polyethylene Pipe Into Existing Sewers

Reference	Title
ASTM F714	Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter
ASTM F1055	Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing
ASTM F1290	Standard Practice for Electrofusion Joining Polyolefin Pipe and Fittings
ASTM F1417	Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air
ASTM F1962	Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit Under Obstacles, Including River Crossings
ASTM F2164	Standard Practice for Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure
ASTM F2206	Standard Specification for Fabricated Fittings of Butt-Fused Polyethylene (PE) Plastic Pipe, Fittings, Sheet Stock, Plate Stock, or Block Stock
ASTM F2620	Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings
NSF/ANSI 61	Drinking Water System Components—Health Effects
PPI TR-4	PPI Listing of Hydrostatic Design Basis (HDB), Strength Design Basis (SDB), Pressure Design Basis (PDB) and Minimum Required Strength Ratings for Thermoplastic Piping Materials for Pipe

B. MANUFACTURER REQUIREMENTS

1. High density polyethylene (HDPE) pipe and fittings shall be manufactured in accordance with the following standards
 - a. ASTM D3035 – ½ in through 24-in pipe
 - b. ASTM F714 – 3-in through 54-in pipe
 - c. AWWA C901 – 1/2 In. (130mm) through 3 In. (76 mm) pipe and tubing
 - d. ASTM D3261 – butt fusion fittings, saddles and flange adapters
 - e. ASTM F1055 – electrofusion couplings and saddles.
 - f. ASTM F2206 – fabricated fittings

C. FUSION TECHNICIAN REQUIREMENTS

1. Each Fusion Technician shall be separately qualified to make each type of fusion joint. Fusion joint types are butt fusion, saddle fusion and electrofusion. Qualification to make one type of fusion joint shall not qualify a Fusion Technician to make a different type of fusion joint.
2. Each Fusion Technician making butt fusion joints shall be qualified to make butt fusion joints in accordance with ASTM F2620. Qualification shall have occurred not more than 12 months before performing fusion joining on site in accordance with this specification. Qualification shall be a documented demonstration of proficiency by making joints in accordance with ASTM F2620 that are proved to be satisfactory by destructive testing in accordance with ASTM F2620.
3. Each Fusion Technician making saddle fusion joints shall be qualified to make saddle fusion joints in accordance with ASTM F2620. Qualification shall have occurred not more than 12 months before performing on-site fusion joining in

accordance with this specification. Qualification shall be a documented demonstration of proficiency by making joints in accordance with ASTM F2620 that are proved to be satisfactory by destructive testing in accordance with ASTM F2620.

4. Each Fusion Technician making electrofusion fitting joints shall be qualified to make electrofusion fitting joints in accordance with ASTM F1290 and the electrofusion fitting manufacturer's recommended procedure. Qualification shall have occurred not more than 12 months before performing on-site fusion joining in accordance with this specification. Qualification shall be a documented demonstration of proficiency by making joints in accordance with ASTM F1290 and the electrofusion fitting manufacturer's recommended procedure that are proved to be satisfactory by destructive testing in accordance with ASTM F1290 and the electrofusion fitting manufacturer's recommended procedure.

D. WARRANTY

1. Pipe and fitting suppliers shall provide a one-year warranty covering defects in product material and workmanship. A successful pressure test or pressure leak test prior to the expiration of the warranty period shall not relieve the supplier of warranty responsibility for the full warranty term.
2. Fusion providers shall provide a one-year warranty from the date of installation acceptance covering defects in fusion joining workmanship that shall provide for remaking defective butt fusion, saddle fusion or electrofusion joints. A successful pressure test or pressure leak test prior to the expiration of the warranty period shall not relieve the installer of warranty responsibility for the full warranty term.

E. SUBMITTALS

1. The following information shall be submitted by pipe and fitting suppliers under section 01300 – Shop Drawings
 - a. Name of the pipe manufacturer and a list of the piping and quantities to be provided by manufacturer.
 - b. Name(s) of fitting manufacturer(s) and lists of fittings and quantities to be provided by manufacturer.
 - c. Pipe and fitting product data indicating conformance with this specification, applicable standards, and warranty provisions, including written documentation regarding any intended variance from this specification and applicable standards.
 - d. At the time of shipment, the supplier shall provide certified documentation of pipe and fitting conformance with this specification and applicable pipe and fitting standards specified herein.
2. The following information shall be submitted by Fusion Providers.
 - a. Documentation that each Fusion Technician has met requirements for joining proficiency for each type of fusion joint performed by the Fusion Technician under this specification.
 - b. Documentation of conformance with this specification and applicable standards, including written documentation regarding any intended variance from this specification and applicable standards. This will include fusion joint warranty information and recommended project specific fusion parameters, including criteria logged and recorded by data logger.

- c. The following AS-RECORDED DATA is required from the Contractor and/or Fusion Provider:
- 1) Fusion reports for each fusion joint performed on the project, including joints that were rejected. Submittals of the Fusion Technician's joint reports are required as requested by the Owner or Engineer. Specific requirements of the Fusion Technician's joint report shall include:
 - (a) Pipe or fitting size and DR or pressure class rating
 - (b) Fusion equipment size and identification
 - (c) Fusion Technician Identification
 - (d) Job Identification Number
 - (e) Fusion Number
 - (f) Fusion joining parameters
 - (g) Ambient Temperature

PART 2 – PRODUCTS

2.01 PIPE AND FITTINGS FOR PRESSURE POTABLE WATER SERVICE

A. PE3608 pipe and fitting material compound:

1. PE3608 material compound shall conform to material requirements specified in ASTM D3035 or ASTM F714 or AWWA C901 or AWWA C906 or ASTM D3261 or ASTM F1055 or ASTM F2206 as applicable for the pipe or fitting. PE3608 material shall meet the requirements of ASTM D3350 and shall meet or exceed a cell classification of 345464 per ASTM D3350.
2. PE3608 material compound shall have a hydrostatic design stress (HDS) rating for water at 73°F (23°C) of not less than 800 psi that shall be documented in the name of the pipe manufacturer in PPI TR-4.
3. PE3608 material compound shall have a hydrostatic design basis (HDB) rating at 140°F (60°C) of not less than 800 psi that shall be documented in the name of the pipe manufacturer in PPI TR-4.
4. PE3608 pipe and fitting material compound in PE3608 pipe and fittings shall contain color and ultraviolet (UV) stabilizer meeting the requirements of Code C or E per ASTM D3350. Code C material shall contain 2 to 3 percent carbon black to provide indefinite protection against UV degradation when material from the pipe is tested in accordance with ASTM D1603 or ASTM D4218. Code E material used for coextruded OD color stripes or a coextruded ID color layer shall contain sufficient UV stabilizer to protect the pipe against UV degradation for at least 24 months of unprotected outdoor exposure. Coextruded color PE compound material shall be PE3608 pipe material compound, varying only by color and UV stabilizer.
5. Clean rework materials derived from pipe production by the same manufacturer are acceptable as part of a blend with virgin material for the production of new pipe or tubing provided that the rework material is the same PE3608 material designation as the virgin material compound to which it is added. Finished products containing rework material shall meet the requirements this specification.

6. *Qualification for potable water service.* PE3608 compounds shall be tested and certified as suitable for use with potable water in accordance with requirements that are no less restrictive than the applicable requirements in NSF/ANSI 61.
- B. PE3608 pipe and butt fusion fittings shall have plain ends for butt fusion.
- C. PE3608 pipe
1. Nominal straight lengths of 3 inch and larger pipe shall be 40 ft. or 50 ft.
 2. Nominal coil lengths of 4-inch and smaller pipe shall be 500 ft. Longer or shorter coils such as 800 ft for 4-inch pipe, 1000 ft for 3-inch pipe, or 2000 ft for 2 inch or smaller pipe shall be acceptable.
 3. Pipe shall be black. Coextruded OD blue stripes shall be an acceptable option.
 4. Pipe shall be permanently marked using heated indent printing in accordance with ASTM D3035 or ASTM F714 or AWWA C901 or AWWA C906 as applicable for the pipe size including:
 - a. Nominal size and sizing system, e.g., IPS or DIOD
 - b. PE3608 material designation
 - c. DR or SDR
 - d. Standard Designation, e.g., ASTM D3035 or ASTM F714 or AWWA C901 or AWWA C906
 - 1) The Standard Designation marking on the pipe shall serve as the manufacturer's certification that the pipe has been manufactured, sampled and tested and has been found to comply with the requirements of the standard.
 - e. NSF-61 mark verifying suitability for potable water service
 - f. Extrusion production-record code
 - g. Manufacturer's Trademark or trade name
- D. PE3608 fittings
1. PE3608 butt fusion, saddle fusion, electrofusion and fabricated fittings shall be manufactured from PE3608 material compound in accordance with this specification.
 2. PE3608 fittings shall comply with ASTM D3261 for molded butt fusion and saddle fusion fittings, flange adapters and MJ adapters, or shall comply with ASTM F2206 or AWWA C906 for fabricated butt fusion fittings, or shall comply with ASTM F1055 for electrofusion fittings.
 3. PE3608 fittings shall comply with the marking requirements of ASTM D3261 for molded butt and saddle fusion fittings, flange adapters and MJ adapters or shall comply with the marking requirements of ASTM F2206 or AWWA C906 for fabricated butt fusion fittings, or shall comply with the marking requirements of ASTM F1055 for electrofusion fittings.
 - a. Marking shall include the NSF-61 mark verifying suitability for potable water service.
 4. PE3608 fittings shall have pressure class ratings not less than the pressure class rating of the pipe to which they are joined.

2.02 PIPE AND FITTINGS FOR PRESSURE NON-POTABLE (RECLAIMED) WATER SERVICE

A. PE3608 pipe and fitting material compound:

1. PE3608 material compound shall conform to material requirements specified in ASTM D3035 or ASTM F714 or AWWA C901 or AWWA C906 or ASTM D3261 or ASTM F2206 or ASTM F1055 as applicable for the pipe or fitting. PE3608 material shall meet the requirements of ASTM D3350 and shall meet or exceed a cell classification of 345464 per ASTM D3350.
2. PE3608 material compound shall have a hydrostatic design stress (HDS) rating for water at 73°F (23°C) of not less than 800 psi that shall be documented in the name of the pipe manufacturer in PPI TR-4.
3. PE3608 material compound shall have a hydrostatic design basis (HDB) rating at 140°F (60°C) of not less than 800 psi that shall be documented in the name of the pipe manufacturer in PPI TR-4.
4. PE3608 pipe and fitting material compound in PE3608 pipe and fittings shall contain color and ultraviolet (UV) stabilizer meeting the requirements of Code C or E per ASTM D3350. Code C material shall contain 2 to 3 percent carbon black to provide indefinite protection against UV degradation when material from the pipe is tested in accordance with ASTM D1603 or ASTM D4218. Code E material used for coextruded OD color stripes or a coextruded ID color layer shall contain sufficient UV stabilizer to protect the pipe against UV degradation for at least 24 months of unprotected outdoor exposure. Coextruded color PE compound material shall be PE3608 pipe material compound, varying only by color and UV stabilizer.
5. Clean rework materials derived from pipe production by the same manufacturer are acceptable as part of a blend with virgin material for the production of new pipe or tubing provided that the rework material is the same PE3608 material designation as the virgin material compound to which it is added. Finished products containing rework material shall meet the requirements this specification.

B. PE3608 pipe and butt fusion fittings shall have plain ends for butt fusion.

C. PE3608 pipe

1. Nominal straight lengths of 3 inch and larger pipe shall be 40 ft. or 50 ft.
2. Nominal coil lengths of 4-inch and smaller pipe shall be 500 ft. Longer or shorter coils such as 800 ft for 4-inch pipe, 1000 ft for 3-inch pipe, or 2000 ft for 2 inch or smaller pipe shall be acceptable. Pipe shall be black. Coextruded lavender or purple stripes or a coextruded lavender or purple layer shall be an acceptable option.
3. Pipe shall be permanently marked using heated indent printing in accordance with ASTM D3035 or ASTM F714 or AWWA C901 or AWWA C906 as applicable for the pipe size including:
 - a. Nominal size and sizing system, e.g., IPS or DIOD
 - b. PE3608 material designation
 - c. DR or SDR
 - d. Standard Designation, e.g., ASTM D3035 or ASTM F714 or AWWA C901 or AWWA C906

- 1) The Standard Designation marking on the pipe shall serve as the manufacturer's certification that the pipe has been manufactured, sampled and tested and has been found to comply with the requirements of the standard.

- e. Extrusion production-record code
- f. Manufacturer's Trademark or trade name

B. PE3608 fittings

1. PE3608 butt fusion, saddle fusion, electrofusion and fabricated fittings shall be manufactured from PE3608 material compound in accordance with this specification.
2. PE3608 fittings shall comply with ASTM D3261 for molded butt fusion and saddle fusion fittings, flange adapters and MJ adapters, or shall comply with ASTM F2620 or AWWA C906 for fabricated butt fusion fittings, or shall comply with ASTM F1055 for electrofusion fittings.
3. PE3608 fittings shall comply with the marking requirements of ASTM D3261 for molded butt and saddle fusion fittings, flange adapters and MJ adapters or shall comply with the marking requirements of ASTM F2620 or AWWA C906 for fabricated butt fusion fittings, or shall comply with the marking requirements of ASTM F1055 for electrofusion fittings.
4. PE3608 fittings shall have pressure class ratings not less than the pressure class rating of the pipe to which they are joined.

2.03 PE3608 PIPE AND FITTINGS FOR PRESSURE OR NON-PRESSURE WASTEWATER SERVICE

A. PE3608 pipe and fitting material compound:

1. PE3608 material compound shall conform to material requirements specified in ASTM D 3035 or ASTM F714 or AWWA C901 or AWWA C906 or ASTM D3261 or ASTM F2620 or ASTM F1055 as applicable for the pipe or fitting. PE3608 material shall meet the requirements of ASTM D3350 and shall meet or exceed a cell classification of 345464 per ASTM D3350.
2. PE3608 material compound shall have a hydrostatic design stress (HDS) rating for water at 73°F (23°C) of not less than 800 psi that shall be documented in the name of the material manufacturer in PPI TR-4.
3. PE3608 material compound shall have a hydrostatic design basis (HDB) rating at 140°F (60°C) of not less than 800 psi that shall be documented in the name of the material manufacturer in PPI TR-4.
4. PE3608 pipe and fitting material compound in PE3608 pipe and fittings shall contain color and ultraviolet (UV) stabilizer meeting the requirements of Code C or E per ASTM D3350. Code C material shall contain 2 to 3 percent carbon black to provide indefinite protection against UV degradation when material from the pipe is tested in accordance with ASTM D1603 or ASTM D4218. Code E material used for coextruded OD color stripes or a coextruded ID color layer shall contain sufficient UV stabilizer to protect the pipe against UV degradation for at least 24 months of unprotected outdoor exposure. Coextruded color PE compound material shall be PE3608 pipe material compound, varying only by color and UV stabilizer.

5. Clean rework materials derived from pipe production by the same manufacturer are acceptable as part of a blend with virgin material for the production of new pipe or tubing provided that the rework material is the same PE3608 material designation as the virgin material compound to which it is added. Finished products containing rework material shall meet the requirements this specification.
- B. PE3608 pipe and butt fusion fittings shall have plain ends for butt fusion.
- C. PE3608 pipe
1. Nominal straight lengths of 3 inch and larger pipe shall be 40 ft. or 50 ft.
 2. Nominal coil lengths of 4-inch and smaller pipe shall be 500 ft. Longer or shorter coils such as 800 ft for 4-inch pipe, 1000 ft for 3-inch pipe, or 2000 ft for 2 inch or smaller pipe shall be acceptable.
 3. Pipe shall be black. Coextruded OD green stripes shall be an acceptable option. A coextruded light grey or light green color ID layer to facilitate video ID inspection shall be an acceptable option.
 4. Pipe shall be permanently marked using heated indent printing in accordance with ASTM D3035 or ASTM F714 or AWWA C901 or AWWA C906 as applicable for the pipe size including:
 - a. Nominal size and sizing system, e.g., IPS or DIOD
 - b. PE3608 material designation
 - c. DR or SDR
 - d. Standard Designation, e.g., ASTM D3035 or ASTM F714 or AWWA C901 or AWWA C906
 - 1) The Standard Designation marking on the pipe shall serve as the manufacturer's certification that the pipe has been manufactured, sampled and tested and has been found to comply with the requirements of the standard.
 - e. Extrusion production-record code
 - f. Manufacturer's Trademark or trade name
- D. PE3608 fittings
1. PE3608butt fusion, saddle fusion, electrofusion and fabricated fittings shall be manufactured from PE3608 material compound in accordance with this specification.
 2. PE3608 fittings shall comply with ASTM D3261 for molded butt fusion and saddle fusion fittings, flange adapters and MJ adapters, or shall comply with AWWA C906 or ASTM F2206 for fabricated butt fusion fittings, or shall comply with ASTM F1055 for electrofusion fittings.
 3. PE3608 fittings shall comply with the marking requirements of ASTM D3261 for molded butt and saddle fusion fittings, flange adapters and MJ adapters or shall comply with the marking requirements of AWWA C906 or ASTM F2206 for fabricated butt fusion fittings, or shall comply with the marking requirements of ASTM F1055 for electrofusion fittings.
 4. PE3608 fittings shall have pressure class ratings not less than the pressure class rating of the pipe to which they are joined.

2.04 FUSION JOINTS

- A. Unless otherwise specified, PE3608 pipe and fittings shall be assembled in the field with butt fusion, saddle fusion or electrofusion joints. ASTM F2620 and the pipe manufacturer's recommended procedure shall be observed for butt fusion and saddle fusion joints. ASTM F1290 and the electrofusion fitting manufacturer's recommended joining procedure shall be observed for electrofusion joints.
- B. Field butt fusion, saddle fusion and electrofusion joints shall be made by Fusion Technicians that are qualified in accordance with this specification to make the specific fusion joint type.
- C. Field fusion joints shall be recorded and documented in accordance with this specification.

2.05 CONNECTIONS AND FITTINGS FOR PRESSURE APPLICATIONS

- A. Connections shall be defined in conjunction with the linking of project piping, as well as the tie-ins to other piping systems.

B. MECHANICAL FITTINGS

- 1. Acceptable mechanical fittings for use with PE3608 pipe and fittings shall be mechanical fittings that are qualified by the mechanical fitting manufacturer for use with PE3608 pipe and fittings.
- 2. Mechanical fittings for use with HDPE pipe shall provide restraint against longitudinal separation that is inherent to the design of the joint. Mechanical joints that do not provide restraint against pull-out or push-off are prohibited.
- 3. Mechanical connections to non-HDPE devices and appurtenances shall be by bolted flange adapter or MJ adapter. Flange adapter and MJ adapter connections shall be assembled and tightened in accordance with flange adapter or MJ adapter manufacturer's instructions.

C. GASKETED, PUSH-ON FITTINGS

- 1. Gasketed push-on fittings shall be fitted with external mechanical restraints that span across the joint and are assembled in accordance with restraint manufacturer's instructions.
 - a. Thrust blocking does not provide acceptable restraint and is prohibited.
 - b. Where plain-end PE3608 pipe is assembled with push-on fittings, the PE3608 pipe end shall be fitted with electrofusion restraints so that external mechanical restraint may be secured to the PE3608 pipe.
- 2. Where PE3608 pipe is connected to gasketed mechanical joint fittings or appurtenances, the connection shall be made by butt fusing a PE3608 MJ Adapter to the PE3608 pipe and connecting the PE3608 MJ Adapter to the mechanical joint fitting or appurtenance.

D. EXPANSION AND FLEXIBLE COUPLINGS

- 1. Expansion-type mechanical couplings are prohibited.

E. CONNECTION HARDWARE

1. Bolts and nuts for buried service shall be made of non-corrosive, high-strength, low-alloy steel having the characteristics specified in ANSI/AWWA C111/A21.11, regardless of any other protective coating.

2.07 CONNECTIONS FOR NON-PRESSURE SEWER OR WASTEWATER APPLICATIONS

- A. The following connections are to be used in conjunction with tie-ins to other non-pressure sewer piping and structures, and shall be as indicated on the drawings.

B. SLEEVE-TYPE COUPLINGS:

1. Sleeve-type mechanical couplings shall be manufactured for use with non-pressure PE3608 pipe, and may be restrained or unrestrained as indicated on the drawings and in these specifications.

C. CONNECTION HARDWARE

1. Bolts and nuts for buried service shall be made of non-corrosive high strength, low-alloy steel having the characteristics specified in ANSI/AWWA C111/A21, regardless of any other protective coating.

D. CONNECTION TO NON-PRESSURE MANHOLES AND STRUCTURES

1. Non-pressure PE3608 pipe and fittings shall be connected to manholes and other structures to provide a leak-free, properly graded flow into or out of the manhole or structure.
2. Connections to existing manholes and structures shall be as specified and shown on the drawings.
 - a. For a cored or drilled opening provide a flexible, watertight connection that meets and/or exceeds ASTM C923.
 - b. For a knock out opening, provide a watertight connection (waterstop or other method) meeting the material requirements of ASTM C923 that is securely attached to the pipe with stainless steel bands or other means.
 - c. Grout opening in manhole wall with non-shrink grout. Pour concrete collar around pipe and outside manhole opening.
3. Connections to a new manhole or structure shall be as specified and shown on the drawings.
 - a. A flexible, watertight gasket per ASTM C 923 shall be cast integrally with riser section(s) for all precast manhole and structures.
 - b. Drop connections shall be required where shown on drawings.
 - c. Grout internal joint space with non-shrink grout.

PART 3 -- EXECUTION

3.01 DELIVERY AND OFF-LOADING

- A. All piping shall be bundled or packaged for transportation by commercial carrier to the site.
- B. Before off-loading, pipe shall be inspected for damage. Any pipe damaged in shipment shall be assessed and either accepted or rejected as directed by the Owner or Engineer, and the pipe supplier shall be notified of rejected pipe within 7 days of delivery at the

site. Rejected pipe shall be quarantined for disposition. Each pipe shipment shall be checked for quantity and proper pipe size, color and type.

- C. Pipe shall be off-loaded and handled in accordance with the pipe manufacturer's instructions and AWWA M55.

3.02 HANDLING AND STORAGE

- A. Pipe lengths should be placed and stored on level ground. Pipe should be stored at the job site in the unit packaging provided by the manufacturer. The interior of the pipe, as well as all end surfaces, should be kept free from dirt and foreign matter.
- B. Pipe shall be handled and supported with the use of woven fiber pipe slings or approved equal. Care shall be exercised when handling the pipe to not cut, gouge, scratch or otherwise abrade the piping in any way. Use of hooks, chains, wire rope or any other handling device which creates the opportunity to damage the surface of the pipe is strictly prohibited.
- C. Covering or shading of PE3608 pipe and fittings against exposure to ultraviolet light from sunlight is not required.

3.03 FUSION PROCESS

A. GENERAL

1. Butt and saddle fusion of PE3608 pipe and fittings shall be in accordance with ASTM F2620 and the manufacturer's recommended joining procedure.
2. Electrofusion of PE3608 pipe and fittings shall be performed in accordance with ASTM F1290 and the electrofusion fitting manufacturer's recommended procedure.
3. PE3608 pipe and fittings shall be fused by qualified fusion technicians, as documented by the fusion provider. Training records for qualified fusion technicians shall be available to Owner or Engineer upon request.
4. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) affixed to the fusion machine. Joint data shall be submitted as part of the As-Recorded information, in accordance with this specification.
5. Butt fusion machines shall incorporate the following properties, including the following elements:
 - a. HEAT PLATE – Heat plates and the non-stick coatings on heating surfaces shall be in good condition without heating surface gouges or scratches. The non-stick coating shall be intact, clean and free of any contamination. Heater controls and temperature indicators shall function properly, and electrical cords and connections shall be in good condition. The heat plate shall maintain a uniform and consistent temperature on all areas of the heating surfaces on both sides of the heat plate.
 - b. CARRIAGE – Carriage shall travel smoothly with no binding at less than 50 psi for hydraulic fusion machines. Clamps shall be in good condition with proper inserts for the pipe size being fused.
 - c. GENERAL MACHINE - Overview of machine body shall yield no obvious defects, missing parts, or potential safety issues during fusion.
 - d. DATA LOGGER - The current version of the pipe supplier's recommended and compatible software shall be used. Protective case shall be utilized for the hand

held wireless portion of the unit. Data logger operations and maintenance manual shall be with the unit at all times. If fusing for extended periods of time, an independent 110V power source shall be available to extend battery life.

6. Other equipment specifically required for fusion processes shall include the following:
 - a. Pipe rollers shall be used to support pipe to either side of the butt fusion machine and provide for vertical and lateral pipe alignment straight through the butt fusion machine.
 - b. A protective enclosure that provides for full machine motion of the clamps, heat plate, fusion assembly and carriage shall be provided for fusion in inclement and/or windy weather. Pipe ends shall be covered or blocked where open pipe ends could allow prevailing winds to blow through the pipe.
 - c. Fusion machine operations and maintenance manual shall be kept with the fusion machine at all times.

B. JOINT RECORDING

1. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine that shall register and/or record the parameters required by the manufacturer and these specifications. Data not logged by the data logger shall be logged manually and be included in the Fusion Technician's joint report.

3.04 INSTALLATION

- A. The PE3608 pipe and fittings will be installed such that PE3608 pipe curvature is not less than the minimum bending radius recommended by the pipe manufacturer.
- B. Direct burial installation of PE3608 pressure pipe shall be in accordance with ASTM D2774 and the pipe manufacturer's recommendations.
- C. Direct burial installation of PE3608 non-pressure pipe shall be in accordance with ASTM D2321 and the pipe manufacturer's recommendations.
- D. Installation of PE3608 pipe by horizontal directional drilling shall be in accordance with ASTM F1962 and the pipe manufacturer's recommendations.
- E. Installation of PE3608 pipe by sliplining or insertion within a casing or host pipe shall be in accordance with ASTM F585 and the pipe manufacturer's recommendations.
- F. Tracer Wire – All PE3608 piping shall be installed with a continuous, insulated TW, THW, THWN, or HMWPE insulated copper, 10 gauge or thicker wire for pipeline location purposes by means of an electronic line tracer.
 1. The wires shall be installed along the entire length of the pipe.
 2. The insulation color shall match the service color of the pipe being installed. Blue shall be used for potable water; green for wastewater or sanitary sewer; and purple or lavender for non-potable or reclaimed water.
 3. Sections of wire shall be spliced together using approved splice caps and waterproof seals. Twisting the wires together is not acceptable.

3.05 PIPE SYSTEM CONNECTIONS

- A. Pipe connections shall be installed per applicable standards and regulations, as well as per the connection manufacturer's recommendations and as indicated on the drawings.

Pipe connections to structures shall be installed per applicable standards and regulations, as well as per the connection manufacturer's recommendations.

3.06 TRACER WIRE TESTING

- A. Upon completion of installation by direct burial, sliplining, directional boring or pipe bursting, the Contractor shall demonstrate that the tracer wire is continuous and unbroken through the entire run of the pipe.
 - 1. Demonstration shall include full signal conductivity (including splices) when energizing for the entire run in the presence of the Owner or Engineer.
 - 2. If the wire is broken, the Contractor shall repair or replace it. Pipeline installation will not be accepted until the tracer wire passes a continuity test.

3.07 TAPPING FOR POTABLE AND NON-POTABLE WATER APPLICATIONS

- A. Tapping shall be performed using standard saddle fusion fittings, electrofusion saddle fittings, or mechanical tapping saddles or sleeves designed for use on PE3608 piping. Tapping by threading directly into the PE3608 pipe wall is prohibited.
- B. Branching connections requiring a larger diameter shall be made with saddle fusion branch saddle fittings or mechanical branch connection fittings as specified and indicated on the drawings.
- C. Equipment used for tapping shall be made specifically for tapping PE3608 pipe:
 - 1. Tapping bits shall be slotted "shell" style cutters, specifically made for PE3608 pipe. 'Hole saws' made for cutting wood, steel, ductile iron, or other materials are strictly prohibited.
 - 2. Manually operated or power operated drilling machines may be used.
- D. Taps may be performed while the pipeline is filled with water and under pressure ('wet' tap), or when the pipeline is not filled with water and not under pressure ('dry' tap).

3.08 TESTING

- A. Testing shall comply with all local building codes, statutes, standards, local jurisdiction, and laws.
- B. Segments of the pipe may be tested separately in accordance with standard testing procedure, as approved by the Owner and Engineer.
- C. HYDROSTATIC LEAKAGE TESTING FOR PRESSURE PIPING
 - 1. Hydrostatic leakage testing shall comply with ASTM F2164. If the test section fails the test for excessive leakage, the Contractor shall repair or replace all defective materials and/or workmanship at no additional cost to the Owner.
 - 2. Pneumatic (compressed air) leakage testing of PE3608 pressure piping is prohibited.
- D. LEAKAGE TESTING FOR NON-PRESSURE PIPING
 - 1. Non-pressure piping such as sewers shall be tested for excessive leakage in accordance with ASTM F1417.
 - 2. If the test section fails the test for excessive leakage, the Contractor shall repair or replace all defective materials and/or workmanship at no additional cost to the Owner.

E. DISINFECTION OF THE PIPELINE FOR POTABLE WATER PIPING

1. After installation, the pipeline, having passed all required testing, shall be disinfected prior to being put into service. Unless otherwise directed by the Owner or Engineer, the pipeline will be disinfected per AWWA C651.

3.09 SERVICE TAPPING EQUIPMENT

The Contractor shall furnish to the Owner as an **incidental expense** the following equipment for future tapping of service lines (3/4" and 1") to the HDPE water mains.

1. Easy Fuse Processor - Roll Cage Model, Model U - Universal Processor with 25' leads with 4.7 mm tips.
2. Central Side Wall Clamps for
 - a) 2" IPS Under clamp, Type B
 - b) 6" IPS Under clamp, Type E
 - c) 8" - 12" IPS, Type H Top Load Clamp
 - d) Flex Restraint Clamps (6 Each, Type N)

END OF SECTION

SECTION 02703

LARGE STREAM/CROSSINGS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall furnish all labor, materials and equipment required to install a Stream/Lake Crossing or Crossings as shown on the Plans and as specified herein. This Specification shall only apply to those crossings so designated on the drawings. All other small crossings shall require concrete encasement only.
- B. The Stream Crossing pipe may either be high density polyethylene (HDPE) or ductile iron, as specified hereinafter or as called for on Drawings. It is the intent of these Specifications that both types of pipe shall be considered "equal" and the Contractor is advised to bid the type of pipe that would result in the lowest total bid. Large Stream Crossing pipe under this Section shall not require concrete encasement.
- C. The type and selection of methods and procedures used to install the Large Stream Crossings shall be approved by the Engineer. Horizontal Direct Drilling (HDD) methods shall be acceptable.
- D. Crossings under this Section or concrete encased crossings shall be constructed in accordance with standard details or as directed by the Engineer. The large stream crossing shall conform with the specific detail drawings and these Specifications.

PART 2 - PRODUCTS

2.01 DUCTILE IRON PIPE AND FITTINGS

- A. Ductile iron pipe for Large Stream Crossings shall be Class 51, tar-coated outside and cement-lined inside in accordance with AWWA Specifications. The joints for the Stream Crossing pipe shall be "American" Molox ball joint, or equal as approved by the Engineer. All bolts used in making up joints shall be stainless steel. Ductile iron pipe shall be suitable for a minimum working pressure of 350 psi.
- B. Fittings other than ball joint will not be allowed in the Large Stream Crossing. Where steep bends are required, the Contractor shall use short lengths of pipe, and the deflection in the joints shall be utilized to make the curvature of the bend.
- C. Appropriate transition fittings shall be provided to connect the stream crossing pipe to the proposed PVC water line pipe on either side of stream/lake. Transition fittings will not be allowed in the stream crossing proper. Excavation shall be

made if necessary, to assure that the pipe may be laid to the curvature of the stream bed. Concrete blocking of transition joints will be required.

2.02 POLYETHYLENE PIPE AND FITTINGS

- A. Polyethylene pipe for the Large Stream Crossing shall utilize thermal butt-fusion for jointing, with an SDR as set forth on the Drawings or details. Pipe shall be N.S.F. approved, and manufactured by Plexco, Nipak, or "Driscopipe" by Phillips Petroleum or equal as approved by the Engineer. The pipe must be furnished with an inside diameter equal to or greater than the size shown on the Drawings for the proposed water main.
- B. Appropriate transition fittings shall be provided to connect the Large Stream Crossing pipe to the proposed PVC water line pipe on either side of the stream/lake. Fittings will not be allowed in the stream / lake crossing proper. Excavation shall be made, if necessary, to assure that the pipe may be bent to the curvature of the stream bed. As a minimum, a polyethylene molded flange adapter and ductile iron convoluted back up ring will be required with appropriate concrete blocking.

PART 3 - EXECUTION

3.01 PIPE LAYING

- A. Where large stream/lake crossing is encountered proper equipment, instruments, tools and facilities satisfactory to the Engineer and Corps of Engineers shall be provided and used by the Contractor for the safe and convenient prosecution of the work. Before any length of pipe is placed, a careful inspection shall be made of the interior of the pipe to see that no foreign material is in the pipe.
- B. If any defective pipe shall be discovered after the pipeline is laid, it shall be removed and replaced with a satisfactory pipe without additional charge to the Owner.

3.02 JOINTING

- A. Joints of the pipe shall be made strictly in accordance with the manufacturer's recommendations. A copy of the manufacturer's recommendations shall be furnished to the Engineer prior to the beginning of the installation of the pipe.

3.03 DREDGING AND BACKFILLING (REGULAR STREAM CROSSING)

- A. The ditch for the pipe shall be dredged or excavated to provide a minimum of 30" cover below the stream bed in regular stream crossing. When used, payment for concrete encasement will be made separately at the unit price bid for this item. The trench shall be backfilled with trench excavated material, free from roots,

wood, or other objectionable materials, and shall be approved by the Engineer. Where acceptable material from the excavation or dredging is insufficient to complete the backfill, the Contractor shall furnish additional acceptable material as required to complete the work. Such additional material shall be furnished and installed by the Contractor incidental to the various bid items and shall not be measured for separate payment.

- END OF SECTION -

SECTION 02710

VALVES

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Work addressed in this Section includes furnishing all labor, tools, materials, equipment, supplies and services necessary for installation of all ductile iron piping, valves and appurtenances as shown on Contract Drawings and specified herein.
- B. Excluded from this Section are piping and appurtenances discussed under disinfection, plumbing, laboratory fixtures, water supply, floor drains, sanitary waste lines, vents, HVAC venting and distribution equipment, and all gas and air lines.

PART 2 - PRODUCTS

2.1 GATE VALVES

- A. Underground.

All underground gate valves shall be of the double-disc, parallel seat-type, iron body, non-rising stem, fully bronze mounted, tar-coated outside, and suitable for working water pressures of 150 psi unless otherwise shown on the plans. Valves shall be of standard manufacture and of the highest quality both of materials and workmanship and shall conform to the latest revision of AWWA Specification C-500.

Valves shall be furnished with bell, flanged or mechanical joint end connections suitable for connection to the pipe with which they are to be used.

Underground valves shall be nut operated, unless otherwise shown on the plans. Valve supplier shall furnish two standard stem iron wrenches for turning nut operated valves. All underground valves which have nuts deeper than 30 inches below the top of valve box shall have extended stems with nuts located within 2 feet of valve box cap.

- B. Housed.

Gate valves, 3" and larger, for fabricated pipe systems shall be double-disk, parallel seat-type, iron body, flanged, fully bronze mounted with O-ring seals, tar-coated outside, and suitable for working water pressures of 150 psi unless otherwise shown on the plans. Valves shall be standard manufacture and of the highest quality both of materials and workmanship

and shall conform to the latest revision of AWWA Specifications C-500.

Unless otherwise shown on the plans, all housed valves and valves in basins shall be handwheel operated. Handwheels shall have not less than the following diameters:

Size Valves	Diameter
1"	3 1/8"
1 1/2"	4 1/4"
2"	6"
3"	8"
4"	10"
6"	12"
8"	14"
10"	16"
12"	18"
14"	20"
16"	22"
18"	24"

Valve stand handwheels and handwheels on extended stems, shall have the same minimum diameters as those shown for handwheels directly on valves. Extension stems shall have adjustable cast iron guides per each ten (10) feet of extension stem length. All extension stems shall be connected with suitable coupling castings for connection to and removal from valves and stands. Nuts and bolts on all extension stem connections shall be stainless steel.

2.2 SWING CHECK VALVES

Check valves shall be swing gate type. All check valves shall be iron body with straightway passage of full pipe area when swing gate is open. The valve shall be of the outside lever and weight operating type. The valve must be tight sealing and must operate without hammer or shock. The seat ring or lining must be renewable. The valve should be bronze-mounted and may contain a rubber or neoprene lining in accordance with the manufacturer's recommendations. Valves shall be as manufactured by M & H, Clow or equal.

2.3 AIR RELEASE VALVES

A valve designed to allow release of air from the pump discharge shall be installed when required by the plans. The valve shall be cast iron, bronze-fitted, with stainless steel float. Valve shall be of the size shown on the plans and equipped with discharge pipe.

2.4 BUTTERFLY VALVES

- A. The valve shall be capable of bi-directional, drop tight service to 175 PSI. The valve body shall be wafer style, cast iron, and meet ANSI class 125/150 flange standards. The seat shall be EDPM and shall ensure drop tight, bi-directional shutoff and shall be field replaceable. The disc shall be ductile iron with the disc edges polished to a 32 AARH finish to reduce frictional torque. The stem shall be one piece, phosphate treated steel. The disc-stem shall be connected by a 316 stainless steel torque plug. Valves shall have acetal upper stem bushing, RTFE lined stainless steel inboard stem bearings and buna-N stem packing.
- B. All butterfly valves unless otherwise specified shall be of the tight closing, rubber seat type with rubber seats which are bonded to the valve body. Valves shall be rated for 150 psi pressure and shall be satisfactory for throttling applications and for applications involving valve operation after long periods of inactivity. Valve discs shall rotate 90° from the full open position to the tight shut position. Valves shall meet the full structural requirements of the applicable classes of AWWA C504, latest revision.
- C. Valve bodies shall be constructed of cast iron ASTM A-48, Class 40 and shall have integrally cast mechanical joint or flanged ends (as required). Butterfly valves for buried service shall be equipped with 2-inch square operating nut and mechanical joint end connections. Buried service butterfly valves shall be installed with valve boxes. Exposed butterfly valves shall have ANSI B16.1 Class 125 flanges. Two trunnions for shaft bearings shall be integral with each valve body. Body thickness shall be strictly in accordance with AWWA C504. Valve shafts shall be constructed of ANSI Type 304 stainless steel.
- D. Butterfly valves shall have discs constructed of alloy cast iron ASTM A-436 Type 1. All disc seating edges shall be smooth and polished. Valve shafts shall be a one piece unit extending full size through the valve disc and bearings. Valve seats shall be of a synthetic compound. Seats must be simultaneously molded in, vulcanized and bonded to the body.
- E. Valves shall be fitted with sleeve type bearings. Bearings shall be corrosion resistant and self-lubricating. Flanged butterfly valves shall be manufactured by Henry Pratt Company, Aurora, Illinois, BIF, West Warwick, R.I. or equal.
- F. All surfaces of the valve shall be clean, dry and free from grease before painting. The valve interior surfaces except seating surfaces shall be evenly coated with black asphalt varnish in accordance with Federal Specification TT-V-51c and AWWA C504.
- G. Hydrostatic and leakage tests shall be conducted in strict accordance with AWWA C504, Section 13.

2.5 PINCH VALVES FOR BURIED SERVICE

- A. Manual Pinch Valves are to be of the full metal body mechanical pinch type with flange joint ends on both the body and the flexible sleeve. Port

area shall be 100% of the full pipe area through the entire length of the valve, prepinched valves are unacceptable. The entire valve body and stem extension shall be Coal Tar Epoxy Coated. The body halves of the casting and top of the body casting are to be machined to provide the necessary stem and body seals. Stem and body seals which match the sleeve material are to be provided. Any specified stem extension will be housed in a secondary metal tube to protect the operating mechanism from contacting the external environment.

- B. The valve shall have face to face dimensions of standard gate valves, in accordance to ANSI B16.10 for valves to 6" size. The valve length shall be no longer than twice the valve nominal bore in sizes 8" and larger. The flanges shall be drilled to ANSI B16.1, Class 125 standard.
- C. The pinch sleeve shall be one piece construction with integral flanges drilled to be retained by the flange bolts. The pinch tube shall be reinforced with calendered nylon. All internal valve metal parts are to be completely isolated from the process line by the flexible elastomer pinch tube.
- D. The mechanism shall be double acting which will pinch the sleeve equally from the top and bottom. Operating mechanisms with cast parts are not acceptable. ACME threads shall be used.
- E. The stem shall be non-rising and have a non-rising handwheel. Valve position indication shall be in the center of the stem for all valves with a stem extension of 5' or less. Mechanism lubrication fitting shall be provided. Bevel gears shall be provided on all valves over 6" size.
- F. All valves shall be the Series 75B, as manufactured by the Red Valve Company, Inc. of Carnegie, PA 15106, or Engineer approved equal.

2.6 PLUG VALVES

- A. Valves shall be of the non-lubricated eccentric type with resilient faced plugs and shall be furnished with end connections as shown on the plans. Flanged valves shall be faced and drilled to the ANSI 125/150 lb. standard. Mechanical joint ends shall be to the AWWA Standard C111, latest revision. Bell ends shall be to the AWWA Standards C100, latest revision Class B. Screwed ends shall be to the NPT standard.
- B. Port areas for valves through 20" shall be minimum 80% of full pipe area and port areas of 24" and larger valves shall be minimum 70% of full pipe area.
- C. Valve bodies shall be of ASTM A126 Class B cast iron in compliance with AWWA C504, Section 2.2. Bodies in 3" and larger valves shall be furnished with a welded overlay seat of not less than 90% pure nickel in accordance with AWWA C507, Section 7.2. Valves utilizing resilient seats attached to the body shall not be acceptable. As per AWWA C504, Section 35.2 and AWWA C507, Section 7.2, sprayed or plated seats are not acceptable, nor shall screwed in seats be acceptable.

- D. Plugs shall be of ASTM A126 Class B cast iron in compliance with AWWA C504, Section 2.2. The plug shall be of one piece construction and shall be capable of withstanding the full pressure rating of the valve without use of additional structural reinforcing ribs that extend beyond the profile of the plug itself. Plugs shall be resilient faced with neoprene or hycar, suitable for use with sewage. Plugs with cast inlays shall not be acceptable.
- E. Valves shall be furnished with replaceable, sleeve type metal bearings conforming to AWWA C504, Section 3.6 and AWWA C507, Section 8. Bearings shall be of sintered, oil impregnated and permanently lubricated type 316 ASTM A743 Grade CF-8M or AISI Type 317L stainless steel in 1/2" -36" sizes. In valves larger than 36", the upper and lower plug journals shall be fitted with ASTM A-240 type 316 stainless sleeves with bearings of ASTM B30, Alloy C95400 aluminum bronze. Non-metallic bearings shall not be acceptable.
- F. Valves shaft seals shall be of the multiple V-ring type and shall be externally adjustable, repackable without removing the bonnet or actuator from the valve, and repackable under pressure. Shaft seals shall conform with AWWA C504, Section 3.7 and AWWA C507, Section 10.2. Valves utilizing O-ring seals or non-adjustable packing shall not be acceptable. All exposed nuts, bolts, springs, washers, etc., shall be stainless steel for buried valves and zinc plated for all others.
- G. Valve pressure ratings shall be 175 psi through 12" and 150 psi for 14" through 72". Each valve shall be given a hydrostatic and seat test with test results being certified.
- H. Certified copies of proof-of-design test reports shall be furnished as outlined in AWWA C504, Section 5.5.
- I. Manual valves shall have lever or gear actuators and tee wrenches, extension stems, floor stands, etc., as indicated on the plans. All valves 8" and larger shall be equipped with gear actuators. All gearing shall be enclosed in a semi-steel housing and be suitable for running in a lubricant with seals provided on all shafts to prevent entry of dirt and water into the actuator. The actuator shaft and the quadrant shall be supported on permanently lubricated bronze bearings. Actuators shall clearly indicate valve position and an adjustable stop shall be provided to set closing torque. All exposed nuts, bolts and washers shall be zinc plated.
- J. Valves and gear actuators for buried or submerged service shall have seals on all shafts and gaskets on the valve and actuator covers to prevent the entry of water. Actuator mounting brackets for buried or submerged service shall be totally enclosed and shall have gasket seals. All exposed nuts, bolts, springs and washers shall be stainless steel. All gear actuators shall conform to AWWA C504, Section 3.8.
- K. All valves and actuators shall be as manufactured by DeZurik or approved equal.

2.7 SHEAR GATES

Shear gates shall be iron body bronze mounted double wedge type with pull rod and handle. Rod length shall be as shown on plans. Shear gates shall be as manufactured by Clow, Waterman or equal.

2.8 SLUICE GATES

- A. Each gate shall be furnished and installed complete with wall thimble or anchor bolts, operating stem, gate lift operator and other appurtenances as needed to make a complete and operable installation.

Gates, stems, lifts and other appurtenances shall be the size, type, material and construction as shown on the drawings specified herein. Gates shall meet the requirements of AWWA Specifications C-501 (latest revision). All component parts shall be of the type of material shown, and interchangeable where size and material are the same without grinding, chipping or special fitting in the field. All mating and sliding parts shall be fully machined.

Gates shall be manufactured by Golden Harvest, Inc., Golden Gates TM Model GH-100 or Engineer approved equal. All metal used in construction of the gate shall be Type 316 Stainless Steel. Eight (8) sluice gates are required for installation on the divider walls between the aerated sewage lagoons and the clarifiers. Sluice gates shall be designed for a minimum of 20' seating and unseating head. Gates shall be non-self contained with offset pedestal mounted enclosed geared operators.

- B. Frame and Guide Rails. The guide rails shall be constructed of formed plate with a minimum thickness of ¼". Frame design shall be flat back to allow for mounting to a wall with stainless steel anchor bolts. Gates shall be non self contained.
- C. Slide. The disc or sliding member shall be of stainless steel plate reinforced with structural members welded to the plate. The disc shall not deflect more than 1/1000 of the span of the gate under the designed operating head. A neoprene seal shall be attached to the bottom of the slide and be held in place with a stainless steel retainer.
- D. Adjustable Wedge Bars. Adjustable wedge bars shall be provided to maintain seal compression. Wedge bars shall be stainless steel. Wedge bars shall have seat facings of ultra high molecular weight polyethylene attached with stainless steel fasteners.
- E. Wedges. Sluice gates shall have intermediate top wedges. Wedges shall be stainless steel with ultra high molecular weight polyethylene faces and be fully adjustable.
- F. Seals. Neoprene crown seal with ultra high molecular weight with polyethylene bearing bars held in place on the slide with stainless steel fasteners. Primary contact with the guide seat shall be through the ultra high molecular weight polyethylene bearing bar. The neoprene shall not

- be solely relied upon for the contact seal. Crown seals shall be field replaceable without removing gate from concrete or wall thimble. Seals in contact with the guide seat shall have a minimum face width of 1 inch. J-Bulb seals shall not be acceptable.
- G. Leakage. Leakage for all sizes shall be below that allowed by AWWA C501 standards for sluice gates, up to a maximum of 30.0 feet unseating head.
- H. Operators. Manually operated lifting mechanisms shall be of the crank operated fully enclosed geared type as indicated. The geared crank operators shall have either a single or double gear reduction depending upon the lifting capacity required. Each shall be furnished with a threaded bronze lift nut to engage the threaded portion of the stem. The lift nut shall be flanged and supported on roller bearings to take the thrust developed during opening and closing of the gate. Anti-friction thrust washers or bearing plates will not be permitted. Gears shall be provided with machine cut teeth designed for smooth operation. The bearings and lift nut shall be mounted in a housing which in turn shall be supported by a pedestal or mounted on the yoke of the gate. Lubrication fittings shall be provided in the gear housing to permit lubrication of all gears and bearings. Mechanical seals shall be provided around lift nut and pinion shaft. An arrow shall be cast on the gear housing to indicate the direction of rotation to open the gate. A maximum effort of forty (40) pounds shall be required to operate the gate after it is unseated. Operators shall be provided with a vented transparent butyrate stem cover having a transparent mylar scale calibrated in feet and inches to show gate position. Adjustable bronze stop collars shall be provided to limit both upward and downward travel. The distance between the hand wheel and the operating floor shall be thirty-six inches (36") minimum.
- I. Anti-Raking Devise. Sluice gates shall be provided with a four point anti racking devise. Brackets and pins shall be OF 316 stainless steel, rollers shall be UHMW PE. The system shall be of proven design and be fully adjustable.
- J. Stems. Stem shall be Type 316 Stainless Steel. The threaded portion of the stem shall have acme type cold rolled threads with a maximum surface roughness of sixteen (16) micro inches or less, machine cut threads shall not be permitted. The stem connection shall be a threaded and bolted (or keyed) thrust nut supported in a welded pocket. Select stem diameter, stem guide quantity and stem guide spacing based on the following criteria:
- (1) Slenderness ratio: $(1/R)$ Not to exceed 200.
 - (2) Tensile Strength: Designed to withstand two (2) times the output thrust forces generated by the operator with eighty pounds (80 lbs.) of force applied to the handcrank.
 - (3) Compressive Strength: Suitable to withstand buckling due to the force generated by the operator at two (2) times the output thrust of

the operator with eighty pounds (80 lbs.) of force applied to the handcrank.

- K. Stem Guides. Stem guides shall be supplied to support the stem. Stem guides shall be of stainless steel with ultra high molecular weight polymer bushings having a minimum thickness of 3/4". Bushings shall be machined to a size 1/16" over stem diameter. Bushings shall be attached to support member with stainless steel bolts and be adjustable.
- L. Wall Brackets and Pedestals. Wall brackets and pedestals shall be of fabricated steel and shall be shop painted as specified in the general equipment stipulations.
- M. Portable Electric Operator. The contractor shall furnish one (1) portable, electric motor driven actuator with adjustable stainless steel or aluminum tripod suitable for operation of all crank-operated gates specified in this section.

The actuator shall be equipped with reversing features and an overload release clutch for protection of the operated equipment. The overload release clutch shall be of the adjustable, spring-loaded, Drive-Pawl Type which releases instantly at a preset, predetermined torque. Disc friction clutches or shear pins will not be acceptable.

The actuator shall be suitable for operation with 120 volt, 60 HZ, single phase power. A 75 foot long, three-conductor, heavy-duty, neoprene jacketed portable cord with 12 AWG copper conductors and a standard grounding plug shall be provided with the actuator.

- N. Materials. Components Material

Guide rails, yoke, stainless steel type 316, ASTM A-240 slide and retainers, invert and stiffeners stainless steel Type 316, ASTM A-276 stems stainless steel type 316, ASTM A-276 fasteners and stainless steel type 316 bolts, invert seal, crown seal neoprene ASTM D-2000 crown seal seats and facing ultra high molecular weight poly ethylene ASTM D4020, lift nuts, stop nuts, bronze ASTM 660 stem block stainless steel type 316, ASTM A-240.

- O. Finish. Mill finish on stainless steel. One coat epoxy paint on lifts and brackets.
- P. Shop Drawings. The contractor shall submit complete shop drawings of all gates, frames, slides, and operators, as well as design load calculations for deflection at the maximum expected head, and calculations for the lifting force required to lift the gate with forty pounds (40 lbs.) effort on the crank. Head deflection calculations shall be submitted to verify compliance with the specifications.
- Q. Technical Manuals. Complete operation, maintenance, lubrication schedules and troubleshooting guides shall be submitted for review.
- R. Shop Testing. The completely assembled gate and hoist shall be

separately shop-operated to insure proper assemble and operation. The gate shall be adjusted so that a .004" thick gauge will not be admitted at any point between frame and cover seating surfaces.

2.9 AIR AND VACUUM VALVES

Air and vacuum valves shall have body, cover and baffle of cast iron construction. Float shall be stainless steel and seat shall be Buna-N. Valves shall be designed for 150 pound working pressure unless otherwise shown on the plans. Valves shall have threaded inlet and outlet. In addition, each valve shall be equipped with a water diffuser and a throttling device to regulate the flow of air escaping from the valve.

2.10 TELESCOPING VALVE

- A. The valve shall consist essentially of a floor stand incorporating a valve lifting stem, handwheel, seamless brass tube, tube guide collar with Neoprene gasket, and appurtenances required to make a complete working installation as shown on the plans.
- B. The sliding valve tube shall be seamless brass tubing with a minimum wall thickness of 1/8" to prevent corrosion and to insure proper operation at all times, and arranged to slide inside of a cast iron sludge draw-off pipe.
- C. The telescopic valve shall be manually operated by means of an 18" diameter cast iron handwheel. The handwheel shaft, designed to prevent rotation of the brass sleeve during operation, shall be manufactured of 1-1/8" diameter brass stock. The valve lifting stem shall have an ACME thread at one end for engagement with the handwheel shaft and provisions for attaching the valve tube at the other end. The valve shall be complete with tube guide collar and Neoprene gasket for sealing at the cast iron sludge draw-off pipe.
- D. All anchor bolts shall be plated steel furnished by the Equipment Manufacturer and shall be of ample size and strength for purpose intended. All anchor bolts shall be set by the General Contractor in accordance with the Manufacturer's instructions.
- E. All parts of the mechanism shall be amply proportioned for all stresses that may occur during fabrication, erection, and intermittent operation. Workmanship shall be of high grade in all respects.

2.11 MUD VALVES

The equipment to be furnished and installed under this section shall be iron body, bronze mounted and rising stem mud valves. The stem, stem nut, disc ring and seat ring shall be bronze. Bolts and nuts shall be rust-proofed steel. Extension stem and floor stands shall be furnished with the valves along with the operating handwheel. Extension stems shall not extend more than 7'-0" without the use of stem guides.

2.12 PRESSURE RELIEF VALVES (TIDE GATES)

Valves shall be circular four (4) inch diameter, have minimum head loss, cast iron frames, shutters and hinge links (body) have flanged end for connection to the special 4-inch flanged wall pipe. Valves shall be bronzed mounted with soft composition rubber seat to facilitate seating should particles become attached. Seat material shall resist deterioration in sewage. Wall pipe shall be gray iron flange and plain end pipe. Flange shall be tapped for studs to 125 lb. template. It shall contain an integral gate. Valves shall be Type F-1494 by Clow Corp., Type R-5004-B by Neenah Foundry or approved equal.

2.13 SERIES TF-2 TIDEFLEX CHECK VALVES

Valves shall be of the flow operated check type with a slip-on connection. Inlet port areas shall be 100% of the mating pipe port size. The port area shall contour down to a duckbill which shall allow passage of flow in one direction while preventing reverse flow. Depending on back pressure requirements, Check Valve can be manufactured to open with as little as two inch (2") head pressure. The check valve is designed to slip over the specified pipe outside diameter. The flexible duckbill sleeve shall be one piece rubber construction with fabric reinforcement. The check valves shall also have a protective Neoprene exterior wrapping for protection against sunlight attack. Check valves shall be attached to the pipe outside diameter by means of vendor furnished clamps. Manufacturer must have available flow test data from an accredited hydraulics laboratory to confirm pressure drop data. Company name, plant location, valve size and serial number shall be bonded to the check valve.

All valves shall be of the Series TF-2 as manufactured by the Red Valve Co., Inc. of Carnegie, PA 15106 or Engineer approved equal, to be placed on an eight inch (8") Ductile iron pipe in the new manhole entry invert from the Parshall Flume.

PART 3 - EXECUTION

3.1 INSTALLATION

Piping valves and equipment shall be stored and installed in accordance with the installation manual furnished by the manufacturer. After installation the completely assembled valve shall be operated through one full cycle to demonstrate satisfactory operation. Such adjustments as necessary will be made until operation is approved. When required, the valve shall be subjected to leakage tests and pass the standard requirements for maximum leakage as specified in AWWA standards.

- END OF SECTION -

SECTION 02720

PRESSURE PIPELINES INSTALLATION

PART 1 GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall complete all excavations; shall protect all existing structures, utilities, and services; shall furnish all suitable tools and appliances for the safe and convenient handling of all materials to be used on the work; shall lay the pipelines, including valves, valve boxes, fire hydrants, and all other appurtenances thereto; shall install or replace any or all service connections if specified; shall test the lines; shall disinfect water lines; shall replace all walks, driveways, grass plots, or paving; shall remove all surplus materials of every kind; and leave the entire site of the work in a presentable and satisfactory condition; all as specified herein under the various sections.
- B. The specifications for installing pressure mains are intended to conform with the latest revision of AWWA C600, "Installation of Ductile Iron Water Mains and their Appurtenances," and/or AWWA C605 "Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water". The Engineer shall require compliance with those specifications the same as if they were totally incorporated herein, except where these Specifications direct otherwise.

PART 2 PRODUCTS - NOT USED.

PART 3 EXECUTION

3.01 HANDLING AND STORAGE OF MATERIALS

- A. Pressure main pipe, fittings, valves, hydrants, and accessories shall be loaded and unloaded by lifting with hoists or skidding so as to avoid shock or damage. Under no circumstances shall such materials be dropped. Pipe handled on skidways shall not be skidded or rolled against pipe already on the ground.
- B. Pipe shall be so handled that the coating and lining will not be damaged. If however, any part of the coating or lining is damaged the repair shall be made by the Contractor at his expense in a manner satisfactory to the Engineer.
- C. The Contractor shall be responsible for the safe storage of material furnished by or to him, and accepted by him, and intended for the work, until it has been incorporated in the completed project. The interior of all pipes, fittings and other

accessories shall be kept free from dirt and foreign matter at all times. Valves and hydrants shall be drained and stored in a manner that will protect them from damage by freezing.

3.02 INSPECTION AND RESPONSIBILITY FOR MATERIAL

- A. All pipeline materials shall be carefully inspected for cracks and other defects prior to installation. All material found during the progress of the work to have cracks, flaws, or other defects, shall be rejected by the Engineer. All defective materials furnished by the Contractor shall be promptly removed by him from the site of the project.
- B. The Contractor shall be responsible for all materials furnished by him and shall replace at his own expense all such material found defective in manufacture or damaged in handling after delivery by the manufacturer. This shall include the furnishing of all material and labor required for the replacement of installed material discovered defective prior to the final acceptance of the work.

3.03 INSTALLATION OF PRESSURE PIPELINES

- A. Pressure mains shall be laid and maintained to the required lines and grades with fittings, valves, and hydrants at the required locations; spigots centered in bells; and all valve and hydrant stems plumb.
- B. Proper implements, tools, and facilities shall be provided and used by the Contractor for the safe and convenient performance of the work. All pipe, fittings, valves, and hydrants shall be carefully lowered into the trench piece by piece by means of a derrick, ropes, or other suitable tools or equipment in such a manner as to prevent damage to pipe main materials and protective coatings and linings. Under no circumstances shall pipe main materials be dropped or dumped into the trench.
- C. All pipe and fittings shall be carefully examined for cracks and other defects while suspended above the trench immediately before installation in final position. Spigot ends shall be examined with particular care. Defective pipe or fittings shall be laid aside as previously specified.
- D. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. If the pipe laying crew cannot put the pipe into the trench and in place without getting earth into it, the Engineer may require that before lowering the pipe into the trench, a heavy, tightly woven canvas bag of suitable size shall be placed over each end and left there until the connection is to be made to the adjacent pipe. During laying operations, no debris, tools, or other materials shall be placed in the pipe.

- E. As each length of pipe is placed in the trench, the spigot end shall be centered in the bell and the pipe forced home and brought to correct line and grade. The pipe shall be secured in place with approved backfill material tamped under it except at the bells. Precautions shall be taken to prevent dirt from entering the joint space.
- F. At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means approved by the Engineer. If water is in the trench, the seal shall remain in place until the trench is pumped completely dry.
- G. The cutting of pipe for inserting valves, fittings, or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or lining so as to leave a smooth end at right angles to the axis of the pipe.
- H. Pipe shall be laid with bell ends facing in the direction of laying, unless directed otherwise by the Engineer. Where pipe is laid on a grade of ten (10) percent or greater, the laying shall start at the bottom and shall proceed upward with the bell ends of the pipe upgrade.

3.04 PLACING PIPELINE FITTINGS

- A. Pipeline fittings, plugs and caps shall be furnished and installed of the type indicated and at the location shown on the Plans or as directed by the Engineer. It will be the responsibility of the Contractor to furnish and install all proper size pipe bends for both horizontal and vertical deflections that are required to construct the pressure main to the line and grade as shown on the Plans or as set by the Engineer. The fittings, plugs, and caps shall be set and joined to the pipe in the manner heretofore specified for installation.

3.05 ANCHORAGE

- A. The Contractor shall provide pipeline restraint at all locations shown on the Plans or as required by the Engineer. Anchorage shall be in the form of harnessed or restrained joints for the lengths of pipe and fittings shown.

3.06 TESTING PRESSURE MAINS

- A. The Contractor shall subject the completed pressure pipelines to a leakage test. The test shall be performed on all newly laid pipes in lengths not to exceed 2,000 feet or any valved section thereof. The length of the test section shall exceed the specified maximum limit only with the explicit approval of the Engineer. The test may be conducted after the trench has been backfilled but must be completed before replacement of pavements and final restoration. All testing shall be done in the presence of the Engineer. Pressure test all waterlines in accordance with AWWA 605 (ductile iron pipe) or AWWA 600 (plastic pipe).
- B. The Contractor shall furnish the pump, pipe connection, temporary testing plugs

and caps, if required, all necessary apparatus including the pressure gauges and meters and a supply of approved water. The Contractor shall make all necessary taps into the lines. The Contractor shall be responsible for all labor and equipment necessary to conduct the tests, including excavating and backfilling the test pit at the locations approved by the Engineer.

- C. The pipe shall first be completely flushed out. Then each valved section shall be slowly filled with water. All air shall be expelled from the pipe at high points by means of test plugs in valve bonnets, fire hydrants or through corporation stops installed by the Contractor for this purpose. After all the air has been expelled, the openings shall be closed and the test pressure applied by means of the test pump connected to the pipe in a manner satisfactory to the Engineer.
- D. The test pressure for the leakage test shall be fifty (50) percent above the normal operating pressure of the lowest point in the section of line under the test and corrected to the elevation of the test gauge. The duration of each leakage test shall be two (2) hours.
- E. The exposed piping and/or the top of the trench shall be carefully inspected during the leakage test for any signs of leakage. Any cracked or defective pipe, fittings, valves or hydrants discovered in consequence of the leakage test shall be removed and replaced by the Contractor with sound material and the test shall be redone until satisfactory results are obtained. The Contractor is responsible for locating, excavating and backfilling the defective pressure pipeline trench at no cost to the Owner, in addition to replacing the defective material if the leakage test is conducted on a backfilled pressure pipeline. The Contractor shall maintain the hydrostatic pressure at all times during the leakage test through his test pump.
- F. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain the specified leakage test pressure after the air has been expelled, the pipe has been filled with water, and the pressure initially applied.
- G. No pipe installation will be accepted if the amount of leakage is greater than specified in Table 7, Allowable Leakage, AWWA C600, or calculated by the following equation:

$$L = \frac{SDv(P)}{133,200}$$

Where

- L = allowable leakage, gallons per hour.
- S = Length of pipe to be tested, ft.
- D = Nominal diameter of pipe, in.
- P = Average test pressure, psig.

3.07 DISINFECTION OF WATER MAINS

- A. All new water mains and repaired sections or extensions to existing water mains shall be chlorinated before being placed in service so that a chlorine residual of not less than ten (10) ppm remains in the water in the test section after twenty-four (24) hours standing in the pipe. The procedures for disinfecting the water mains and the chemicals to be used shall be in accordance with the requirements of AWWA C601 and C651.
- B. If liquid chlorine is used, a chlorine gas-water mixture shall be applied by means of a solution-feed chlorinating device; or, if approved by the Engineer, the dry gas may be fed directly through proper devices for regulating the rate of flow and providing effective diffusion of the gas into the water within the pipe being treated. Chlorinating devices for feeding solutions of the chlorine gas or the gas itself must provide means for preventing the backflow of water into the chlorine cylinder.
- C. A mixture of water and a chlorine-bearing compound of known chlorine content may be substituted for liquid chlorine. Approved types are calcium hypochlorite or sodium hypochlorite. Commercial types of calcium hypochlorite are known as HTH, Perchloron and Pittchlor. Sodium hypochlorite is known commercially as liquid laundry bleach.
- D. High-test calcium hypochlorite or bleaching powder must be prepared as a water mixture for introduction into the water mains. The powder should first be made into a paste and then diluted to approximately a one (1) percent chlorine solution (10,000 ppm). The preparation of a one (1) percent chlorine solution requires the following proportions of powder to water:

Amount of: Product	Compound	Quantity of Water Gallon
High-test calcium hypochlorite (65-70% Cl)	1 lb.	7.50
Liquid laundry bleach (5.25%)	1 gal.	4.25

- E. The chlorinating agent shall be injected into the beginning of the new pipeline extension or any valved section through a corporation stop inserted by the Contractor. The Contractor shall supply the proper type chemical pump, piping and make up water to inject the solution into the main. The application shall be the amount necessary to apply 25 ppm of chlorine to the test section. The amount of one (1) percent chlorine water solution required to give 25 ppm chlorine in 1,000 feet of various size water mains is as follows:

<u>Diameter</u>	<u>Gallons</u>
6"	4
8"	8
10"	10
12"	15
16"	26
20"	40
24"	60
30"	90

- F. Water from the existing distribution system shall be controlled so as to flow slowly into the newly laid pipeline during the application of chlorine. The rate of chlorine mixture flow shall be in such proportion to the rate of water entering the pipe that the chlorine dose applied to the water entering the newly laid pipe shall produce at least ten (10) ppm, after twenty-four (24) hours standing. This may be expected with an application of twenty-five (25) ppm, although some conditions may require that more valves be manipulated so that the strong chlorine solution in the line being treated will not flow back into the line supplying the water. In the process of chlorinating newly laid pipe, all valves or other appurtenances shall be operated while the pipeline is filled with the chlorinating agent.
- G. Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipeline at its extremities until the replacement water throughout its length shall, upon test, be proved comparable in quality to the water serving the public from the existing water supply system and approved by the public health authority having jurisdiction. This satisfactory quality of water delivered by the new main should continue for a period of at least two (2) full days as demonstrated by laboratory examination of samples taken from a tap located and installed in such a way as to prevent outside contamination. Samples shall not be taken from an unsterilized hose or from a fire hydrant, because such samples will seldom meet bacteriological standards.
- H. Should the initial treatment fail to result in the conditions specified, the original chlorination procedure shall be repeated until satisfactory results are obtained.

3.08 PRESSURE PIPELINES NOT INSTALLED IN TRENCH

- A. All applicable provisions of this item of work shall also apply to the furnishing of materials and installation procedures for constructing pressure pipelines not installed in a trench condition.

3.09 SPECIAL REQUIREMENTS FOR PIPELINE CONSTRUCTION ON STATE RIGHT OF WAY

- A. Pressure pipelines to be laid on backside of all entrance culverts unless otherwise specified.
- B. All pressure pipelines to be laid on backside of ditch line unless otherwise specified.
- C. All slip areas to be open cut, backfilled and tamped at a maximum of 150' sections.
- D. All pressure pipeline crossing of highway culverts (RCP, CMP, Box Culverts) shall have a minimum of 1 foot clearance above or below the culvert.
- E. Efforts have been made to indicate accurate locations of some existing structures, piping and utilities. However, the contractor shall familiarize himself with the site and other existing conditions and notify the engineer of any discrepancies between information depicted by the construction drawings and actual field conditions which would significantly alter the design intent of the Plans prior to commencing his construction operations. Dimensions of existing structures and/or site restrictions are approximate. It is the contractor's responsibility to obtain and confirm all dimensions and elevations of existing structures and topography in the field necessary for his construction operation.
- F. The Contractor shall use all possible care during excavation on this project so as not to disturb or damage any existing utility or structure not scheduled for demolition whether depicted or not in the construction drawings. Any damage to the aforementioned items caused directly or indirectly by the contractor shall be repaired or replaced by the contractor at no cost to the owner to a condition equal to or better than that which existed prior to being damaged.
- G. The Contractor's attention is called to the presence of existing utilities in close proximity to the project site. The Contractor is advised to carefully review the project requirements regarding utility reallocations. The contractor can call 1-800-752-6007 a minimum of two and no more than ten business days prior to excavation for information on the location of existing underground utilities which subscribe to the Before-U-Dig (BUD) Service. Additionally it is the contractor's responsibility to contact all existing utility owners and have them field locate their existing utilities prior to any construction activities.
- H. Unless otherwise noted, all buried pipes shall have 36" minimum cover as measured from finished grade to the outside surface of the pipe.
- I. All bores under state highways right-of way shall be a minimum, of 36" depth under bottom of ditch line to top of the proposed bored and/or casing pipe on both

sides of the highway.

- J. There shall be no blasting within state right-of-way without written consent from the Kentucky Transportation Cabinet.
- K. Care shall be taken by the contractor to avoid cracking or breaking the bituminous paving. The contractor at no cost to the Dept. of Highways shall repair all damage to the existing paving caused by the contractor's operation. Paving protection shall be accomplished by the use of rubber and street padded machinery or other approved equipment well suited for this type of construction.
- L. During construction, all embankments, refills and excavations shall be kept shaped and drained by the contractor. Ditches and drains along the highways shall be maintained in such a manner as to drain effectively at all times.
- M. All roadways and driveways within the work limits of state right-of-ways shall be refilled to the natural surface of the ground with approved material and methods. The material shall be placed and compacted to smoothness suitable for traffic. The contractor shall note that all private businesses and residences along the route of the proposed water main must have access to their properties at all time during construction. Additionally, the contractor shall replace existing entrance pipes, retaining walls, catch basins, fences and other property improvements, ditches, guardrail, signs, storm drains, etc. that are damaged by construction unless said facilities are specifically shown to be removed. In particular, all drainage ditches shall be restored to a condition equal or better than existed prior to construction.
- N. Concrete thrust or "kicker" blocks shall be installed in all pressurized lines at intersections and changes of direction to resist forces acting upon the pipeline.
- O. Concrete anchors shall be provided when the pipe slope exceeds twenty percent.
- P. Sewers shall be laid at least ten feet horizontally from any existing or proposed water main. This distance shall be measured edge to edge. If field conditions do not allow this condition to be met, then the sewer shall be construction of mechanical joint ductile iron pipe (pressure tested to 150 psi) and encased in concrete. Sewers shall cross under water mains with a minimum of eighteen inches of separation between the crown of the sewer and in the invert of the water main. If field conditions are such that this separation can not be maintained, the sewer shall be constructed of mechanical joint ductile iron pipe which shall be pressure tested to 150 psi. The ductile iron pipe must be centered on the crossing so that the joints are at least ten feet on either side of the crossing.
- Q. Traffic control is to be as per MUTCD standards.
- R. Reclamation is to be accomplished as per the general notes of the approved encroachment permit provided by the Kentucky Dept. of Highways.

- S. Valve locations cannot be shown with precision of the supplied mapping. Valve locations shall be coordinated with the resident inspector prior to installation.
- T. Numerous drop box inlets are located next to some of the state and federal highways within the project limits. These inlets have concrete aprons that are 9' x 9'. Many of the inlets are set against the backside of the rock cut along the highway. The contractor may do one of two things. (1) He may either saw cut the backside of the Surface drain and without damaging the drainage box install the pipe. If the drainage box does get damaged in any way then the contractor will restore the drainage box and surface drain back to its original condition. (2) The contractor shall install the force main under the culvert pipe. If the culvert pipe is damaged in any fashion then the contractor shall replace the portion that is damaged to its original condition.
- U. Proposed utilities must go under or around existing highway culvert pipes. Utilities may not be placed over existing highway culverts. Minimum separation between culvert pipe and force main is five feet.
- V. Track vehicles must be isolated from pavement with an earth cushion or protective mate. In no event shall track vehicles be operated directly on paved surfaces.

END OF SECTION

SECTION 02940

TEMPORARY SILT AND EROSION CONTROL

PART 1 - GENERAL

1.1. WORK INCLUDED

- A. This work shall consist of furnishing all labor, material, equipment, and incidentals for the construction of silt control structures to reduce the amount of sediment delivered to waterways. Silt control structures shall be constructed as required to control any silt runoff into streams or at the locations directed by the Engineer or his designated Representative.
- B. A written silt control plan shall be prepared and submitted to the Owner for approval before start of construction.
- C. During the life of the contract, the silt control structures shall be maintained by the Contractor, and silt accumulations which threaten to damage the structures, or preclude their effective operation as determined by the Engineer, shall be removed and replaced.

1.2. RELATED SECTIONS

- A. 01600 – Materials and Equipment

PART 2 - PRODUCTS

2.1. STRAW OR HAY BALE SILT CHECK

- A. This silt check shall be constructed with straw or hay bales firmly bound by twine and solidly staked to remain in place, as shown on the Standard Details.
- B. The location of straw or hay bale silt checks shall be as shown on the Plan drawings, or as directed by the Engineer at the time of construction. When the usefulness of the silt checks has ended, they shall be removed, and surplus materials shall be disposed of properly.

PART 3 - EXECUTION

3.1. MEASUREMENT AND PAYMENT

- A. Payment for installation and maintenance of the temporary silt and erosion control structures shall be considered an incidental expense to the construction. All costs for same shall be included in the prices bid for the items included with the project.

END OF SECTION

SECTION 03419

CONCRETE ENCASEMENT AND CONCRETE CRADLE

PART 1 GENERAL

1.01 RELATED SECTIONS

- A. 01300 - Submittals
- B. 01600 - Materials and Equipment
- C. 01410 - Testing Laboratory Services

PART 2 PRODUCTS

NOT USED.

PART 3 EXECUTION

3.01 CONCRETE ENCASEMENT

- A. Buried pipelines shall be encased in 2,500 psi concrete where shown on the construction drawings or to the extent and/or at other locations as determined by the Engineer/Project Manager.
- B. Concrete encasement shall provide a minimum cover of six (6) inches beneath and above the pipe O.D. and shall extend laterally to the undisturbed wall of the pipeline trench. Additional thickness of concrete encasement, if required, shall be shown on the construction drawings. Each pour shall start and stop at a pipe joint.

3.02 CONCRETE CRADLE

- A. Concrete cradles shall be 2,500 psi concrete where shown on the construction drawing or as directed by the Engineer/Project Manager.
- B. Concrete cradles shall provide a minimum of six (6) inches beneath the pipe and extend to the spring line of the pipe unless otherwise shown on the construction drawings. Each pour shall start and stop at a pipe joint.

3.03 MEASUREMENT AND PAYMENT

- A. The payment for concrete encasement shall include furnishing and placing the concrete encasement. The Contractor shall be paid for the number of lineal feet of encasement constructed at the unit price on the Bid Sheets.
- B. The payment for concrete cradle shall include furnishing and placing the concrete encasement. The Contractor shall be paid for the number of lineal feet of cradle at the unit price on the Bid Sheets. The concrete foundation under tee-based manholes is not considered cradle.

END OF SECTION

SECTION 05800

BORING & JACKING
AND COVER PIPE

PART 1 GENERAL

The construction drawings show the details of the cover pipe material.

1.01 RELATED SECTIONS

- A. 01300 - Submittals

PART 2 PRODUCTS

2.01 STEEL PIPE

- A. Where designated on the Plans, the steel pipe shall be fusion welded steel pipe, Grade "B" with no coating. It shall conform to the requirements of ASTM 139. The wall thickness shall be Schedule 40 for pipe up to 4-inches in diameter and 0.250 inch wall thickness for larger sizes, unless railroad specifications require a greater thickness. See paragraph 3.06 for diameter of casing required.

2.02 NESTABLE CORRUGATED METAL PIPE

- A. Where corrugated metal pipe is designated in the Plans beneath a highway, it shall be nestable and conform to KDOT, Section 810. The gauge shall be as shown on the Plans.
- B. Where corrugated metal pipe is designated in the Plans beneath the tracks of a railroad, it shall be AREA Specification 146; with bituminous coating, in accordance with AREA Specifications 1413. The gauge shall be as shown on the Plans.

2.03 TUNNEL LINER PLATES

- A. Tunnel liner plates where shown on the Plans shall be hot dipped galvanized steel of the thickness (gauge) and section modulus shown on the Plans. The plates shall be formed from steel meeting the requirements of ASTM 139, Grade "B". Individual liner plates shall be made of one piece of metal, provided with flanges from both longitudinal and circumferential joints. The joints shall have sufficient bolt holes to fully develop the strength of the individual liner plate and so spaced in each liner plate that liner plates of similar curvature will be interchangeable and readily handled in the tunnel. Liner plates shall be of a design that when bolted together no opening shall exist large enough to permit inflow of granular material.

Liner plates will be accurately curved to suit the tunnel cross section and when bolted together, the finished casing pipe shall be full round with the nominal diameter to the neutral axis as specified on the proposal sheets and/or construction drawings. Grouting plugs shall consist of a 2-inch standard half-pipe couplings welded or tapped into a hole in the liner plate and furnished with a cast iron plug for closure. They will be of the same material as the liner plate and furnished with a cast iron plug for closure. The spacing of the grouting plugs will be as specified on Plans. Bolts, heads, and nuts shall be square and of the same size.

PART 3 EXECUTION

3.01 INSTALLING COVER PIPE

- A. Cover Pipe shall be installed by the boring method, the jacking method, by trenching or by tunneling as shown on the Plans. The Owner will obtain permits for any railroad, State or Federal Highway crossings. The Owner shall coordinate scheduling of construction of crossings with railroads and highway departments and shall pay any charges established by these outside agencies. Special construction requirements defined by railroads or highway departments will be shown on the Plans and shall be adhered to by the Contractor. Installation of cover pipe shall not commence without the express permission of the Project Engineer.
- B. The annular space between the cover pipe and the contained carrier pipe shall be filled with grout or with granular materials unless otherwise specified on the Plans or approved by the Engineer.

3.02 INSTALLATION BY BORING

- A. Steel pipe shall be installed by the boring method utilizing an auger type boring machine or a machine of such design meeting the individual requirements of the railroad, State or Federal Highway System being crossed. The Contractor shall provide an approach pit, completely sheeted and of sufficient size to operate the boring equipment. The operation of the boring equipment shall be subject to continuous checking by the Project Engineer to insure proper alignment of the cover pipe as installed.

3.03 INSTALLATION BY JACKING

- A. The Contractor will provide an approach pit for the jacking operation, excavated so the jacking face is a minimum of three (3) feet above the pipe. This open face should be shored securely to prevent displacement of the embankment. The pit shall include a backstop of sufficient size to take the thrust of the jack. The guide rails that support the pipe as it enters the bore shall be accurately placed to line and grade. The entire approach pit shall be sheeted.

- B. Hydraulic or mechanical jacks may be used in this operation. The number of jacks and the capacity of the jacks shall be adequate to complete the operation. A jacking head shall be used to transfer the pressure from the jack and the jacking frame to the pipe. If an auger is used, the pipe shall be jacked simultaneously with the augering. The construction work shall be checked by the Contractor and Project Engineer at frequent intervals to insure proper line and grade of the installation.

3.04 INSTALLATION BY TUNNELING

- A. Care shall be exercised in trimming the surface of the excavated section to a true line and grade with the excavation conforming to the outside of the tunnel as nearly as possible. In the installation of tunnel or shaft liner plates, the amount of unsupported tunnel or shaft wall shall be at a minimum at all times. Excavation ahead of the liner plates will not be permitted. Liner plates shall be placed promptly as excavation permits. Upon completion of any ring of liner plates, bolts shall be retightened in the two (2) rings previously completed. The Project Engineer may direct that the top half of the tunnel excavation be supported by a cutting shield and excavation shall not advance ahead of such support.
- B. The vertical face of the excavation shall be supported, as necessary, to prevent sloughing and at any interruption of the tunneling operation, the heading shall be completely bulkheaded.
- C. Grouting shall follow the excavation and lining of the tunnel or shaft as required to fill all voids outside the tunnel liner plates. Grouting shall be performed prior to or upon completion of the installation of a maximum of four (4) rings, unless otherwise directed by the Project Engineer. Grouting shall start at the lowest hole in each grout panel and proceed upwards progressively and simultaneously, when possible, on both sides of the tunnel. The machine used for grouting shall be capable of forcing grout, under pressure, into all voids.

3.05 MEASUREMENT AND PAYMENT

- A. The payment for installation of cover pipe shall be made on the actual number of lineal feet of the various types and sizes of pipes installed. The unit price per foot for cover pipe shall include furnishing the carrier pipe material and installing the pipe by jacking, boring or tunneling, whichever is required, the construction of the approach pits with all necessary sheeting and all other incidentals required to complete the installation as shown on the Plans and herein specified.

3.06 CASING PIPE SCHEDULE (WATER AND SEWER LINES)

Carrier Pipe Nominal Diameter	Minimum I.D. of Casing Pipe for Water and Sewer Lines		Minimum I.D. of Casing Pipe for Vitrified Clay Sewer Lines
	PVC, ABS, C.I. & D.I. (B&S)	C.I. & D.I. (M.J.)	
	--- IN INCHES ---		
2	4	-	-
3	9	12	-
4	10	14	-
6	12	14	14
8	16	18	18
10	18	20	20
12	20	22	22
14	22	24	28
15	24	-	-
16	26	26	-
18	28	28	32
20	28	30	-
21	30	-	38
24	34	34	40
27	38	-	42
30	42	-	-
33	45	-	-
36	48	-	54
39	54	-	-
42	57	-	-

END OF SECTION

SECTION 05801

HORIZONTAL DIRECTION DRILLING REQUIREMENTS

PART 1 - GENERAL

1.1. WORK INCLUDED

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.

1.2. 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.

1.3 SUBMITTALS

- A. Work Plan: Prior to beginning work, the Contractor must submit to the Engineer a work plan detailing the procedure and schedule to be used to execute the project. The work plan should include a description of all equipment to be used, down-hole tools, a list of personnel and their qualifications and experience (including back-up personnel in the event that an individual is unavailable), list of subcontractors, a schedule of work activity, a safety plan (including MSDS of any potentially hazardous substances to be used), traffic control plan (if applicable), an environmental protection plan and contingency plans for possible problems. Work plan should be comprehensive, realistic and based on actual working conditions for this particular project. Plan should document the thoughtful planning required to successfully complete the project.
- B. Equipment: Contractor will submit specifications on directional drilling equipment. Equipment shall include but not be limited to: drilling rig, mud system, mud motors (if applicable), down-hole tools, guidance system, rig safety systems. Calibration records for guidance equipment shall be included.

Specifications for any drilling fluid additives that Contractor intends to use or might use will be submitted.

- C. Material: Specifications on material to be used shall be submitted to Engineer. Material shall include the pipe, fittings and any other item, which is to be an installed component of the project.

PART 2 – EQUIPMENT REQUIREMENTS

2.1 GENERAL

- A. The directional drilling equipment shall consist of a directional drilling rig of sufficient capacity to perform the core and pull-back the pipe, a drilling fluid mixing, delivery and recovery system of sufficient capacity to successfully complete the crossing, a drilling fluid recycling system to remove solids from the drilling fluid so that the fluid can be reused, a guidance system to accurately guide boring operations, a vacuum truck of sufficient capacity to handle the drilling fluid volume, trained and competent personnel to operate the system.
- B. 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.

2.2 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. The rig shall be grounded during drilling and pull-back operations. There shall be a system to detect electrical current from the drill string and an audible alarm, which automatically sounds when an electrical current is detected.
- 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.

2.3 GUIDANCE SYSTEM

- A. A Magnetic Guidance System (MGS) or proven gyroscopic system shall be used to provide a continuous and accurate determination of the location of the drill head during the drilling operation. The guidance shall be capable of tracking at all depths up to one hundred feet and in any soil condition, including hard rock. It shall enable the driller to guide the drill head by providing immediate information on the tool face, azimuth (horizontal direction), and inclination (vertical direction). The guidance system shall be accurate to +/-2% of the vertical depth of the bore hole at sensing position at depths up to one hundred feet and accurate within 1.5 meters horizontally.
- B. The Guidance System shall be of a proven type and shall be operated by personnel trained and experienced with this system. The Operator shall be aware of any magnetic anomalies on the surface of the drill path and shall consider such influences in the operation of the guidance system if using a magnetic system.

2.4 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. Mixing system shall continually agitate the drilling fluid during drilling operations.
- B. Drilling Fluids: Drilling fluid shall be composed of clean water and appropriate clay additive. Water shall be from an authorized source with a pH of 8.5 – 10. Water of a lower pH or with excessive calcium shall be treated with the appropriate amount of sodium carbonate or equal. The water and additives shall be mixed thoroughly and be absent of any clumps or clods. No potentially hazardous material may be used in drilling fluid.
- C. Delivery System: The mud pumping system shall be capable of delivering the drilling fluid at a constant minimum 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 conveyed to the drilling fluid recycling system. 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 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 and recycling facilities.

- D. **Drilling Fluid Recycling System:** The drilling fluid recycling system shall separate sand, dirt and other solids from the drilling fluid to render the drilling fluid re-usable. Spoils separated from the drilling fluid will be stockpiled for later use or disposal.

2.5 OTHER EQUIPMENT

- A. **Pipe Rollers:** Pipe rollers 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 – OPERATIONS

3.1 GENERAL

- A. 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.
- B. 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.

3.2 PERSONNEL REQUIREMENTS

All personnel shall be fully trained in their respective duties as part of the direction drilling crew and in safety. A responsible representative who is thoroughly familiar with the equipment and type work to be performed, must be in direct charge and control of the operation at all times. In all cases the supervisor must be continually present at the job site during the actual directional bore operation. The Contractor shall have a sufficient

number of competent workers on the job at all times to insure the directional bore is made in a timely and satisfactory manner.

3.3 DRILLING PROCEDURE

- A. **Site Preparation:** 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. 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 magnetic variations or anomalies.
- C. **Environmental Protection:** Contractor shall place silt fence between all drilling operations and any drainage, wetland, waterway or other areas designated for such protection by contract documents, state, federal and local regulation. 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 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. Safety meetings shall be conducted at least weekly with a written record of attendance and topic submitted to Engineer.
- E. **Pipe:** Pipe shall be welded/fused together in one length, if space permits, with welds 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:** Pilot hole shall be drilled on bore path with no deviations greater than 5% of depth over a length of 100'. In the event that pilot does deviate from bore path more than 5% of depth in 100', Contractor will notify Engineer and Engineer may require Contractor to pull-back and re-drill from the location along bore path before the deviation. In the event that 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 return 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: 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 and reamer to compact bore holes. Once pull-back operations have commenced, operations must continue without interruption until pipe is completely pulled into bore hole. During pull-back operations Contractor will not apply more than the maximum safe pipe pull pressure at any time. In the event that pipe becomes stuck, Contractor will cease pulling operations to allow any potential 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.

3.4 PIPE TESTING

Following successful pull-back of pipe, Contractor will hydro-test pipe using potable water. A calibrated pressure recorder will be used to record the pressure during the test period. This record will be presented to Engineer. After successful completion of hydro-test, pipe will be pigged dry.

3.5 SITE RESTORATION

Following drilling operations, Contractor will de-mobilize equipment and restore the work-site to original condition. All excavations will be backfilled and compacted to 95% of original density. Landscaping will be subcontracted to a local professional landscaping company.

3.6 RECORD KEEPING, AS-BUILTS

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

END OF SECTION

SECTION 15020

GATE VALVES

PART 1 - GENERAL

1.1 SUMMARY

- A. Gate valves for buried pipelines shall be iron body, bronze mounted, resilient-seated gate valves with non-rising stems having either parallel or inclined seats in accordance with AWWA C509, "Resilient-Seated Gate Valves for Water Service."
- B. Mechanical joint bell ends will be used in buried pipelines of mechanical joint and rubber seal type joint cast iron. Bell and flange ends will be used in exposed cast iron piping at the locations shown on the construction drawings.

1.2 SUBMITTALS

- A. Manufacturer's Data:
 - 1. Material and component data.
 - 2. Performance data.
 - 3. Product warranties.
- B. Submit in accordance with Section 01300.

1.03 RELATED SECTIONS

- A. 01300 - Submittals
- B. 01600 - Materials and Equipment.
- C. 01610 - Transportation and Handling

PART 2 -PRODUCTS

2.1 OPERATING NUTS

Gate valves for buried pipelines shall be furnished with two (2) inch square wrench nuts. Nuts shall have a flanged base upon which shall be cast an arrow two (2) inches long showing the direction of opening, and the word "OPEN" in one-half (1/2) inch or larger letters, shall be cast on the nut to indicate clearly the direction to turn the wrench when opening the valve.

2.2 HANDWHEELS

Hand-wheels may be specified for operating valves in exposed piping on the construction drawings. The hand-wheels shall have an arrow and the word "OPEN", cast thereon, to clearly indicate the direction the hand-wheel is to be turned to open the valve. The diameter of the hand-wheel shall conform to the following dimensions for the various size gate valves.

Size of Valve	Diameter of Hand-wheel
4"	10"
6"	12"
8"	14"
10" and 12"	18"
16" and 18"	22"
24" and 30"	30"

2.3 HORIZONTAL MOUNTING

Gate valves in size sixteen (16) inches and larger may be installed in the horizontal position. Bronze tracks, rollers, and scrapers will be provided for valves to be installed in the horizontal position. Horizontal valves for pressure lines shall be furnished with beveled gear operators. The gear cases for buried service shall be totally enclosed, and the gear cases for exposed piping in a vault shall be of the extended type.

2.4 BYPASS VALVES

Bypasses shall be furnished on valves when so specified on the proposal sheets or shown on the construction drawings. The bypass valve shall be furnished of the same type as the main line valve to which it is fitted. The size requirements of the bypass shall be as follows:

Valve Diameter - Inches	Bypass Diameter - Inches
16-20	3
24-30	4
26-42	6
48	8

2.5 RISING STEM VALVES

Outside screw and yoke rising stem valves shall conform to all of the requirements of AWWA C509 except for the rising stem mechanism. The OS and Y valves shall have

a rugged cast iron yoke machined to provide accurate stem alignment. The OS and Y valves shall be furnished with hand-wheels. OS and Y valves shall only be installed where shown on the drawings.

2.6 UNDERWRITERS VALVES

Gate valves for fire protection systems shall be manufactured in conformance to the requirements of the Underwriters Laboratories, Inc., and the Associated Factory Mutuals Laboratories. Gate valves which support an indicator post shall contain a flange of the indicator post base. Such valves are specified on the construction drawings and shall bear the inspection label of the Underwriters Laboratories, Inc. Gate valves shall be M&H, Mueller or approved equal.

PART 3 - EXECUTION

3.1 SPECIAL DETAILS

The details of other valve requirements and valve appurtenances such as special ends and materials, position indicators, floor stands, cylinders, chain operators, and extension stems and guides are described on the construction drawings.

3.2 SETTING GATE VALVES

Gate valves shall be installed of the size and the location as shown on the construction drawings. Vertical valves shall be set plumb and horizontal valves installed so that the valve body is level. The valves shall be set to the new pipe in the manner specified for cleaning, laying, and jointing pipe. Mechanical joint, rubber compression seal, or bell and spigot shall be used for buried pipelines. Other types of joints for pipelines within structures will be shown on the construction drawings.

3.3 SPARE PARTS

The Contractor shall furnish the Owner one (1) valve rebuild/maintenance kit for each size and type of valve. Each Contractor shall also furnish the Owner one (1) 'T' type valve wrench.

END OF SECTION

SECTION 15080

STANDARD SERVICES AND/OR SERVICE LINE REPLACEMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. The work to be performed under this section shall include all labor, materials, equipment, excavation, backfill and testing necessary for the proper installation of all service connections and **service line replacements**. Details of service installations is shown in the Standard Details Section of the drawings.
- B. No attempt was made to show precise meter setting locations on the plans and the Contractor shall not place any service connection without approval of the location and type by the Engineer. However, in general the meter setting shall be set inside the customer property line and off of State and/or County Road Right of Way.
- C. The total service shall include: A service clamp, corporation stop, service pipe, meter setting equipment, meter box and cover. If called for on the drawings or directed by the Engineer, a pressure reducing valve may be required.
- D. The **service line replacements** shall include location of water main, and existing corporation stop; horizontal drilling new replacement service line (long side) with trenchless service line replacement tool or standard HDD method; connection of new service line to corporation stop and to existing meter. Short side installations may be open cut. **(SEE ATTACHED METER SERVICE LISTING)**

1.02 RELATED SECTIONS

- A. 01300 – Submittals
- B. 01600 - Materials and Equipment
- C. 01610 - Transportation

PART 2 - PRODUCTS

2.01 SERVICE CLAMP

All service clamps shall be single-strap type, Ford S70 furnished with neoprene gaskets cemented in place. Clamps shall be of the proper size for the pipe with which they are to be used. Clamps shall have a tapered AWWA thread, and shall be suitable for a minimum working water pressure of 200 PSIG. Clamps shall be as manufactured by the Ford Company or equal as approved by the Engineer.

2.02 CORPORATION STOP

All taps for service connections shall be made in the upper half of the main with equipment designed for this purpose. No tap shall be closer than one foot from any joint in the main. Corporation stops shall be of the appropriate size for each service. Unless noted otherwise, all services shall be 1 inch. Corporation stops shall have a male AWWA threaded inlet, and an outlet suitable for connection to the service pipe. Corporation stops shall be 110 compression connection, Ford Catalog No. F-1002 Pack Joint or equal, if PVC Service Pipe is specified. If polybutylene service pipe is specified, Ford Catalog No. F1000 or equal shall be utilized. Insert stiffeners of proper length shall be provided with corporation stop if plastic pipe is used.

2.03 SERVICE PIPE

Service pipe shall be Class 250 PSI, polyethylene, Ultra-Pure HDPE Service Pipe and Tubing (**Blue**), CTS OD (Copper Tube Size) PE 3608/PE3710M (SDR9) produced by Silver-Line Plastics **or approved equal** and must also be N.S.F. approved. Service pipe shall run from the corporation stop to the inlet of the meter setting equipment. Service pipe for standard services shall be jacked or driven under paved roads without benefit of steel casing. Open trenches will not be permitted. Should the Contractor chose to use steel casing, it shall be done at no additional cost to the Owner. The jacking, boring, or pushing of service lines under state, county, or private roads or driveways is not a pay item. The unit price bid for service pipe shall include costs for jacking, pushing or boring service pipe as an incidental expense.

2.04 METER BOX AND COVER

- A. A meter box with cover shall be provided for each service and shall be as near the property line as possible and shall be located as directed by the Engineer. The meter box shall be, extruded white poly ribbed polyethylene (0.300 inch wall thickness) construction **or approved equal**. The size shall be 18" in diameter by 24" deep unless otherwise specified or required by the meter size.
- B. The meter box cover shall be 18" Vestal 1 piece flat cover with TR hole cast iron construction, four inches deep with a non-recessed lid, with electronic read hole, with cast letters "WATER METER" and a standard waterworks pentagon lock nut Mueller M-10816 or equal as approved by the Engineer. A minimum of one multiple wrench Mueller M-10820, or equal as approved by the Engineer, shall be supplied to the Owner for each 50 meter box installations. This wrench is not a separate pay item.
- C. Meter boxes and covers shall be set with backfill neatly compacted in place. In yards and other maintained areas, the top of the meter box cover shall be 1/2 inch to 1 inch above original grade, otherwise 2 inches above original grade.

2.05 METER SETTING EQUIPMENT

- A. The meter setting equipment shall consist of a copper meter yoke, with an inlet and outlet suitable for connection to the service pipe specified. The meter yoke shall be provided with a plain stop. Unless otherwise specified or required for the service, the yoke shall accept a 5/8 inch by 3/4 inch meter as specified below. A 1 inch by 5 foot long section of the specified service pipe shall be installed on the customer side of the meter. The cost of this service pipe "pigtail" shall be included with the unit price bid for meter setting.
- B. Copper meter yokes shall have angle ball valve inlet, double check valve outlet and 7" rise. Regular meter yokes shall be Ford VBHC72-7W-44-33G or approved equal. If the meter setting is to include an individual PRV, the tandem yoke shall be Ford TVBHC72-9W-44-33G or approved equal.
- C. Meter yokes shall be supplied with two (2) end connections with baskets per meter setting. End connections shall be Ford Pack Joint or equal for 1" CTS or as required based upon type of service pipe used. Insert stiffeners (of approved length) shall be furnished and installed for each inlet and outlet meter setting service pipe connection. They should have 5/8x3/4 Ball Valve inlet X cartridge dual check with 3/4" CTS Grip nut connections.

2.06 PRESSURE REDUCING VALVE (INDIVIDUAL)

When called for on the drawings or when directed by the Engineer, the Contractor shall install a pressure reducing valve, with strainer, equal to the size of the service. This valve shall be placed inside the meter box according to the standard drawings. Pressure reducing valves shall be A.W. Cash Company, No. E24U or Watts Catalog No. U5-B, or approved equal.

PART 3 - EXECUTION

NOT USED.

- END OF SECTION -

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
8	Melissa Price	17008 Silver Run Rd	10	1	
9	Ron Burns	17005 Silver Run Rd	10	1	
10	Ronald Burns	17005 Silver Run Rd	10	1	
11	John Burns	16923 Silver Run Rd	25	1	
12	Cecil Burns	16923 Silver Run Rd	25	1	
Totals			325	7	5
Sheet - 3	1 Garrett Arthur	16165 Silver Run Rd	10	1	
2	Ronald Arthur	16165 Silver Run Rd	15	1	
3	Ronald Arthur	16165 Silver Run Rd	40		1
4	Lance Robert	16305 Silver Run Rd	50		1
5	Paul Dennison	16363 Silver Run Rd	325		1
6	Angela Hedrick	16133 Silver Run Rd	30		1
7	Ashley Childers	16068 Silver Run Rd	30		1
8	Ted Steward	16013 Silver Run Rd	30		1
9	Kandy Stewart	16035 Silver Run Rd	30		1
10	Darryl Stewart	16013 Silver Run Rd	30		1
11	Dallas Stewart	16013 Silver Run Rd	30		1
12	John Avis	15701 Silver Run Rd	30		1
13	Fred Bartolovic	15624 Silver Run Rd	10	1	
Totals			660	3	10
Sheet - 4	1 Robert Kerns	15615 Silver Run Rd	50		1
2	Casey Broomfield	15350 Silver Run Rd	10	1	
3	Michael McCoy	15342 Silver Run Rd	10	1	
4	Jerry Halret	15260 Silver Run Rd	40		1
5	Kevin Toney	15226 Silver Run Rd	40		1
6	Danny Amos	15326 Silver Run Rd	10	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
7	Eddie Griffin	11044 Poppy Lane	30		1
8	Robert Knipp	11112 Poppy Lane	30		1
Totals			220	3	5
Sheet - 5	1 Arthur Robinette	17150 Arthur Drive	25	1	
	2 Richard Caudill	17235 Arthur Drive	40		1
	3 Terry Sublett	17234 Arthur Drive	20	1	
	4 Johnny Baker	17239 Arthur Drive	25		1
	5 Jim Bauer	17233 Arthur Drive	10		1
	6 Robert Caudill	17229 Arthur Drive	10		1
	7 Virginia Pinson	17223 Arthur Drive	10	1	
	8 Terry Smith	17118 Arthur Drive	10	1	
Totals			150	4	4
Sheet - 6	1 Melvin Goins	3541 Blue Ribbon Road	10	1	
	2 Francis Carter	3544 Blue Ribbon Road	25		1
	3 Gary Maddox	3646 Blue Ribbon Road	100		1
	4 Linda Maddox	3642 Blue Ribbon Road	100		1
	5 Anita Marcus	3699 Blue Ribbon Road	10	1	
	6 Johnathon Miller	3723 Blue Ribbon Road	10	1	
	7 James Caudill	3808 Blue Ribbon Road	40		1
	8 Joyce Farmer	3809 Blue Ribbon Road	10	1	
	9 Sharon Cordail	3841 Blue Ribbon Road	40		1
	10 Gary Rigsby	11047 Robert Aaron Drive	40		1
	11 Gary Cordail	11196 Robert Aaron Drive	10	1	
	12 Steven Rigsby	11167 Robert Aaron Drive	200	1	
	13 Donna Dean	11168 Robert Aaron Drive	40		1
	14 Mac Church	4016 Blue Ribbon Road	40		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
Totals					
Sheet - 7	1 Mike McGlone	4617 Blue Ribbon Road	25	1	
	2 Garrett Byrd	4116 Blue Ribbon Road	40		1
	3 Lois Wilson	4211 Blue Ribbon Road	25	1	
	4 John Workman	4411 Blue Ribbon Road	25	1	
	5 John Workman	4429 Blue Ribbon Road	25	1	
	6 John Workman	4459 Blue Ribbon Road	25	1	
Totals					
			675	6	8
Sheet - 8	1 Paul Cartmel	8800 Durbin Road	20	1	
	2 Paul Cartmel	8806 Durbin Road	20	1	
	3 Frank Jollif	8723 Durbin Road	50		1
	4 Paul Kizer	8704 Durbin Road	10	1	
	5 Mike Harris	8700 Durbin Road	20	1	
	6 Tony Rankin	8628 Durbin Road	30	1	
	7 Darryl Brickey	8638 Durbin Road	50		1
	8 Joe Rankin	8628 Durbin Road	20	1	
	9 Joe Webb	8608 Durbin Road	250	1	
	10 Eric Lawson	8476 Harmon Lane	25	1	
	11 James Johnson	8532 Harmon Lane	25	1	
	12 Joe Thacker	6527 Durbin Road	10	1	
	13 Joe Thacker	INACTIVE	10	1	
Totals					
			540	11	2
Sheet - 9	1 Charles Thorndyke	8530 Left Fork Durbin	10	1	
	2 Sheila Rankin	8710 Left Fork Durbin	10	1	
	3 Gobel Copley	8911 Lewis Drive	10	1	
	4 Kelly Griffith	8910 Lewis Drive	25		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
5	Mark Black	9006 Lewis Drive	30		1
6	Jamie Fry	9009 Lewis Drive	10	1	
7	Julie Rakes	9111 Lewis Drive	10	1	
8	INACTIVE	9115 Lewis Drive	10	1	
9	Bobby Black	9228 Lewis Drive	100		1
10	Crystal Martin	9215 Lewis Drive	10	1	
11	Paul Akers	9315 Lewis Drive	10	1	
12	Buela Clark	9427 Lewis Drive	50	1	
Totals			285	9	3
Sheet - 10	1 Charles Bobcock	8918 Left Fork Durbin	30	1	
	2 Dennis Gibson	10068 Gibson Lane	200	1	
	3 Robert Hunter	9034 Left Fork Durbin	10	1	
	4 Donnie Gibson	9140 Left Fork Durbin	5	1	
	5 James Cornwell	9721 Cyrus Hollow Lane	10	1	
	6 Tommy Cornwell	9717 Cyrus Hollow Lane	10	1	
	7 Herb Cyrus	9722 Cyrus Hollow Lane	50		1
	8 Charles Crisp	9768 Cyrus Hollow Lane	50		1
	9 Merkie Crisp	9784 Cyrus Hollow Lane	50		1
	10 Larry Cyrus	9913 Cyrus Hollow Lane	10	1	
	11 Laura Willy	9915 Cyrus Hollow Lane	25	1	
	12 Tim Stewart	9925 Cyrus Hollow Lane	200	1	
Totals			650	9	3
Sheet - 11	1 Charles Allen	10106 Cyrus Hollow Road	10	1	
	2 George Perry	9999 Cyrus Hollow Road	10	1	
	3 Heather Howard	9889 Left Fork Durbin	10	1	
	4 Tim Black	9908 Left Fork Durbin	25		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
5	Kenny Black	9936 Left Fork Durbin	40		1
6	Peggy Black	9942 Left Fork Durbin	15	1	
7	Jeremy Clark	10031 Left Fork Durbin	30		1
Totals			140	4	3
Sheet - 12	1 Rufus Hewitt	10044 Left Fork Durbin	5	1	
	2 David Ison	10043 Left Fork Durbin	10	1	
	3 Kay Welborn	10123 Left Fork Durbin	30		1
	4 Joett Cyrus	10214 Left Fork Durbin	10	1	
	5 Ossie Reeves	10497 Left Fork Durbin	5	1	
	6 Shellie Corner	10306 Left Fork Durbin	200		1
	7 Durbin Methodist	7833 Durbin Road	10	1	
	8 Homer West	8032 Durbin Road	100		1
	9 David Sperry	8030 Durbin Road	100		1
	10 David Sperry	8473 Durbin Road	10	1	
	11 Bill Brooks	7938 Durbin Road	250		1
	12 Kenny Cornwell	7936 Durbin Road	300		1
	13 David Webb	7833 Durbin Road	20		1
	14 Roger Webb	7823 Durbin Road	15	1	
	15 Roger Webb	7835 Durbin Road	15	1	
	16 Howard Webb	7815 Durbin Road	15	1	
	17 Sharon Hale	7727 Durbin Road	15	1	
Totals			1110	10	7
Sheet - 13	1 Paul Rakes	7515 Rakes Lane	30		1
	2 Robert Rakes	7517 Rakes Lane	10	1	
	3 Douglas Deborg	7514 Rakes Lane	30		1
	4 Carl Rakes	7400 Rakes Lane	10	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
5	Darrell Duncil	7401 Rakes Lane	75	1	
6	Dale Pinkerton	7639 Durbin Road	15	1	
7	Durbin Independent	7212 Durbin Road	30		1
8	John Womack	7205 Durbin Road	10	1	
9	James Stevens	7207 Durbin Road	20	1	
10	Tammy Cornwell	7206 Durbin Road	50	1	
11	Jay Stevens	7208 Durbin Road	20	1	
Totals			300	8	3
Sheet - 14	Alexa Nealy	7102 Durbin Road	10	1	
2	David Wilks	7014 Durbin Road	40	1	
3	Jeff Mills	7112 Durbin Road	100	1	
4	Eva Manard	7108 Durbin Road	10	1	
5	Anthony Sparks	7201 Durbin Road	45		1
6	David Mullins	6930 Durbin Road	25	1	
7	Tim Butler	7008 Durbin Road	10	1	
8	Brian Bussey	6900 Durbin Road	10	1	
9	Earl Jenkins	7011 Durbin Road	40		1
10	James Geyer	6828 Durbin Road	100	1	
11	Ray Sturgill	6832 Durbin Road	10	1	
12	Charles Akers	6833 Durbin Road	50		1
13	Mary Lynn Young	6830 Durbin Road	10	1	
14	Carl Kirk	6730 Durbin Road	20	1	
15	William Luther	6739 Durbin Road	50		1
16	James Rankin	6720 Durbin Road	10	1	
17	Edna Cox	6712 Durbin Road	10	1	
18	Clara Gilliam	6531 Durbin Road	10	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
19	Joe Thacker	6527 Durbin Road	10	1	
20	Gene Preece	6338 Durbin Road	50		1
21	Lance Cox	6324 Durbin Road	80		1
22	Lisa Burd	6212 Durbin Road	50		1
23	Tom Hanshaw	6211 Durbin Road	10	1	
24	Deanna Bluebaun	6032 Durbin Road	75		1
Totals			835	16	8
Sheet - 15	1 Kevin Grayson	5905 Durbin Road	10	1	
	2 Wade Stewart	5800 Durbin Road	40		1
	3 Jason Miller	5624 Durbin Road	40		1
	4 John Conley	5622 Durbin Road	40		1
	5 Rich Triche	5604 Durbin Road	30		1
	6 Matthew Webb	5507 Durbin Road	10	1	
	7 Doug Edward	5345 Durbin Road	75		1
	8 Steve Hunley	5240 Durbin Road	75		1
	9 EMPTY TAP	?? Durbin Road	75		1
	10 Raymond Rankin	5450 Durbin Road	15	1	
	11 Carl Carver	5324 Durbin Road	50		1
	12 William Stratton	5200 Brooks Drive	10	1	
	13 Danny Chaffins	5011 Brooks Drive	15	1	
	14 Kasey Hilanes	5019 Brooks Drive	20	1	
	15 Lou Chaffins	4826 Brooks Drive	50		1
Totals			555	6	9
Sheet - 16	1 Jeff Patton	20014 Golden Gate Road	15	1	
	2 Jeff Patton	20050 Golden Gate Road	15	1	
	3 Roger Young	11944 Golden Gate Road	15	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
4	Cassi Fields	19820 McKenzie Drive	25		1
5	Robert Whitaker	19812 McKenzie Drive	40		1
6	Howard Sperry	1301 McKenzie Drive	25		1
7	James Keller	5210 Brooks Drive	40		1
8	David Bowling	17510 Brooks Drive	10	1	
9	Phillip Hobbs	17520 Brooks Drive	10	1	
10	Jake Hale	18715 Brooks Drive	30		1
11	David Lawhon	18516 Brooks Drive	40		1
12	J.W. Gibson	17500 Brooks Drive	20	1	
13	Paula Bocoock	17532 Brooks Drive	250	1	
14	Bob Gibson	18600 Brooks Drive	200	1	
Totals			735	8	6
Sheet - 17	1 Regina Smith	4702 Brooks Road	50		1
	2 Joe Morgan	20195 Joe Morgan Road	150	1	
	3 Ashley Owsley	20338 Joe Morgan Road	150	1	
	4 Doug Huffman	4426 Brooks Road	15	1	
	5 Dorathy Stewart	4423 Brooks Road	40		1
	6 Dorsal Adams	4449 Brooks Road	40		1
	7 Bill Black	4520 Brooks Road	10	1	
Totals			455	4	3
Sheet - 18	NO METERS				
Totals			0	0	0
Sheet - 19	1 Bird Fun	31034 Kavanaugh Road	40		1
	2 Scott Lewis	31059 Kavanaugh Road	10	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
3	Lisa Copley	31090 Kavanaugh Road	40		1
4	Homer Horton	30901 Kavanaugh Road	10	1	
5	Charles Banks	31135 Kavanaugh Road	25	1	
6	Bill McQuire	32123 U.S. 23	150		1
7	Lloyd Lowe	31600 U.S. 23	50	1	
Totals			325	4	3
Sheet - 20	1 Richard Hayes	284 Rush Creek Road	25	1	
	2 Lewis Powell	350 Rush Creek Road	10	1	
	3 Zoe Ann Brewer	386 Rush Creek Road	15	1	
	4 Zoe Ann Brewer	386 Rush Creek Road	25		1
	5 Patsy Cartmel	7 Rush Creek Road	25		1
	6 Justin Menshouse	11 Rush Creek Road	10	1	
	7 Tom Cartmel	9 Rush Creek Road	750	1	
	8 David Phelps	9750 S.R. 707	50		1
	9 Caroline Boggs	34 Buchanan Lane	40		1
	10 Richard Rice	62 Buchanan Lane	40		1
	11 Bear Creek United Methodist	9112 S.R. 707	325		1
	12 David Phelps	196 Buchanan Lane	20	1	
Totals			1335	6	6
Sheet - 21	1 Melissa Moore	9719 S.R. 707	50	1	
	2 Moore Auto	9719 S.R. 707	10	1	
	3 David Phelps	9667 S.R. 707	10	1	
	4 Karen Clements	2929 S.R. 707	25	1	
	5 Joe Fields	9627 S.R. 707	10	1	
	6 Danny Wallace	9553 S.R. 707	10	1	
	7 Mark Allgier	96190 S.R. 707	40		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
8	Curtis York	9237 S.R. 707	10	1	
9	Rodney Sloan	9112 S.R. 707	50		1
10	Kirby Thacker	9006 S.R. 707	30		1
11	Raymond Byrd	9033 S.R. 707	5	1	
12	Bear Creek Apostolic Church	?? S.R. 707	30		1
13	Heather Morehead	8899 S.R. 707	10	1	
14	Enoch O'Brien	8884 S.R. 707	30		1
15	Donna Hardin	8885 S.R. 707	10	1	
16	Kaylyn Williams	8765 S.R. 707	10	1	
17	Marshall Endicott	8535 S.R. 707	10	1	
Totals			350	12	5
Sheet - 22	1 Joseph Williams	238 Hwy 1937 Bear Creek Road	20	1	
	2 Mark McClanahan	522 Hwy 1937 Bear Creek Road	5	1	
	3 INACTIVE - David Frasure	546 Hwy 1937 Bear Creek Road	25		1
	4 David Frasure	565 Hwy 1937 Bear Creek Road	30		1
	5 David Frasure	564 Hwy 1937 Bear Creek Road	5	1	
	6 Susan Dean	582 Hwy 1937 Bear Creek Road	5	1	
Totals			90	4	2
Sheet - 23	1 Conrad Thompson	948 Hwy 1937 Bear Creek Road	10	1	
	2 Sherly Ratcliff	1082 Hwy 1937 Bear Creek Road	10	1	
	3 Bill Stovic	1133 Hwy 1937 Bear Creek Road	30	1	
	4 O&W Performance	1235 Hwy 1937 Bear Creek Road	60		1
	5 Ernie Opell	22627 Hwy 1937 Bear Creek Road	50		1
	6 Opell meats	22515 Hwy 1937 Bear Creek Road	50		1
	7 Billy Opell	22505 Hwy 1937 Bear Creek Road	50		1
	8 INACTIVE	22333 Hwy 1937 Bear Creek Road	50		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
9	Steve Essenback	22143 Hwy 1937 Bear Creek Road	75		1
10	Lisa Dean/G.P. Smith	22122 Hwy 1937 Bear Creek Road	5	1	
Totals			390	4	6
Sheet -24	COUNTY LINE				
Totals			0	0	0
Sheet - 25	1 William Coleman	58 Rabbitt Lane	100	1	
	2 Fred Hobson	100 Rabbitt Lane	20	1	
	3 Seth Deerfield	103 Rabbitt Lane	20	1	
	4 Rachel Miller	112 Rabbitt Lane	20	1	
Totals			160	4	0
Sheet - 26	1 Pauline Meade	57 Short Leaf Lane	20	1	
	2 Lance Shavers	71 Short Leaf Lane	20	1	
	3 James Mills	324 Short Leaf Lane	20	1	
	4 Jason Crisp	26670 U.S. 23	1250		1
	5 Gary Hicks	361 Left Fork Roe Creek	50		1
	6 Kevin Huff	367 Left Fork Roe Creek	50		1
	7 James Hicks	365 Left Fork Roe Creek	40		1
	8 Bonnie Howard	585 Left Fork Roe Creek	10	1	
	9 Bill Owens	661 Left Fork Roe Creek	50		1
Totals			1510	4	5
Sheet - 27	1 INACTIVE - John Nelson	582 Left Fork Roe Creek	20	1	
	2 Keith Ferguson	913 Left Fork Roe Creek	50		1
	3 Wendall Blackburn	1055 Left Fork Roe Creek	50		1
	4 Donald Epling	4 Right Fork Roe Creek	10	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
5	John Copley	84 Right Fork Roe Creek	10	1	
6	Jim Viperman	490 Right Fork Roe Creek	40		1
7	Amy Maynard	1142 Left Fork Roe Creek	10	1	
8	Lyle Dillion	1397 Left Fork Roe Creek	50		1
9	Joe Arthur	1525 Left Fork Roe Creek	50		1
10	James Mosley (2 meters same add)	1740 Left Fork Roe Creek	50		1
11	Tiffany Griffin	1695 Left Fork Roe Creek	50		1
12	Terry Wilks	1812 Left Fork Roe Creek	200		1
13	James Mosley (2 meters same add)	1740 Left Fork Roe Creek	20	1	
Totals			610	5	8
Sheet - 28	1 Cassie Palmer	1911 Left Fork Roe Creek	50		1
	2 Roe Creek Landfill	? Left Fork Roe Creek	150		1
	3 Virgil Cooley	2022 Left Fork Roe Creek	10	1	
Totals			210	1	2
Sheet - 29	1 Glenn Vanhouse	15 Left Fork Roe Creek	2300	1	
	2 Lighthouse Collision	1009 Zelda Loop Road	50	1	
	3 Keith Tincher	1020 Zelda Loop Road	40	1	
	4 James Medding	905 Zelda Loop Road	40	1	
	5 Leland Loveley	873 Zelda Loop Road	40	1	
	6 Victoria Skaggs	35 Strawberry Court	10		1
	7 James Perry	53 Strawberry Court	10		1
	8 James Walters	75 Strawberry Court	25		1
	9 Dennis Walters	83 Strawberry Court	10	1	
	10 Donald Salyers	36 Strawberry Court	10	1	
	11 Roy Copley	763 Zelda Loop Road	20	1	
	12 Lena Adams	681 Zelda Loop Road	40	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
13	Lena Adams	681 Zelda Loop Road	40	1	
14	Jennifer Strawberry	28 Apple Court	10	1	
15	Lighthouse Collision	41 Apple Court	5	1	
16	Joe Akin	200 Apple Court	150	1	
17	Rosemary Williams	100 Willow Tree Lane	15	1	
18	James Taylor	846 Zelda Loop Road	250		1
19	Keith Tincher	1020 Zelda Loop Road	250	1	
20	Joey Copley	103 Willow Tree Lane	25	1	
21	Ben Stovic	186 Willow Tree Lane	10	1	
22	Carla Duncan	247 Willow Tree Lane	25		1
23	Carla Duncan	248 Willow Tree Lane	10	1	
24	Ashley Masley	254 Willow Tree Lane	25		1
25	Lindsey Daniels	252 Willow Tree Lane	40	1	
26	Ida Hazlett	270 Willow Tree Lane	40		1
Totals			3490	19	7
Sheet - 30	1 Lena Adams	681 Zelda Loop	10	1	
	2 Bobby Sharp	478 Zelda Loop	10	1	
	3 Anna Leonard	362 Zelda Loop	15	1	
	4 Katy Perry	307 Zelda Loop	20	1	
	5 Tyler Lanny	15 Oriole Lane	40	1	
	6 Jaclyn Horn	18 Oriole Lane	20	1	
	7 S.J. Workman	87 Oriole Lane	100	1	
	8 Greg Ward	18 Panther Lane	50		1
	9 Dianna Knight	36 Panther Lane	15	1	
	10 Bob Roberts	150 Panther Lane	250	1	
Totals			530	9	1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
Sheet - 31	1 Greg Meek	25236 U.S. 23	10	1	
	2 Warren Tomlin	25234 U.S. 23	10	1	
	3 Gene Wilson	24907 U.S. 23 (Barn)	50	1	
	4 Carl Bulter	25433 U.S. 23	250	1	
	5 Jason Sammons	93 Cub Lane	25	1	
	6 Geneva Robinette	175 Cub Lane	25	1	
	7 Kenny Mills	201 Cub Lane	25	1	
	8 Deborah See	203 Cub Lane	25		1
	9 Carl Bulter	15 Cub Lane	125		1
	10 Jennifer Bulter	9 Cub Lane	125		1
	11 Ferrell Gas	?? U.S. 23	55	1	
	12 Gene Wilson	24910 U.S. 23 (House)	150		1
	13 Joe Hart	24555 U.S. 23	50	1	
	14 Joe Hart	24555 U.S. 23	100		1
		Totals	1025	9	5
Sheet - 32	1 Jennifer Marcum	377 Mill Branch Road	100		1
	2 John Osbourne	584 Mill Branch Road	20	1	
	3 Amanda Dingess	656 Mill Branch Road	20	1	
	4 Rufus Hall	626 Mill Branch Road	200	1	
	5 Priscilla Hall	612 Mill Branch Road	300	1	
	6 Allen Holbrook	1071 Mill Branch Road	1800		1
	7 Allen Holbrook	1070 Mill Branch Road	25	1	
		Totals	2465	5	2
Sheet - 33	1 Market Place	24261 U.S. 23	125		1
	2 Catapla Baptist	24241 U.S. 23	100	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
Totals					
Sheet - 34	1 Amanda Porter	527 Blaine Creek Road	50	1	1
	2 Lynda Canterbury	533 Blaine Creek Road	50		1
	3 Alvin Sanderson	557 Blaine Creek Road	50		1
	4 Janey Woods/Jamie Kook	591 Blaine Creek Road	50		1
	5 Jennifer Moore	593 Blaine Creek Road	50		1
	6 Bonnie Gillispie	637 Blaine Creek Road	40		1
	7 James Darby	694 Blaine Creek Road	40		1
	8 Joe Marcum	715 Blaine Creek Road	50		1
	9 Joe Hardin	956 Blaine Creek Road	10	1	
	10 Gene Newsome	819 Blaine Creek Road	25	1	
	11 Gene Newsome	819 Blaine Creek Road	40		1
	12 Amanda Burchett	896 Blaine Creek Road	40		1
	13 Noel Jenkins	941 Blaine Creek Road	15	1	
	14 Helen Darby	959 Blaine Creek Road	40		1
	15 Barbara Brooks	1059 Blaine Creek Road	50		1
	16 Burk Trucking	1080 Blaine Creek Road	15	1	
	17 Linda Maynard	1115 Blaine Creek Road	50		1
	18 Barbara Robinson	1117 Blaine Creek Road	50		1
	19 Amy Nickman	1165 Blaine Creek Road	50		1
	20 George Lowe	1148 Blaine Creek Road	15	1	
	21 Richmond Wickman	1191 Blaine Creek Road	50		1
Totals					
			830	5	16
Sheet - 35	1 Richard Smith	1300 Blaine Creek Road	15	1	
	2 Christopher Kazee	1382 Blaine Creek Road	15	1	
	3 Shannon Mayberry	1410 Blaine Creek Road	15	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
4	Chris Baity	1450 Blaine Creek Road	15	1	
5	Belinda Butcher	1485 Blaine Creek Road	50		1
6	Teddy Fuller	1487 Blaine Creek Road	50		1
7	Phillip Gabtree	1564 Blaine Creek Road	15	1	
8	Bill Ross	1745 Blaine Creek Road	50		1
9	Mitch Gilliam	1879 Blaine Creek Road	50		1
10	Denzil Hall	1796 Blaine Creek Road	15	1	
11	Denzil Hall	1796 Blaine Creek Road	15	1	
12	Greg Rice	2014 Blaine Creek Road	15	1	
13	Greg Rice	2036 Blaine Creek Road	15	1	
14	Debra Gilliam	2045 Blaine Creek Road	50		1
Totals			385	9	5
Sheet - 36	NO METERS				
Totals			0	0	0
Sheet - 37	1 Marget Hammond	18434 Trace Road	30		1
	2 Brett Compton	18322 Trace Road	30		1
	3 Kelly Clark	1337 Mile Road	5	1	
	4 Dekeshia Sparks	1341 Mile Road	5	1	
	5 Lyod Beckman	1343 Mile Road	5	1	
	6 David Smith	1411 Mile Road	30		1
	7 Curtis Hamilton	1415 Mile Road	20	1	
	8 Pamela Farmsworth	1427 Mile Road	20	1	
	9 Donald Young	18017 Trace Road	10	1	
	10 INACTIVE	18005 Trace Road	10	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
11	Tereasa Young	18001 Trace Road	10	1	
12	Robert Coader	17727 Trace Road	10	1	
Totals			185	9	3
Sheet - 38	1 Donald Young	18017 Trace Road	10	1	
	2 Crystal Fryer	18005 Trace Road	10	1	
	3 Ronald Smith	18003 Trace Road	10	1	
	4 Teresa Young	18001 Trace Road	10	1	
	5 Patsy Graham	1169 Marie Lane	10	1	
	6 Jackson Allen	1090 Marie Lane	25		1
	7 Brian Conley	18403 Big Run Trace Road	50		1
	8 Creekside Apartment	17912 Big Run Trace Road	10	1	
	9 David Grubb	17910 Big Run Trace Road	10	1	
	10 Rebecca Bander	17870 Big Run Trace Road	10	1	
	11 Mike Bramblut	10519 Cedar Trail	10	1	
	12 Mark Whitt	10556 Cedar Trail	30		1
	13 John Clark	10573 Cedar Trail	10	1	
	14 Stephanie Maynard	(none) Big Run Trace Road (no address - Barn)	10	1	
Totals			215	11	3
Sheet - 39	1 East Fork United Baptist	17475 Big Run Trace Road	60		1
	2 Lashona Williams	17290 Big Run Trace Road	40		1
	3 Melissa Baiver	17337 Big Run Trace Road	10	1	
	4 Michael Barnwell	17333 Big Run Trace Road	30	1	
	5 Ellis Doolin	17335 Big Run Trace Road	300		1
	6 Roger Ball	17080 Big Run Trace Road	10	1	
	7 Cleatis Nevto	17810 Big Run Trace Road	10	1	
	8 AJ Blankenship	17242 Big Run Trace Road	30	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
9	Jeff Lemaster	17238 Big Run Trace Road	20	1	
10	Ragan Ball	17220 Big Run Trace Road	15	1	
11	Todd Whitt	17127 Big Run Trace Road	40		1
12	Mike Skeens	17129 Big Run Trace Road	40		1
13	Mike Meade	17199 Big Run Trace Road	40		1
14	Joe Biggs	17183 Big Run Trace Road	40		1
15	Todd Sparks	16721 Big Run Trace Road	40		1
Totals			725	7	8
Sheet - 40					
1	Raymond Davis	16715 Big Run Trace Road	40		1
2	Howard Davis	16633 Big Run Trace Road	40		1
3	Samuel Grubb	16111 Big Run Trace Road	15	1	
4	Samuel Grubb	16111 Big Run Trace Road	10	1	
Totals			105	2	2
Sheet - 41					
1	Doug Middleton	17505 Big Run Trace Road	10	1	
2	INACTIVE	?? NEED	10	1	
3	B.R. Harris	17332 Big Run Trace Road	100		1
4	Jonathan Harris	12 Mary Court	10	1	
5	Donnie Adkins	24 Mary Court	10	1	
6	Carol Blankenship	60 Mary Court	10	1	
7	Donald Stevens	82 Mary Court	10	1	
8	Donald Stevens	104 Mary Court	25	1	
9	Tonya Kirk	126 Mary Court	20	1	
10	Bobby Crye	150 Mary Court	20	1	
11	INACTIVE	185 Mary Court	10	1	
12	Brian Rucker	141 Mary Court	10	1	
13	Donnie Puriton	103 Mary Court	10	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
14	Donna Blanton	81 Mary Court	10	1	
15	Marvin Conley	1332 Trace Road	125	1	
16	INACTIVE	1328 Old Trace Road	10	1	
17	Martha Humphry	1130 Old Trace Road	30		1
18	Beverly Ratliff	1135 Old Trace Road	10	1	
19	Tony Trout	1131 Old Trace Road	5	1	
20	Robert Trout	1111 Old Trace Road	25		1
21	Sara McGranahan	1112 Old Trace Road	5	1	
22	Stacy Horn	1110 Old Trace Road	5	1	
23	Norman Young	1035 Old Trace Road	50		1
24	Johnny Easterling	401 Old Trace Road	5	1	
25	Johnny Easterling	401 Old Trace Road	5	1	
Totals			540	21	4
Sheet - 42	1 Donald Liebee	536 Old Trace Road	10	1	
	2 Darin Leibee	639 Old Trace Road	100		1
	3 Fred Rucker	840 Old Trace Road	5	1	
	4 Paul Rucker	839 Old Trace Road	25		1
	5 Mitchell Thomas	16928 Trace Road	25		1
	6 Yolanda Starkey	16900 Trace Road	25		1
	7 Michael Wolf	16869 Trace Road	5	1	
	8 James Whitaker	16828 Trace Road	25		1
	9 Ed Meadows	16865 Trace Road	5	1	
	10 Jim Stevens	16845 Trace Road	5	1	
	11 Jim Stevens	16820 Trace Road	25		1
	12 Jim Stevens	16816 Trace Road	25		1
	13 Jim Stevens	16808 Trace Road	25		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
14	Dale Tabor	16800 Trace Road	25		1
15	Elbert Bowe	16801 Trace Road	5	1	
16	Randy Parks	1235 O'Neal Drive	5	1	
17	William McLaughlin	1500 O'Neal Drive	20		1
18	Cory Strond	16632 Trace Road	30		1
19	Ballard Stewart	16598 Trace Road	30		1
20	Country Curl/Tanning	16520 Trace Road	30		1
21	Jae Wareman	16640 Trace Road	30		1
22	Gladys Staten Estate	16537 Trace Road	5	1	
23	Bill Evans	16410 Trace Road	30		1
24	Bill Evans	16406 Trace Road	30		1
Totals			545	8	16
Sheet - 43	1 INACTIVE	1124 O'Neal Drive	20		1
	2 James Marcum	1170 O'Neal Drive	20		1
	3 James Marcum	1205 O'Neal Drive	20		1
	4 Boyce Dotson	1520 O'Neal Drive	5	1	
	5 Steve Cordail	1242 O'Neal Drive	40		1
	6 Fred Shaffner	1524 O'Neal Drive	5	1	
	7 Con Lyon	16220 Trace Road	30		1
	8 Clayton Blevins	16226 Trace Road	30		1
	9 Gary Ray	16223 Trace Road	5	1	
	10 Francis Cordail	16214 Trace Road	30		1
	11 Eskil Ellis	16118 Trace Road	30		1
	12 INACTIVE - Roy Barber	16107 Trace Road	10	1	
	13 Paul Barber	16001 Trace Road	25		1
	14 Greg Fawler	16106 Trace Road	10	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
15	Esetta Stone	16081 Trace Road	150		1
16	INACTIVE - Eastern KY Land Co.	15920 Trace Road	25	1	
17	James Clark	15919 Trace Road	30		1
18	Debbie McDowell	15879 Trace Road	30		1
19	Anthony McKinney	15833 Trace Road	25		1
20	Darryl Seasor	15831 Trace Road	25		1
Totals			565	6	14
Sheet - 44	1 Sheila Morrison	15709 Trace Road	30		1
2	INACTIVE	15535 Trace Road	30		1
3	Kevin Easterling	15521 Trace Road	25		1
4	Aaron Easterling	15600 Trace Road	30		1
5	Bonnie Moore	15601 Trace Road	10	1	
6	INACTIVE	15513 Trace Road	10	1	
7	Courtney Floyd	15448 Trace Road	30		1
8	John Moore	15320 Trace Road	30		1
9	Kim Moore	15322 Trace Road	30		1
10	James Leake	15321 Trace Road	10	1	
11	Phillip Rucker	15319 Trace Road	10	1	
12	Pearl Newman	15314 Trace Road	30		1
13	Carol Nichols	15352 Trace Road	30		1
14	Kevin Clark	15100 Trace Road	30		1
15	Michael Wilburn	15011 Trace Road	10	1	
16	Pamela Allen	14921 Trace Road	10	1	
17	William Wilburn	14923 Trace Road	10	1	
18	Dewayne Wilburn	14919 Trace Road	10	1	
19	Delmar Stacey	14822 Trace Road	40		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
Totals			415	8	11
Sheet - 45	1 Wallace Campbell	15156 Riva Ridge Road	5	1	
	2 Beth Smith	15172 Riva Ridge Road	5	1	
	3 LT Smith	15188 Riva Ridge Road	5	1	
	4 Patrica Bailey	15368 Riva Ridge Road	5	1	
	5 Terry Walters	15486 Riva Ridge Road	250	1	
	6 Chris Feller	15514 Riva Ridge Road	25		1
Totals			295	5	1
Sheet - 46	1 Barney Dennison	14800 Trace Road	50		1
	2 Carol Owens	14795 Trace Road	10	1	
	3 Barry Ward	14797 Trace Road	10	1	
	4 Daryll Hall	14642 Trace Road	30		1
	5 Sonya Gambill	14638 Trace Road	30		1
	6 Carlos Mesa	1377 Badgett Lane	10	1	
	7 Cortez Amando	1377 Badgett Lane	10	1	
	8 Megan Tice	1349 Badgett Lane	10	1	
	9 Richard Farrell	1325 Badgett Lane	15	1	
	10 Delmar Bryant	1317 Badgett Lane	100		1
	11 INACTIVE	1318 Badgett Lane	10	1	
	12 James Thompson	1306 Badgett Lane	10	1	
	13 INACTIVE	1306 Badgett Lane	10	1	
	14 Paula Thompson	1305 Badgett Lane	25		1
	15 Terry Godby	14256 Trace Road	30		1
	16 Paul Troyer	14528 Trace Road	30	1	
	17 Stapleton Apartments	14528 Trace Road	30	1	
	18 INACTIVE	14530 Trace Road	30		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
19	Jennifer Moore	14495 Trace Road	10	1	
20	Aaron Williams	14499 Trace Road	10	1	
21	Lucianda Leach	14409 Trace Road	10	1	
22	Kevin Rice	14419 Trace Road	10	1	
23	Lewis Moore	14421 Trace Road	10	1	
24	INACTIVE	14420 Trace Road	125	1	
25	Tim Patterson	14339 Trace Road	10	1	
26	W.A. Owens	14431 Trace Road	10	1	
27	Strouds Auto	1029 Christy Lane	10	1	
28	Donald Richardson	1220 Christy Lane	20		1
29	Debbie Bell	1241 Christy Lane	10	1	
30	Terry Akers	1285 Christy Lane	10	1	
31	Stephanie Vaughn	14228 Trace Road	55	1	
Totals			750	23	8
Sheet - 47	1 Thelma Bradley	23705 Bolts Fork Road	5	1	
	2 Tom Holbrook	23765 Bolts Fork Road	15	1	
	3 Tom Holbrook	23791 Bolts Fork Road	5	1	
	4 Gene Fannin	23816 Bolts Fork Road	40		1
	5 Ladonna Stratton	23956 Bolts Fork Road	30		1
	6 Jeremy Foster	24136 Bolts Fork Road	30		1
	7 Leonard Davis	24141 Bolts Fork Road	30		1
	8 Robert Colburn	24652 Bolts Fork Road	250		1
	9 Josh Adams	24435 Bolts Fork Road	5	1	
	10 Mark Pennington	24544 Bolts Fork Road	30		1
	11 Chantelle Hager	24625 Bolts Fork Road	5	1	
	12 Rodney Bowling	24711 Bolts Fork Road	30		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
Totals					
Sheet - 48	1 Kathy Horton	24859 Bolts Fork Road	5	5	7
	2 INACTIVE	24923 Bolts Fork Road	10	1	
	3 Mike Horn	25023 Bolts Fork Road	10	1	
	4 Brian Bowling	25000 Bolts Fork Road	40		1
	5 David Bowling	25184 Bolts Fork Road	40		1
	6 Harry Duncan	25245 Bolts Fork Road	5	1	
	7 Ed Bentley	25347 Bolts Fork Road	5	1	
	8 Steven Bentley	25371 Bolts Fork Road	5	1	
	9 Robert Green	25567 Bolts Fork Road	5	1	
	10 Michael Bank	25669 Bolts Fork Road	50		1
Totals					
Sheet - 49	1 Mike Burk	25733 Bolts Fork Road	50		1
	2 William Fiffe	26104 Bolts Fork Road	5	1	
	3 Rick Bowling	26264 Bolts Fork Road	10	1	
	4 Benard Michael	26360 Bolts Fork Road	10	1	
	5 Roberta Hazlett	26365 Bolts Fork Road	50		1
	6 Dwight Petty	332 Hwy 773	25		1
	7 INACTIVE - Johnathan Petty	291 Hwy 773	5	1	
	8 Christina Griffiths	11589 Bolts Fork Road	30		1
	9 Ross Chapel	? Bolts Fork Road	5	1	
	10 INACTIVE	11583 St. Hwy 773	25	1	
	11 INACTIVE	146 St. Hwy 773	10	1	
	12 Jason McCanaha	98 Elijah Ridge Road	10	1	
	13 Dustin Young	119 Elijah Ridge Road	10	1	
	14 Virginia Howard	11580 Bolts Fork Road	40		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
15	Joyce Griffith	11582 Glenwood Branch Road	10	1	
16	INACTIVE	116 Glenwood Branch Road	10	1	
17	INACTIVE	114 Glenwood Branch Road	10	1	
18	INACTIVE	1605 Glenwood Branch Road	10	1	
19	Minnie Milford	1485 Glenwood Branch Road	10	1	
Totals			335	14	5
Sheet - 50	1 Shane Chaffin	11522 S.R. 773 - Bolts Fork Road	10	1	
2	Denzil Delong	11310 S.R. 773 - Bolts Fork Road	10	1	
3	Bazil Golahue	11240 S.R. 773 - Bolts Fork Road	5	1	
4	Mary Golahue	11420 S.R. 773 - Bolts Fork Road	5	1	
5	Zachariah Young	11222 S.R. 773 - Bolts Fork Road	30		1
6	William McHenry	11120 S.R. 773 - Bolts Fork Road	100		1
7	Ester McHenry	11012 S.R. 773 - Bolts Fork Road	50		1
8	Janice McHenry	10908 S.R. 773 - Bolts Fork Road	10	1	
9	Marvin McHenry	10916 S.R. 773 - Bolts Fork Road	250		1
10	INACTIVE	10911 S.R. 773 - Bolts Fork Road	10	1	
11	Stephen Brock	10883 S.R. 773 - Bolts Fork Road	5	1	
12	James Berry	10697 S.R. 773 - Bolts Fork Road	5	1	
13	Mark Miller	10447 S.R. 773 - Bolts Fork Road	5	1	
14	INACTIVE	10423 S.R. 773 - Bolts Fork Road	5	1	
15	INACTIVE	10340 S.R. 773 - Bolts Fork Road	40		1
Totals			540	10	5
Sheet - 51	1 Sameul Perry	1480 Glenwood Branch Road	10	1	
2	Shelia Childers	1460 Glenwood Branch Road	15	1	
3	Johnny Allen	1151 Glenwood Branch Road	20	1	
4	Eddie Church	1164 Glenwood Branch Road	20	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
5	David Boreman	1024 Glenwood Branch Road	20		1
6	William James	27 All Horn Branch Road	200		1
Totals			285	4	2
Sheet - 52	1 Jonathon Thornberry	250 Glenwood Branch Road	5	1	
	2 Steve Curry	3186 East Fork Road	5	1	
	3 Jessie Young	151 Elijah Branch Road	10	1	
	4 Luther Sexton	1462 Elijah Branch Road	40		1
	5 Matt Snyder	1505 Elijah Branch Road	40		1
	6 Lowell Thomas	1460 Elijah Branch Road	5	1	
	7 Lowell Thomas	1428 Elijah Branch Road	5	1	
	8 Matt Snyder	1415 Elijah Branch Road	40		1
	9 Loretta Runyon	1342 Elijah Branch Road	10	1	
Totals			160	6	3
Sheet - 53	1 Buella Biggs	526 Elijah Branch Road	10	1	
	2 Tima McLaughlin	527 Elijah Branch Road	25		1
	3 Emma Gibson	350 Elijah Branch Road	10	1	
Totals			45	2	1
Sheet - 54	1 David Horn	19740 S.R. 854	100	1	
	2 James Garrard	19541 Walker Lane	100	1	
	3 Ray Middleton	19523 Walker Lane	10	1	
	4 Danny Thacker	21605 S.R. 854	50		1
	5 Danny Thacker	21605 S.R. 854	10	1	
Totals			270	4	1
Sheet - 55	1 Daniel Legg	21020 S.R. 854	50		1
	2 Daniel Legg	21020 S.R. 854	50		1
	3 Gerold Blanton	20920 S.R. 854	100		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
4	William Blanton	20914 S.R. 854	10	1	
5	Ernest Blanton	20808 S.R. 854	95		1
6	Harry Friley	20743 S.R. 854	10	1	
7	Anita Brown	20688 S.R. 854	10	1	
8	Jimmy Ruggles	20628 S.R. 854	10	1	
Totals			335	4	4
Sheet - 56					
1	Lynn Ledbetter	20710 Jack's Fork (1" SL)	800		1
2	Rick Bryant	20714 Jack's Fork	50		1
3	Jeremy Brewer	20818 Jack's Fork	15	1	
4	Joe Bulter	20840 Jack's Fork	10	1	
5	Hubert Cloan	21536 Jack's Fork	10	1	
6	Tim Sloan	21415 Jack's Fork	100		1
7	Burt Patton	21706 Jack's Fork	5	1	
Totals			990	4	3
Sheet - 57					
1	Bill Shaffner	21996 Jack's Fork	100		1
2	John Patterson	22004 Jack's Fork	5	1	
3	Glenn Ross	22110 Ross Road	5	1	
4	Garrett Ross	22116 Ross Road	5	1	
5	Wayne Brown	22200 Ross Road	5	1	
6	William Brown	27232 Ross Road	5	1	
7	Brian Brown	22300 Ross Road	20	1	
8	Chuck Miller	22375 Ross Road	150		1
9	Charles Sellers	22350 Ross Road	20	1	
10	Kieth Crow (??)	22328 Ross Road	20	1	
11	Valarie Smith	22124 Jack's Fork	10	1	
12	Hue Banfield	22155 Jack's Fork	10	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
	13 INACTIVE	22343 Jack's Fork	10	1	
	14 Bruce Campbell	22533 Jack's Fork	10	1	
	15 Rodney Vanhoose	22623 Jack's Fork	10	1	
	Totals		385	13	2
Sheet - 58	1 Stephen hall	22711 Jack's Fork	15	1	
	2 Byron Pennington	151 Aaron Drive	25	1	
	3 INACTIVE	501 Aaron Drive	30	1	
	4 Logan Helms	22716 Jack's Fork	50		1
	5 Wayne Vanderpool	22827 Jack's Fork	5	1	
	6 Robert Hicks	22907 Jack's Fork (1" SL)	150	1	
	7 Charles Runyon	23153 Jack's Fork	10	1	
	8 Charles Runyon	23153 Jack's Fork	10	1	
	Totals		295	7	1
Sheet - 59	1 Rebecca Adkins	23225 Jack's Fork	25	1	
	2 Walter Green	23639 Jack's Fork	10	1	
	3 Walter Green	23550 Jack's Fork	30		1
	4 Joan Pack	23642 Jack's Fork	25		1
	Totals		90	2	2
Sheet - 60	1 James Douady	23480 Jack's Fork	10	1	
	2 William Galloway	23981 Jack's Fork (1" SL)	250		1
	3 Thomas Lynch	24001 Jack's Fork (1" SL)	600	1	
	4 INACTIVE	24021 Jack's Fork	10	1	
	5 Micheal Duley	24203 Jack's Fork	10	1	
	6 Micheal Duley	24203 Jack's Fork	5	1	
	Totals		885	5	1
Sheet - 61	1 Mike Dixon	20040 S.R. 854	5	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
2	Ed Childers	19700 S.R. 854	10	1	
3	Becky Lynch	19800 S.R. 854	10	1	
4	Nick Wagner	19321 S.R. 854	100		1
Totals			125	3	1
Sheet - 62	1 Sharon Parker	20805 Long Branch Road	35		1
	2 Curt Parker	20810 Long Branch Road	10	1	
	3 Rusty Young	21018 Long Branch Road	95	1	
	4 Roxann Blanton	20139 Long Branch Road	10	1	
	5 William Hamilton	21137 Long Branch Road	10	1	
	6 Joshua Lucas	21328 Long Branch Road	10	1	
	7 Ronald Stewart	21329 Long Branch Road	300		1
	8 Charles Ferrell	21531 Long Branch Road	30	1	
	9 Larry Parker	21530 Long Branch Road	30	1	
	10 Helen Ferrell	21543 Long Branch Road	30		1
	11 Paul Ferrell	21629 Long Branch Road	30		1
	12 Shelly Moore	21635 Long Branch Road	30		1
	13 James Sheppard	21705 Long Branch Road	40		1
	14 Ronald Moore	21709 Long Branch Road	40		1
	15 Ollie King	21725 Long Branch Road	40		1
	16 Ollie King	21745 Long Branch Road	10	1	
Totals			750	8	8
Sheet - 63	1 Kevin Griffith	21832 Long Branch Road	50		1
	2 Robert Shavers	21835 Long Branch Road	10	1	
	3 Sherri McDonalds	21919 Long Branch Road	10	1	
	4 Andrew Rice	21921 Long Branch Road	30		1
	5 Moodie Destson	21936 Long Branch Road	30		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
6	Rich Rhodes	21995 Long Branch Road	10	1	
7	Sharon Marcadis	22115 Long Branch Road	10	1	
8	Darryl Milan	22200 Long Branch Road	75		1
9	Phillyis Fannin	22243 Long Branch Road	10	1	
10	Bryan Fanda	20305 Long Branch Road	10	1	
11	Earl Ratchliff	22499 Long Branch Road	10	1	
12	Bob Blair	22579 Long Branch Road	60		1
13	Jim Kliaber	22937 Long Branch Road	10	1	
14	B. Wright	22955 Long Branch Road	15	1	
15	Kieth Blanton	22815 Long Branch Road	60		1
Totals			400	9	6
Sheet - 64	1 Andrew Sexton	23501 Long Branch Road	15	1	
	2 Jeff Sexton	23544 Long Branch Road	40		1
	3 Fred Stewart	23522 Long Branch Road	100		1
	4 Richard Moore	23612 Long Branch Road	40		1
	5 Phillip Green	23634 Long Branch Road	40		1
	6 Daniel Green	23704 Long Branch Road	30		1
	7 Diana Bradley	23837 Long Branch Road	10	1	
Totals			275	2	5
Sheet - 65	1 Jonathan Moore	18949 S.R. 854	40		1
	2 David Shattles	17140 Pine Valley Road	100	1	
	3 Brian Mattingly	11943 Pine Valley Road	10	1	
	4 INACTIVE	19134 Pine Valley Road	20	1	
	5 Dan Young	19014 S.R. 854	5	1	
	6 Dana Young	19002 S.R. 854	5	1	
	7 Shane Sturgill	18958 S.R. 854	5	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
8	Larry Smith	18616 S.R. 854	10	1	
9	Denver Sammons	18827 S.R. 854	50		1
10	Sara Elam	18617 S.R. 854	40		1
Totals			285	7	3
Sheet - 66	1 Chris Adkins	18517 S.R. 854	50		1
	2 August Rice	18319 S.R. 854	100		1
	3 Pam Church	18523 S.R. 854	100		1
	4 Barbara Berry	18236 S.R. 854	10	1	
	5 INACTIVE	18228 S.R. 854	10	1	
	6 Kelly Lowe	18141 S.R. 854	50		1
	7 Kelly Lowe	18141 S.R. 854	50		1
	8 Jerry Fowler	17673 S.R. 854	50	1	
Totals			420	3	5
Sheet - 67	1 Francis Davis	17739 Davis Road	50		1
	2 INACTIVE	?? Davis Road	75		1
	3 Rachel Davis	3234 Davis Road	5	1	
	4 David Davis	17579 Davis Road	30		1
	5 Charles Davis	17497 Davis Road	50		1
	6 John Ross	17506 Davis Road	10	1	
	7 Willie Hensley	17476 Davis Road	10	1	
	8 Willie Hensley	17446 Davis Road	10	1	
	9 Ella Fowler	17445 Davis Road	10	1	
	10 Mary Vannatter	17400 Davis Road	10		1
	11 INACTIVE	?? Davis Road	10		1
	12 Sydney Stewart	17360 Davis Road	30		1
	13 Bob Yates	17295 Davis Road	10	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
14	Ruth Yates	17379 Davis Road	10	1	
15	Terri Marshall	17183 S.R. 854	10	1	
16	Montie Ingles	17111 S.R. 854	100	1	
17	Teddy Davis	17105 S.R. 854	10	1	
18	Michael Hale	17112 S.R. 854	10	1	
19	Charles Whitlock	?? S.R. 854	10	1	
20	Jackie Lucas	17106 S.R. 854	50		1
21	Joe Greer	17046 S.R. 854	50		1
22	Joyce Rucker	17103 S.R. 854	50		1
23	Joe Homes	17000 S.R. 854	50		1
24	Greg Moore	16911 S.R. 854	10	1	
25	Greg Moore	16840 S.R. 854	35		1
26	Donald Davis	16841 S.R. 854	10	1	
Totals			715	14	12
Sheet - 68	1 Rick Evans	16626 S.R. 854	30		1
	2 INACTIVE - Eastern KY Land Co.	16629 S.R. 854	10	1	
	3 INACTIVE - Eastern KY Land Co.	16625 S.R. 854	10	1	
	4 INACTIVE - Gerald Davis	16615 S.R. 854	10	1	
	5 Robert Layne	16609 S.R. 854	10	1	
	6 Lakin Caster	16433 S.R. 854	10	1	
	7 Chris Rose	16375 S.R. 854	10	1	
	8 Michael Brown	16448 S.R. 854	15		1
	9 Raymond Whitley	16428 S.R. 854	15		1
	10 INACTIVE	?? S.R. 854	15		1
	11 Heather Rankin	16390 S.R. 854	15		1
	12 David Cooper	16336 S.R. 854	15		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
13	Roger Wireman	16402 S.R. 854	10	1	
14	INACTIVE	16351 S.R. 854	10	1	
15	Della Adkins	16343 S.R. 854	10	1	
16	Rush Freewell Baptist	?? S.R. 854	10	1	
17	James Coleman	16226 S.R. 854	40		1
18	Paul Hutchison	16214 S.R. 854	40		1
19	INACTIVE	16214 S.R. 854	10	1	
20	Kathy Fannin	16213 S.R. 854	10	1	
21	John Withrow	16227 S.R. 854	10	1	
22	Helen Jones	16122 S.R. 854	10	1	
23	Teresa McCarty	16117 S.R. 854	40		1
24	Thomas Jones	16122 S.R. 854	10	1	
25	Gertrude Rowe	16042 S.R. 854	10	1	
26	Tammy Lucas	16031 S.R. 854	40		1
27	Billy Conley	16036 S.R. 854	10	1	
28	Karen Bryan	16030 S.R. 854	10	1	
29	Harold Ross	16008 S.R. 854	10	1	
30	Justin Parsons	16000 S.R. 854	30		1
31	Phillip Bittikofer	28105 Need More Hollow Road	50		1
32	David Cantrell	2933 Need More Hollow Road	10	1	
33	Rhonda Stapleton	15926 S.R. 854	10	1	
34	INACTIVE	15920 S.R. 854	10	1	
35	Fredrick Griffith	15906 S.R. 854	50	1	
36	George Colman	15843 S.R. 854	20	1	
37	George Colman	15841 S.R. 854	5	1	
38	Michael Pack	15823 S.R. 854	5	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
39	Rita Curry	15822 S.R. 854	25		1
40	Donna Griffith	15804 S.R. 854	25		1
41	Linda Stewart	15722 S.R. 854	25		1
42	August Wright	15708 S.R. 854	40		1
43	Jason Hatfield	15650 S.R. 854	40		1
44	Tim Baldwin	15705 S.R. 854	5	1	
45	INACTIVE	15629 S.R. 854	5	1	
46	Barbara Ross	15627 S.R. 854	5	1	
47	Rose Hill Church	15628 S.R. 854	40		1
48	Anita Marshall	15619 S.R. 854	5	1	
49	minnie Lucas	15605 S.R. 854	5	1	
50	Chad Goddard	15603 S.R. 854	5	1	
Totals			870	32	18
Sheet - 69	1 Dicky Tiller	2909 Need More Hollow Road	10		1
	2 Sharon McCoy	2843 Need More Hollow Road	10		1
	3 Jennifer Blankenship	2842 Need More Hollow Road	50	1	
	4 Ethel Salyers	2822 Need More Hollow Road	50	1	
	5 John Bohon	2800 Need More Hollow Road	50	1	
	6 Gary Hamilton	2708 Need More Hollow Road	50	1	
	7 Raymond Hamilton	2708 Need More Hollow Road	50	1	
	8 INACTIVE	15535 S.R. 854	5	1	
	9 Henrettia Marshall	15538 S.R. 854	40		1
	10 Betty Marshall	15529 S.R. 854	5	1	
	11 Jerry Marshall	15530 S.R. 854	40		1
	12 Jaspn Roce	15517 S.R. 854	5	1	
	13 James Stewart	15481 S.R. 854	5	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
14	INACTIVE	15443 S.R. 854	10	1	
15	Danella Madox	15441 S.R. 854	10	1	
16	David Morrison	15443 S.R. 854	5	1	
17	Duranda Spurlock	15421 S.R. 854	5	1	
18	Jessica Collins	15417 S.R. 854	5	1	
19	Renelle Caudill	15405 S.R. 854	150	1	
20	INACTIVE - Brothers of the Wheel	15401 S.R. 854	10	1	
21	BOTX	2927 Hwy 1654	30		1
22	INACTIVE - Rush Kilgore Community	15395 S.R. 854	30		1
23	Randy Haley	15396 S.R. 854	10	1	
24	INACTIVE - Richard Summers	15384 S.R. 854	10	1	
25	Robert Ferguson	15383 S.R. 854	10	1	
Totals			655	19	6
Sheet - 70	1 Jerry Wilson	2798 State Hwy 1654 - Williams Creek Road	10	1	
2	INACTIVE - Alicia Weese	2745 State Hwy 1654 - Williams Creek Road	30		1
3	Jerry Wilson	2798 State Hwy 1654 - Williams Creek Road	10	1	
4	Tim & Lisa Burton	2734 State Hwy 1654 - Williams Creek Road	10	1	
5	INACTIVE - Kristin Hall	2676 State Hwy 1654 - Williams Creek Road	20	1	
6	Chris Mackey	2662 State Hwy 1654 - Williams Creek Road	20	1	
7	August Gullett	2592 State Hwy 1654 - Williams Creek Road	20	1	
8	Jerry Burton	168 Meadow Road	20	1	
9	Jerry Burton	61 Meadows Road	20	1	
10	INACTIVE	18 Geiger Lane	10	1	
11	Jeff Wagner	21 Geiger Lane	10	1	
12	Jason Gilliam	67 Geiger Lane	40		1
13	Jerry McCallister	372 Meadow Road	100		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
14	Jerry Burton	168 Meadow Road	10	1	
15	Jereme Burton	61 Meadows Road	10	1	
16	INACTIVE	?? State Hwy 1654 - Williams Creek Road	40		1
17	Esta Ross (Inactive)	2426 State Hwy 1654 - Williams Creek Road	40		1
18	NEED	?? State Hwy 1654 - Williams Creek Road	30		1
19	Amy Ginter	2222 State Hwy 1654 - Williams Creek Road	30		1
20	Mary Parsons	2126 State Hwy 1654 - Williams Creek Road	30		1
21	Jacob Newell	2053 State Hwy 1654 - Williams Creek Road	5	1	
22	C.W. Electric	2019 State Hwy 1654 - Williams Creek Road	150		1
23	Larry Griffith	2054 State Hwy 1654 - Williams Creek Road	50	1	
24	Toby Duty	1961 State Hwy 1654 - Williams Creek Road	100		1
25	Harold Hall	29 Cactus Road	25	1	
26	Rick Hall	25 Cactus Road	10	1	
27	Melissa Golahue	1830 Williams Creek Road	10	1	
28	Daniel Thacker	1917 Williams Creek Road	350		1
29	James Griffith	1768 Williams Creek Road	20	1	
30	Danny Brammel	1754 Williams Creek Road	10	1	
31	Danny Brammel	1754 Williams Creek Road	10	1	
32	Shannon Cordail	1732 Williams Creek Road	5	1	
33	Barbara Maddox	1739 Williams Creek Road	40		1
Totals			1295	21	12
Sheet - 71	1	Brian Coleman	1698 Williams Creek Road	5	1
	2	Charles Allen	1674 Williams Creek Road	5	1
	3	William Wilburn	1656 Williams Creek Road	5	1
	4	Jody Meyers	1652 Williams Creek Road	5	1
	5	Donna Jones	1640 Williams Creek Road	5	1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
6	Steven Crosby	1641 Williams Creek Road	40		1
7	?? Franklin	156 Shawhan Lane	40		1
8	Motor Savage Carrier	1612 Williams Creek Road	5	1	
9	Norton F.D.	1570 Williams Creek Road	5	1	
10	Larry Evans	1402 Williams Creek Road	5	1	
11	Larry Evans	1450 Williams Creek Road	5	1	
12	Michael Marshall	1433 Williams Creek Road	100		1
13	Kevin Fryer	2126 South State Hwy 207	5	1	
14	Mary Salyers	2095 South State Hwy 207	100		1
15	Herta Hines	2092 South State Hwy 207	5	1	
16	Clifford Hutchinson	2004 South State Hwy 207	5	1	
17	Teresa Scott	1952 South State Hwy 207	5	1	
18	Eddie Frazier	1962 South State Hwy 207	5	1	
19	Andrew Webber	1894 South State Hwy 207	5	1	
20	Jesse McCoy	1881 South State Hwy 207	30		1
21	William Conley	1858 South State Hwy 207	10	1	
22	Jesse McCoy	1801 South State Hwy 207	30		1
23	INACTIVE - Wm Stewart	1800 South State Hwy 207	30		1
24	Pearl Parker	1657 South State Hwy 207	5	1	
25	Richard Horton	1680 South State Hwy 207	5	1	
26	Jeff Davis	1621 South State Hwy 207	25		1
27	Jamie Wright	1594 South State Hwy 207	5	1	
28	Kathy Davis	35 Chippewa Lane	5	1	
29	SA Properties	79 Chippewa Lane	5	1	
30	SA Properties	246 Chippewa Lane	5	1	
31	Nancy Keeton	1552 Norton Branch Road	5	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
Totals			515	23	8
Sheet - 72	1 Carl Berry	1462 S. State Hwy 207	5	1	
	2 Sheryle Bostick	1360 S. State Hwy 207	20		1
	3 Charles Salyers	1322 S. State Hwy 207	20		1
	4 Charles Salyers	1306 S. State Hwy 207	20	1	
	5 Rita Kirk	1292 S. State Hwy 207	20		1
	6 INACTIVE	?? S. State Hwy 207	5	1	
	7 Ronald Sexton	1265 S. State Hwy 207	5	1	
	8 Paul Salyers	1071 S. State Hwy 207	5	1	
	9 Paul Salyers	1071 S. State Hwy 207	5	1	
	10 Raymond Meeks	1061 S. State Hwy 207	5	1	
	11 Sam Griffith	977 S. State Hwy 207	20	1	
	12 INACTIVE - Justin Jones	15105 S.R. 854	5	1	
	13 Rush Post Office	15100 S.R. 854	5	1	
	14 Marshall Howard	15096 S.R. 854	10	1	
	15 Myron Ingles	14978 S.R. 854	10	1	
	16 INACTIVE - Sharon Wolfe	14814 S.R. 854	20	1	
	17 INACTIVE	14814 S.R. 854	10	1	
	18 James/Johnny Rice	18 Barnothing Rd	150		1
	19 Norton Branch F.H.	14778 S.R. 854	10	1	
	20 Rush Lodge	14690 S.R. 854	20	1	
	21 Kilgore Methodist	14630 S.R. 854	10	1	
	22 Kilgore Methodist	14620 S.R. 854	10	1	
	23 Forrest Ingle	14608 S.R. 854	20	1	
	24 James Mullins	14514 S.R. 854	15	1	
Totals			425	20	4

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
Sheet - 73	1 INACTIVE - James Caldwell	1050 Black Leg Road	30		1
	2 Harold McCown	1083 Black Leg Road	5	1	
	3 INACTIVE - Travis Hall	1119 Black Leg Road	5	1	
	4 Linda Withrow	1193 Black Leg Road	20	1	
	5 Ashland Gun Club	100 Black Leg Road	10	1	
	6 INACTIVE	?? NEED	10	1	
	7 Donna McCoy	1500 Black Leg Road	150		1
	8 Mike Tucker	1229 Black Leg Road	25		1
	9 Ashland Gun Club	100 Black Leg Road	10	1	
	10 Samuel Burton	14454 Deer Haven Court	250		1
	11 Kevin Bodgart	14420 Deer Haven Court	250		1
	12 Charles Lipscomb	14402 Deer Haven Court	200	1	
	13 Ellen Justice	70 S.R. 854	10	1	
	14 Danny Abells	20 S.R. 854	10	1	
	15 Rosie's	8669 East U.S. Hwy 60	15	1	
	16 Joe Christie	8851 East U.S. Hwy 60	10	1	
	17 Rodney Thomas	134 Homestead Drive	10	1	
Totals			1020	12	5
Sheet - 74	1 Patricia Cline	8537 East U.S. Hwy 60	10	1	
	2 Roger Cline	8535 East U.S. Hwy 60	10	1	
	3 INACTIVE	99 Morrison Lane	25	1	
	4 Rebecca Reeves	27 Morrison Lane	25		1
	5 Jessica Vaughn	29 Morrison Lane	25		1
	6 Terry Berry	24 Morrison Lane	5	1	
	7 Diane Berry	40 Morrison Lane	5	1	
	8 Dell Lucas	123 Morrison Lane	15		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
9	Joseph Lucus	155 Morrison Lane	15		1
10	Bonnie Lucus	177 Morrison Lane	15		1
11	Donald Miller	237 Morrison Lane	100	1	
12	Sandra Maynard	8339 East U.S. Hwy 60	10	1	
13	Sherly Cordell	8325 East U.S. Hwy 60	10	1	
14	Vinson Barrett	8304 East U.S. Hwy 60	75		1
15	Dianna Greer	8311 East U.S. Hwy 60	10	1	
16	Vicki Rice	8325 East U.S. Hwy 60	10	1	
17	Sandra Maynard	8339 East U.S. Hwy 60	75		1
18	Alice Maynard	8172 East U.S. Hwy 60	50		1
19	Randall Looney	8152 East U.S. Hwy 60	50		1
20	Star Market	8088 East U.S. Hwy 60	50		1
21	Beverly Childers	8072 East U.S. Hwy 60	10	1	
22	Jeff Hayes	53 Gillium Branch	10	1	
23	Kenny Sexton	8123 East U.S. Hwy 60	10	1	
24	Stephanie Conley	8087 East U.S. Hwy 60	10	1	
25	Jackie Dinkins	8061 East U.S. Hwy 60	10	1	
26	Carol Thomas	7995 East U.S. Hwy 60	10	1	
27	Marvin Denix ??	7974 East U.S. Hwy 60	75		1
28	America Sexton	7970 East U.S. Hwy 60	75		1
29	Dennie Sexton	155 Sexton Lane	10	1	
30	Jeffy Davenport	7973 East U.S. Hwy 60	10	1	
31	Joe Shawhard	7961 East U.S. Hwy 60	10	1	
32	New Hope Church	7927 East U.S. Hwy 60	10	1	
33	Tobie Dinkins	16 Villa Drive	10	1	
34	Thomas Jarvis	68 Villa Drive	10	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
35	Larry Hale	7803 East U.S. Hwy 60	10	1	
36	Pat Wilson	7848 East U.S. Hwy 60 (1" SL)	250	1	
37	Greg Bush	7801 East U.S. Hwy 60	10	1	
38	INACTIVE	7789 East U.S. Hwy 60	10	1	
39	Joan Buckler	7789 East U.S. Hwy 60	10	1	
40	Joan Buckler	7767 East U.S. Hwy 60	10	1	
41	Sara Lewis	7658 East U.S. Hwy 60	100		1
42	Nelson Collins	7646 East U.S. Hwy 60	20	1	
43	Elmer Fuller	7623 East U.S. Hwy 60	10	1	
44	Matthew Fyffe	7595 East U.S. Hwy 60	10	1	
Totals			1300	31	13
Sheet - 75	1 Miller Wash	29 Sycamore Lane	25		1
	2 Debbie Morrison	34 Sycamore Lane	10	1	
	3 Eric Hulman	59 Sycamore Lane	25		1
	4 Donald Miller	88 Sycamore Lane	10	1	
	5 James Morrison	118 Sycamore Lane	10	1	
	6 Roger Seagraves	117 Sycamore Lane	10	1	
	7 Miller Truck Wash	165 Sycamore Lane	10	1	
	8 Giles Bastick	7497 East U.S. Hwy 60	10	1	
	9 Roger Blackbarn	7448 East U.S. Hwy 60	100		1
	10 Darryl Lykins	7429 East U.S. Hwy 60	10	1	
	11 David Lykins	7283 East U.S. Hwy 60	100		1
	12 Gordan Womack	7268 East U.S. Hwy 60	10	1	
	13 Luncan Everman	7230 East U.S. Hwy 60	20	1	
	14 INACTIVE	7195 East U.S. Hwy 60	75		1
	15 Roy Harris	7186 East U.S. Hwy 60	10	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
16	Larry Lucas	7148 East U.S. Hwy 60	10	1	
17	Vicki Sawyers	7132 East U.S. Hwy 60	10	1	
18	Alex Nanley	7094 East U.S. Hwy 60	10	1	
19	Don Salyers	6989 East U.S. Hwy 60	100		1
20	David Wade	6984 East U.S. Hwy 60	50	1	
21	Micheal Fredrick	6938 East U.S. Hwy 60	10	1	
22	INACTIVE	6920 East U.S. Hwy 60	10	1	
23	Vicki Salyers	6889 East U.S. Hwy 60	25	1	
24	Vicki Beauty Salon	12 Raquel Branch Road	30		1
25	Angela Brown	16 Raquel Branch Road	10	1	
26	INACTIVE	6786 East U.S. Hwy 60	100		1
27	Berry Haney	6775 East U.S. Hwy 60	40	1	
28	Shannon Jenkins	6787 East U.S. Hwy 60	325	1	
Totals			1165	20	8
Sheet - 76	1 Amanda Beaver	6623 East U.S. Hwy 60	5	1	
	2 William Haney	6621 East U.S. Hwy 60	5	1	
	3 Harold Burton	6455 East U.S. Hwy 60	10	1	
	4 Debra Berry	6568 East U.S. Hwy 60	100	1	
	5 William Berry	6650 East U.S. Hwy 60	10	1	
	6 Terry Bauers	38 East Star Hill Road	40		1
	7 Valentia Marks	99 East Star Hill Road	10	1	
	8 Debbie Young	148 East Star Hill Road	20		1
	9 Mary James	214 East Star Hill Road	20	1	
	10 Randy Brianard	6362 East U.S. Hwy 60	10	1	
	11 INACTIVE - Lillie Hall (Owner)	260 East Star Hill Road	10	1	
	12 INACTIVE - John Evans (Owner)	250 East Star Hill Road	10	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
13	Barbara Chevonger	6273 East U.S. Hwy 60	10	1	
14	Matthew Enix	6267 East U.S. Hwy 60	100		1
15	William Messner	6180 East U.S. Hwy 60	30	1	
16	Phillip Nunley	6156 East U.S. Hwy 60	30	1	
17	Judy Baker	6114 East U.S. Hwy 60	10	1	
18	Joe Nunley	6095 East U.S. Hwy 60	150		1
19	Tim Conley	5890 East U.S. Hwy 60	20	1	
20	Rosie Young	97 West Star Hill Road	200		1
21	Rosie Young	126 West Star Hill Road	10	1	
22	Larry Henley	136 West Star Hill Road (1" SL)	500		1
23	Worman McGlone	5872 East U.S. Hwy 60	10	1	
24	George Cain	50 S.R. 207	10	1	
25	Darryl Daniels	69 S.R. 207	10	1	
Totals			1340	19	6
Sheet - 77	1 Hector Caldwell	23 S.R. 207	10	1	
	2 Ashley Flanigan	5657 East U.S. Hwy 60	50		1
	3 Glenn Jenkins	5604 East U.S. Hwy 60	10	1	
	4 Virginia Fankell	5891 East U.S. Hwy 60 (1" SL)	125	1	
	5 INACTIVE	5538 East U.S. Hwy 60	10	1	
	6 Tamila Middleton	5571 East U.S. Hwy 60	100		1
	7 Mike Hutchison	38 Riffe Hollow	25		1
	8 Kenneth Evans	65 Riffe Hollow	10	1	
	9 Robbie Chaffer	92 Riffe Hollow	40		1
	10 Barbara Williams	73 Riffe Hollow	10	1	
	11 Regina Fredrick	166 Riffe Hollow	40		1
	12 Martha Williams	190 Riffe Hollow	50	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
13	Ronald Fryer	191 Riffe Hollow	10	1	
14	Allen Ferguson	5574 East U.S. Hwy 60	10	1	
15	INACTIVE	11 Bush Lane	10	1	
16	Robert Bishop	5462 East U.S. Hwy 60	10	1	
17	Ricky Hall	5348 East U.S. Hwy 60	10	1	
18	James Shaffer	5475 East U.S. Hwy 60	50		1
19	Ricky Hall	5348 East U.S. Hwy 60	50	1	
20	Jeremy Petty	5326 East U.S. Hwy 60	10	1	
21	Nikki Rice	5302 East U.S. Hwy 60	10	1	
22	Richard Peoples	5278 East U.S. Hwy 60	10	1	
23	INACTIVE	5256 East U.S. Hwy 60	15	1	
24	Macy Riffe	5216 East U.S. Hwy 60	50	1	
25	Travis Burton	5214 East U.S. Hwy 60	100		1
26	Macy Riffe	5216 East U.S. Hwy 60	10	1	
27	Lawrence Rice	5315 East U.S. Hwy 60	10	1	
28	Zelda Rice	5293 East U.S. Hwy 60	10	1	
29	Zelda Rice	5293 East U.S. Hwy 60	10	1	
30	Scott Savage	5241 East U.S. Hwy 60	10	1	
31	Anna Bauers	5201 East U.S. Hwy 60	10	1	
32	Scott Savage	5177 East U.S. Hwy 60	10	1	
Totals			895	25	7
Sheet - 78	1 Bill Sterns	66 South State Hwy 207	10	1	
	2 Charlotte Thomas	98 South State Hwy 207	10	1	
	3 Sara Smith	5623 South State Hwy 207	10	1	
	4 Anthony Flamery	91 South State Hwy 207	40		1
	5 Danny Thomas	118 South State Hwy 207	10	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
6	Dennis Richerton	217 South State Hwy 207	40		1
7	Mark Evans	206 South State Hwy 207	5	1	
8	Eric Stones	240 South State Hwy 207	5	1	
9	Coleman Elam	300 South State Hwy 207	5	1	
10	Joan Sutton	362 South State Hwy 207	5	1	
11	William Gillum	418 South State Hwy 207	5	1	
12	Jennifer Morris	444 South State Hwy 207	5	1	
13	Alvia Conley	476 South State Hwy 207	10	1	
14	Shane Phillips	588 South State Hwy 207	15	1	
15	Keither Deerfield	668 South State Hwy 207	30	1	
16	Shane Phillips	588 South State Hwy 207	30		1
17	Joe Fraley	634 South State Hwy 207	5	1	
18	Joe Fraley	688 South State Hwy 207	5	1	
Totals			245	15	3
Sheet - 79	1 Steven Pinkerton	5117 East U.S Hwy 60	10	1	
	2 Charles Smith	5095 East U.S Hwy 60	10	1	
	3 Lin Arnett	5061 East U.S Hwy 60	10	1	
	4 Sharon Magann	5041 East U.S Hwy 60	10	1	
	5 Andrew Stanton	5080 East U.S Hwy 60	75		1
	6 Ronnie King	5013 East U.S Hwy 60	10	1	
	7 Thomas Grubb	4977 East U.S Hwy 60	10	1	
	8 Jordan Burchett	4937 East U.S Hwy 60	10	1	
	9 David Willis	6991 Wilson Creek Road	10	1	
	10 Sheyrl Johnson	4913 East U.S Hwy 60	10	1	
	11 Wilson Creek Church	6994 Wilson Creek Road	5	1	
	12 Danny Midkoff	6957 Wilson Creek Road	40		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
13	Robert Miller	4854 East U.S Hwy 60	10	1	
14	Pherbie Gallan	4794 East U.S Hwy 60	10	1	
15	Shirley Weese	4760 East U.S Hwy 60	5	1	
16	Lonnie Parker	4730 East U.S Hwy 60	10	1	
17	Susan may	4704 East U.S Hwy 60	10	1	
18	Tina Conley	4703 East U.S Hwy 60	50		1
19	INACTIVE	5695 East U.S Hwy 60	40		1
20	Nancy Davis	14 Carson Lane	10	1	
21	INACTIVE	58 Carson Lane	10	1	
22	Nina Flaughner	84 Carson Lane	10	1	
23	Wanda Jackson	112 Carson Lane	10	1	
24	Brittany Jacks	180 Carson Lane	10	1	
25	Jack Garrett	6904 Wilson Creek Road	10	1	
26	Tony Gibson	6850 Wilson Creek Road	10	1	
27	Lawrence Felty	6836 Wilson Creek Road	10	1	
28	Blancher Conley	6835 Wilson Creek Road	30		1
29	Delmar McCall	6636 Wilson Creek Road	10	1	
30	Steve Burnett	4679 East U.S. Hwy 60	20		1
31	Darrin Blevins	1840 Fighting Fork Road	20		1
Totals			505	24	7
Sheet - 80	1	Jean Vanhorn	6287 Wilson Creek Road		1
	2	Furman Sheppard	6113 Wilson Creek Road		1
	3	Charles Peyton	6112 Wilson Creek Road	1	
	4	Jerry hall	6098 Wilson Creek Road	1	
	5	Brett Barry	6097 Wilson Creek Road		1
	6	Tyrone Noble	6049 Wilson Creek Road		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
7	Tom Haney	5981 Wilson Creek Road	40		1
8	Stephanie Riffle	5920 Wilson Creek Road	10	1	
9	Jeff Haynes	5902 Wilson Creek Road	50	1	
10	Leroy Wright	5857 Wilson Creek Road	5	1	
11	Leroy Wright	5857 Wilson Creek Road	10	1	
12	Leonard Barnhill	30 Eldridge Road	10	1	
13	James Light	52 Eldridge Road	10	1	
14	Edgar Eldridge	451 Eldridge Road	25		1
15	INACTIVE	494 Eldridge Road	10	1	
16	Mitchell Eldridge	402 Eldridge Road	15		1
17	David Wilburn	193 Old Wilson Creek Road	25		1
18	James Barnhill	304 Old Wilson Creek Road	10	1	
19	James Ward	657 Old Wilson Creek Road	40		1
20	INACTIVE	664 Old Wilson Creek Road	5	1	
21	Otto Evans	682 Old Wilson Creek Road	5	1	
Totals			445	12	9
Sheet - 81	1 Eddie Fryer	4314 East U.S. Hwy 60	30	1	
	2 Robert Familton	4269 East U.S. Hwy 60	5	1	
	3 Morris Shearer	4259 East U.S. Hwy 60	5	1	
	4 Patrick Dameron	4257 East U.S. Hwy 60	5	1	
	5 Bob Jesse	4270 East U.S. Hwy 60	30		1
	6 Katherine Finley	4266 East U.S. Hwy 60	30		1
	7 Kevin Jordan	144 Jordan Road	5	1	
	8 INACTIVE	174 Jordan Road	50	1	
	9 Benita Jordan	172 Jordan Road	50	1	
	10 Steven Jordan	127 Jordan Road	50		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
11	Carroll Jordan	126 Jordan Road	10	1	
12	Andrew Wolf	70 Jordan Road	5	1	
Totals			275	9	3
Sheet - 82	1 Michael Rivera	4030 East U.S. Hwy 60	5	1	
	2 Darryl Johnson	3942 East U.S. Hwy 60	10	1	
	3 Keith Justice	841 Cribbs Hill Road	10	1	
	4 Virgie Pennington	22 Orchard Lane	10	1	
	5 Elmer Pennington	90 Orchard Lane	10	1	
	6 Everett Pennington	110 Orchard Lane	10	1	
	7 James Pennington	140 Orchard Lane	20	1	
Totals			75	7	0
Sheet - 83	1 Darren Blevins	1840 Fighting Fork Road	5	1	
	2 Portia Martin	1849 Fighting Fork Road	5	1	
	3 Bobby Emerson	14 Haywood Drive	10	1	
	4 INACTIVE	1776 Fighting Fork Road	20	1	
	5 Robbie Hale	85 Haywood Drive	10	1	
	6 Jeff Hay	354 Haywood Drive	10	1	
	7 Timothy Emerson	1737 Fighting Fork Road	5	1	
	8 Mathew Haney	1713 Fighting Fork Road	10	1	
	9 Gary Knipp	1557 Fighting Fork Road	5	1	
	10 Ted Griffith	1462 Fighting Fork Road	25		1
	11 INACTIVE	1462 Fighting Fork Road	5	1	
	12 INACTIVE	1441 Fighting Fork Road	5	1	
	13 Tabitha Sexton	1401 Fighting Fork Road	10	1	
	14 Helen Gee	1353 Fighting Fork Road	10	1	
	15 Rachel Sexton	1251 Fighting Fork Road	5	1	

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
Totals					
Sheet - 84	1 Carl Sexton	1226 Fighting Fork Road	40	14	1
	2 INACTIVE	1226 Fighting Fork Road	40		1
	3 Donald Bush	1134 Fighting Fork Road	30		1
	4 Charles Sexton	1125 Fighting Fork Road	50	1	
	5 Tom Stickler	1063 Fighting Fork Road	5	1	
	6 Tom Stickler	1037 Fighting Fork Road	5	1	
	7 Victor Sparks	917 Fighting Fork Road	5	1	
	8 Mathew Deborg	805 Fighting Fork Road	30		1
	9 Bobby Davis	773 Fighting Fork Road	20	1	
	10 INACTIVE	?? Fighting Fork Road	20	1	
	11 INACTIVE - Jerry Caudill	619 Fighting Fork Road	10	1	
	12 INACTIVE - Jerry Caudill	598 Fighting Fork Road	5	1	
	13 Billy Roe	491 Fighting Fork Road	30		1
	14 Gary Knipp	322 Fighting Fork Road	5	1	
	15 David Peppered	322 Fighting Fork Road	20		1
	16 Jessica Roe	291 Fighting Fork Road	20		1
	17 George Fannin	199 Fighting Fork Road	10	1	
	18 INACTIVE	177 Fighting Fork Road	10	1	
	19 James Goehing	109 Fighting Fork Road	5	1	
Totals					
Sheet - 85	1 David Johnson	3750 Stinson Road	15		1
	2 Kathy Woffard	18 Fighting Fork Road	10	1	
	3 Clarence Adams	3927 Stinson Road	5	1	
	4 Ray Adams	4065 Stinson Road	10	1	
	5 Guy Campbell	4034 Stinson Road	25		1

Sheet#	Customer Name	Customer Address	Service Line Length	Short Side S.S.	Long Side L.S.
6	Brandon Kinder	4161 Stinson Road	5	1	
7	Gayle Campbell	3553 Stinson Road	10	1	
Totals			80	5	2
Sheet - 86	1 William Tomlin	1257 Clay Jack Road	10	1	
	2 David Eaton	1287 Clay Jack Road	15	1	
	3 Judy Barbee	1220 Clay Jack Road	10	1	
	4 Paul Spears	1200 Clay Jack Road	10	1	
	5 Janet Moore	1112 Clay Jack Road	15	1	
	6 Becky Melvin	1030 Clay Jack Road	25	1	
	7 Anthony Pendleton	1068 Clay Jack Road	10	1	
	8 INACTIVE	?? Clay Jack Road	10	1	
	9 John & Becky Melvin	1030 Clay Jack Road	100	1	
	10 Denny Daniels	906 Clay Jack Road	10	1	
Totals			215	10	0
Sheet - 87	1 Tony Soper	704 Clay Jack Road	10	1	
	2 Jason Blinn	600 Clay Jack Road	10	1	
	3 Michael Middleton	531 Clay Jack Road	10	1	
	4 Martha Wheeler	436 Clay Jack Road	15	1	
	5 Janet Thomas	319 Clay Jack Road	40		1
	6 Michael Williams	230 Clay Jack Road	10	1	
	7 Ronald Heaton	123 Clay Jack Road	10	1	
	8 Denny Middleton	242 Clay Jack Road	25		1
	9 Dave Ison	310 Clay Jack Road	10	1	
	10 Dave Ison	310 Clay Jack Road (1" SL)	600	1	
Totals			740	8	2

SECTION 15121

TRACING WIRE

PART 1 - GENERAL

1.0 SECTION INCLUDES

- A. Under this section of the specifications all water distribution piping shall include Tracer Wire as defined below.

TRACING WIRE:

All water mains, including out of service stubs intended for future extension, shall be installed with copper tracing wire (#12 P.V.C. coated) taped to the pipe every 5 feet. Maximum tracing wire length shall be 1,000 feet without terminating in a curb stop box. Curb stop boxes shall not be located in the pavement areas. Splices in the tracing wire shall be kept to a minimum and approved by the District. If splices are required they shall be made with copper split bolt (lisco #ik-8 or approved equal) and taped with electrical tape (scotch 33/88 or equal).

- B. The cost of this item is an incidental expense.

END OF SECTION

SECTION 15122

UTILITY LINE MARKERS

PART 1 - GENERAL

1.0 SCOPE

This specification covers the requirements for materials of construction, performance, installation, and maintenance for Carsonite's glass reinforced composite utility line markers or approved equal. The utility line markers may be used to provide daytime and nighttime delineation for marking utility applications requiring assured long-term durability, lightweight, flexibility, and vehicle impact resistance.

2.0 DESIGN

The Marker is a single piece marker capable of simple, permanent installation by one person using a manual driving tool. The Marker, upon proper installation, can resist displacement from wind and vehicle impact forces. The Marker has a constant flat "T" cross sectional design to accept retro-reflective sheeting/decals with reinforcing support ribs along its edges to provide protection of the sheeting. An additional reinforcing rib runs down the back side of the post to provide additional rigidity to the post.

3.0 MATERIAL

The Marker is constructed of a durable, UV resistant, continuous glass fiber and resin reinforced, thermosets composite material which is resistant to impact, ozone, and hydrocarbons within a service temperature range of 40° F to +200° F.

4.0 MARKING

Each Marker is permanently identified with the Carsonite's name, month, and year of fabrication. A black line is stamped horizontally across the front of the marker to indicate proper burial depth.

5.0 STOCK DECALS

Each Marker shall include a "stock" decal reading "Caution water pipeline" and marker post (sheeting) shall be "blue" in color.

6.0 DIMENSIONS

The Marker conforms to the shape and overall dimensions shown on drawings. Length of post shall be 72" and include anchor barb.

- END OF SECTION -

SECTION 6

CONTRACT NO. "H-1"

CONTRACT AND BOND FORMS

AGREEMENT

PAYMENT BOND

PERFORMANCE BOND

CERTIFICATE OF INSURANCE

NOTICE OF AWARD

NOTICE TO PROCEED

CHANGE ORDER

PARTIAL PAYMENT REQUEST

CERTIFICATE OF SUBSTANTIAL COMPLETION

FORM OF WAIVER AND RELEASE OF LIEN
(General Contractor)

FORM OF WAIVER AND RELEASE OF LIEN
(Sub-Contractor)

AGREEMENT BETWEEN OWNER AND CONTRACTOR

THIS AGREEMENT is by and between the **Big Sandy Water District** ("Owner") and ("Contractor"), doing business as (an individual, corporation, or partnership). Owner and Contractor in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 –WORK

Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: **Contract No. "H-1" – Phase V - Water System Improvements (Stream Crossing Replacements, Service Line Replacements, etc.)**.

ARTICLE 2 – THE PRODUCT

2.01. The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows: **Contract No. "H-1" – Phase V - Water System Improvements (Stream Crossing Replacements, Service Line Replacements, etc.)**.

ARTICLE 3 - ENGINEER

3.01. The Project has been designed by **Sisler-Maggard Engineering, PLLC**, who is to act as the Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time 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 *Days to Achieve Substantial Completion and Final Payment*

- A. The Work will be substantially completed within **210** days after the date when the Contract Time commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within **210** days after the date when the Contract Time commence to run.

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. 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), Contractor shall pay Owner **\$500** for each day that expires after the time specified in Paragraph 4.02 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner **\$500** for each day that expires after the time specified in Paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A, 5.01.B, and 5.01.C below:

- A. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in this paragraph 5.01.A:

As provided in Paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the General Conditions. Unit prices have been computed as provided in Paragraph 11.03 of the General Conditions.

BID SCHEDULE

TO BE FILLED IN AFTER BIDS AND AS PART OF FINAL CONTRACT DOCUMENTS

Contractor agrees to perform all of the Work described in the Specifications and shown on the Plans for the bid price of: _____ Dollars and _____ Cents (\$_____). The Unit Price shall govern. The Owner will make corrections in extensions and additions to determine the Total Bid Amount for Award.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 Progress Payments; Retainage

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 20th day of each month during performance of the Work as provided in Paragraphs 6.02.A.1 and 6.02.A.2 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of 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 in the General Requirements:

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 Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions:
 - a. 95 percent of Work completed (with the balance being retainage); and
 - b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
2. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 95 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions.

6.03 Final Payment

A. Upon receipt of the final Application for Payment accompanied by Engineer's recommendation of payment in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay Contractor as provided in Paragraph 14.07 of the General Conditions the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages.

ARTICLE 7 – INTEREST

7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the maximum legal rate.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Agreement Contractor makes the following representations:

- A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

- C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions.
- E. Contractor has obtained and carefully studied (or assumes responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.
- F. Contractor does not consider that any 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 Documents.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- I. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. Advertisement for Bids
 - 2. Instructions to Bidders
 - 3. Agreement (pages 1 to 6 inclusive).
 - 4. Performance bond (pages 1 to 3, inclusive).
 - 5. Payment bond (pages 1 to 3, inclusive).
 - 6. Bid bond with Power of Attorney (pages 1 to 2, inclusive)
 - 7. Certificate of Insurance
 - 8. General Conditions (pages 1 to 66, inclusive).
 - 9. Supplementary Conditions (pages 1 to 15, inclusive).
 - 10. Special Conditions (pages 1 to 11, inclusive).
 - 11. Specs. as listed in the table of contents of the Project Booklet

12. Drawings consisting of 96 sheets with each sheet bearing the following general title:
Contract No. "H-1" Phase V - Water System Improvements (Stream Crossing Replacements, Service Line Replacements, etc.) and dated May 2019.
13. Addenda (numbers ___ to ___, inclusive).
14. Exhibits to this Agreement (enumerated as follows):
- a) Contractor's Bid (pages 1 to 6, inclusive) with Certifications.
 - b) Subcontractor's List
 - c) Manufacturer's List
15. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
- a. Notice of Award (1 page)
 - b. Notice to Proceed (1 page)
 - c. Work Change Directives.
 - d. Change Order(s).
 - e. Certificate of Substantial Completion
- B. The documents listed in Paragraph 9.01.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 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

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

10.02 *Assignment of Contract*

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

10.03 *Successors and Assigns*

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

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 Other Provisions: NONE

IN WITNESS WHEREOF, Owner and Contractor, Engineer, and Agencies. All portions of the Contract Documents have been signed, initialed, or identified by Owner and Contractor or identified by Engineer on their behalf. Contractor have signed this Agreement in six copies. One counterpart each has been delivered to Owner

This Agreement is dated _____. This Agreement shall not be effective unless and until Agency's designated representative concurs.

OWNER: Big Sandy Water District

CONTRACTOR

By: Paul E. Thomas

By: _____

Title: Chairman

Title: _____

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest: _____

Attest: _____

By: David Salisbury

Title: Secretary

Title: _____

Address for giving notices:

Address for giving notices:

Big Sandy Water District

18200 State Route 3

Catlettsburg, KY 41129-9325

Agent for service of process:

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

The Certificate of Insurance and Payment Bond must list KYTC (Ky. Dept. of Transportation) as “also insured” along with Big Sandy Water District. The Bonds will NOT be released by the BSWD until they have “release” from KYTC.

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal,
(Corporation, Partnership or Individual)

and _____
(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

Big Sandy Water District
(Name of Owner)

18200 S. R. 3, Catlettsburg, Ky. 41129
(Address of Owner)

hereinafter called OWNER, and unto all persons, firms, and corporations who or which may furnish labor, or who furnish materials to perform as described under the contract and to their successors and assigns in the total aggregate penal sum of _____ Dollars (\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the PRINCIPAL entered into a certain contract with the OWNER, dated the ____ day of _____, 2019, a copy of which is hereto attached and made a part hereof for the construction of: **Contract "H-1" – Water System Improvements (Stream Crossing Replacements, Service line Replacements).**

NOW, THEREFORE, if the PRINCIPAL shall promptly make payment to all persons, firms, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extensions or modifications thereof, including all amounts due for materials, lubricants, oil, gasoline, coal, and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and for all labor cost incurred in such WORK including that by a SUBCONTRACTOR, and to any mechanic or materialman lienholder whether it acquires its lien by operation of State or Federal law; then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, that beneficiaries or claimants hereunder shall be limited to the SUBCONTRACTORS, and persons, firms, and corporations having a direct contract with the PRINCIPAL or its SUBCONTRACTORS.

PROVIDED, FURTHER, that the said Surety for value received stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder of the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no suit or action shall be commenced hereunder by any claimant: (a) Unless claimant, other than one having a direct contract with the PRINCIPAL (or with the GOVERNMENT in the event the GOVERNMENT is performing the obligations of the OWNER), shall have given written notice to any two of the following: The PRINCIPAL, the OWNER, or the SURETY above named within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the PRINCIPAL, OWNER, or SURETY, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer. (b) After the expiration of one (1) year following the date of which PRINCIPAL ceased work on said CONTRACT, is being understood, however, that if any limitation embodied in the BOND is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

PROVIDED, FURTHER, that it is expressly agreed that this BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 20 percent, so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the Contract as so amended. The term "Amendment", wherever used in this BOND and whether referring to this BOND, the contract or the loan documents shall include any alteration, addition, extension, or modification of any character whatsoever.

PROVIDED, FURTHER, that no financial settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in 6 (six) counterparts,
(number)

each one of which shall be deemed an original, this the _____ day of _____, 2019.

ATTEST:

(Principal)

(Principal Secretary)

(SEAL)

BY: _____ (s)

(Witness as to Principal)

(Address)

(Address)

(Surety)

ATTEST:

BY: _____
Attorney-in-Fact

(Witness to Surety)

(Address)

(Address)

NOTE: Date of BOND must not be prior to date of CONTRACT. If CONTRACTOR is a partnership, all partners shall execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in Kentucky.

The Certificate of Insurance and Performance Bond must list KYTC (Ky. Dept. of Transportation) as “also insured” along with Big Sandy Water District. The Bonds will NOT be released by the BSWD until they have “release” from KYTC.

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

_____, hereinafter called Principal, and
(Corporation, Partnership or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

Big Sandy Water District

(Name of Owner)

18200 S. R. 3, Catlettsburg, Ky. 41129

(Address of Owner)

hereinafter called OWNER in the total aggregate sum of _____
Dollars (\$_____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, 2019 a copy of which is hereto attached and made a part hereof for the construction of: **"H-1" – Water System Improvements (Stream Crossing Replacements, Service line Replacements).**

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the SURETY and during the one year guaranty period, and if the PRINCIPAL shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then his obligation shall be void otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that it is expressly agreed that the BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 20 percent, so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the CONTRACT as so amended. The term "Amendment", wherever used in this BOND, and whether referring to this BOND, the Contract or the Loan Documents shall include any alteration, addition, extension, or modification of any character whatsoever.

PROVIDED, FURTHER, that no financial settlement between the OWNER and the PRINCIPAL shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied. The OWNER are the only beneficiaries hereunder.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each
(Number)

one of which shall be deemed an original, this the _____ day of _____, 2019.

ATTEST:

(Principal)

(Principal Secretary)
(SEAL)

BY: _____ (s)

(Witness as to Principal)

(Address)

(Address)

ATTEST:

(Surety)

(Surety Secretary)
(SEAL)

BY: _____ (s)

(Witness to Surety)

(Attorney-in-Fact)

(Typed Name)

(Address)

(Phone)

NOTE: Date of BOND must not be prior to date of CONTRACT.

If CONTRACTOR is a partnership, all partners shall execute BOND.
IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the Project is located.

CERTIFICATE OF INSURANCE

TO BE FURNISHED

BY SUCCESSFUL BIDDER

NOTICE OF AWARD

TO: _____

PROJECT Description: The project includes but is not limited to, the construction of:

Contract "H-1" Phase V – Water System Improvements (Steam Crossing Replacements, Service Line Replacements, etc.)

The OWNER has considered the BID submitted by you for the above described WORK in response to its Bids received _____ 2019, and Instructions for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of \$_____.

You are required by the Information for Bidders to execute the Agreement and furnish the required CONTRACTOR'S Performance BOND, and Payment BOND and certificates of insurance within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within ten (10) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this ____ day of _____, 2019.

Big Sandy Water District
OWNER

BY: _____
Paul E. Thomas

TITLE: Chairman

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

by _____

this the _____ day of _____, 2019.

By: _____

Title: _____

NOTICE TO PROCEED

TO: _____, 2019
(Contractor)

ADDRESS:

OWNER'S PROJECT NO. 15030
PROJECT Contract "H-1" Phase V - Water System Improvements (Steam Crossing Replacements, Service Line Replacements, etc.)

OWNER'S CONTRACT NO. "H-1"

You are hereby notified to commence WORK in accordance with the Agreement dated _____, 2019 on or before _____, 2019 and you are to complete the WORK within **210** consecutive calendar days thereafter. The date of completion of all WORK is therefore _____, 2019.

Big Sandy Water District
Owner

By: _____

Name: Paul E. Thomas

Title: Chairman

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by

this the ____ day of _____, 2019.

By: _____

Name: _____

Title: _____

PARTIAL PAYMENT REQUEST

**DISC WILL BE FURNISHED
TO SUCCESSFUL BIDDER
AT TIME OF CONTRACT AWARD**

CERTIFICATE OF SUBSTANTIAL COMPLETION

OWNER's Project No: _____ ENGINEER's Project No.: 15030
Project **Contract "H-1" Phase V – Water System Improvement (Stream
Crossing Replacements, Service Line Replacements, etc.)**

CONTRACTOR
Contract For **Contract "H-1" Phase V – Water System Improvements (Stream Crossing Replacements, Service Line
Replacements, etc.)**

This Certificate of Substantial completion applies to all Work under the Contract Documents or to the following specified parts thereof:

ALL

To Big Sandy Water District
OWNER

And To _____
CONTRACTOR

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER. CONTRACTOR and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on

DATE OF SUBSTANTIAL COMPLETION

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by CONTRACTOR within _____ days of the above date of Substantial Completion.

The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance, and warranties shall be as follows:

RESPONSIBILITIES:

OWNER: ALL

CONTRACTOR: NONE

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

NONE

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.

Executed by ENGINEER on _____

Sisler-Maggard Engineering, PLLC
ENGINEER

By: _____
Joseph F. Sisler, P.E., P.L.S., President

CONTRACTOR accepts this Certificate of Substantial Completion on _____ 2019

CONTRACTOR

By: _____

OWNER accepts this Certificate of Substantial Completion on _____ 2019

Big Sandy Water District
OWNER

By: _____
Paul Thomas, Chairman

FORM OF WAIVER AND RELEASE OF LIEN

(General Contractor)

TO WHOM IT MAY CONCERN:

WHEREAS, the undersigned has performed or furnished, is performing, or furnishing, or will perform or furnish labor or material, fuel, equipment, tools, etc., in connection with the construction of Contract No. "H-1" Phase V – Water System Improvements (Stream Crossing Replacements, Service Line Replacements, etc.) for Big Sandy Water District at Boyd County, Catlettsburg, Ky.

NOW, THEREFORE, THESE PRESENTS WITNESS, that the undersigned, for a good and valuable consideration to the undersigned well and truly paid at or before the signing and delivery hereof, the receipt whereof is hereby acknowledged, does hereby waive, release and relinquish any and all claims, liens and rights and claims of liens which the undersigned now has, or may hereafter have, on or against the said premises and the building, plant, equipment and machinery of their Owner, Big Sandy Water District, or on or against Big Sandy Water District, on account of labor performed or to be performed or material, fuel, equipment, tools, etc., furnished or to be furnished by the undersigned for use in or in connection with the construction and erection of said project; so that Big Sandy Water District, its successors and assigns, shall and may have, hold and enjoy the same freed and discharged now has or might or could have if these presents had not been made.

IN WITNESS WHEREOF, the undersigned has hereunto set his hand and seal this _____ day ____ of _____, 2019

Name of General Contractor

By _____
Signature of Officer or Partner

Title or Officer

WITNESS:

*Insert name of building or project
**Insert address of building project
***Insert name of Owner

FORM OF WAIVER AND RELEASE OF LIEN

(Sub-Contractor)

TO WHOM IT MAY CONCERN:

WHEREAS, the undersigned has performed or furnished, is performing, or furnishing, or will perform or furnish labor or material, fuel, equipment, tools, etc., in connection with the construction of Contract "H-1" Phase V – Water System Improvements (Stream Crossing Replacements, Service Line Replacements, etc.) at Boyd County Catlettsburg, Kentucky.

NOW, THEREFORE, THESE PRESENTS WITNESS, that the undersigned, for a good and valuable consideration to the undersigned well and truly paid at or before the signing and delivery hereof, the receipt whereof is hereby acknowledged, does hereby waive, release and relinquish any and all claims, liens and rights and claims of liens which the undersigned now has, or may hereafter have, on or against the said premises and the building, plant, equipment and machinery of their Owner, Big Sandy Water District, or on or against Big Sandy Water District, its successors and assigns, or on or against the General Contractor Big Sandy Water District, his or its heirs, executors, administrators, successors and assigns, under the laws of the Commonwealth of Kentucky, on account of labor performed or to be performed, or material, fuel, equipment, tools, etc., furnished or to be furnished by the undersigned for use in or in connection with the construction and erection of said building; so that the said Big Sandy Water District, its successors and assigns, shall may have, hold and enjoy same freed and discharged from all liens, claims and demands whatsoever which the undersigned now has or might or could have if these presents had not been made.

IN WITNESS WEREOF, the undersigned has hereunto set his hand and seal this _____ day of _____, 2019.

Name of Sub-Contractor

By _____
Signature of Officer or Partner

Title or Officer

WITNESS:

- *Insert name of building or project
- **Insert address of building project
- ***Insert name of Owner
- ****Insert name of General Contractor

SECTION 7

CONTRACT NO. "H-1"

BID FORMS AND BID BONDS

**BID FORMS INCLUDING
SUBCONTRACTORS & MANUFACTURERS LIST**

BID BOND WITH POWER OF ATTORNEY

BIDDER'S QUALIFICATIONS STATEMENT

RURAL DEVELOPMENT FORMS

COMPLIANCE STATEMENT – RD 400-6
NOTICE OF REQUIREMENTS FOR CERTIFICATIONS OF NON-SEGREGATED FACILITIES
CERTIFICATION FOR CONTRACTS, GRANTS AND LOANS – 1940-Q
EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION – EEO-1
USDA – CERTIFICATION REGARDING DEBARMENT AND SUSPENSION – AD-1048
INSTRUCTIONS FOR CERTIFICATION
USDA – EQUAL OPPORTUNITY AGREEMENT – RD 400-1
CONTRACTOR'S CERTIFICATE CONCERNING LABOR STANDARDS AND PREVAILING WAGE
REQUIREMENTS

**Forms presented in this Section 7 must be used. No Substitutes will be allowed.
An extra set of the above forms will be furnished to each plan holder for preparation
of bids.**

All of the above forms must be submitted with bids on each contract.

BID FORM**BIG SANDY WATER DISTRICT****CONTRACT NO. "H-1" PHASE V – WATER SYSTEM IMPROVEMENTS**
(Stream Crossing Replacements, Service Line Replacements, etc.)**BIDDER'S PROPOSAL**

Proposal of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____, doing business as (a partnership, or a corporation, or an individual) _____, to **Big Sandy Water District** (hereinafter called "OWNER").

In compliance with the Advertisement for Bids, BIDDER hereby proposes to furnish all equipment, materials, and labor for the work required to construct the **Contract No. "H-1" Phase V – Water System Improvements (Stream Crossing Replacements, Service Line Replacements, etc.)** in strict accordance with the Contract Documents, within the time set forth therein, and at the prices stated below.

BID SCHEDULE

ITEM NO.	ITEM DESCRIPTION	UNIT QUANTITY	UNIT COST	TOTAL COST
-----------------	-------------------------	----------------------	------------------	-------------------

STREAM CROSSING REPLACEMENTS

1	8" HDPE DR9 (IPS) Waterline - Horizontal Directional Drill (HDD)	350	LF	
2	6" HDPE DR9 (IPS) Waterline - Horizontal Directional Drill (HDD)	575	LF	
3	1" 250 PSI HDPE Service Line - Horizontal Directional Drill (HDD) (S.R. 581)	100	LF	
4	12" Steel Casing - Bore & Jack w/6" Waterline (S.R. 581)	70	LF	
5	Proposed ¾" Service Line 250 PSI Polyethylene (S.R. 581)	25	LF	
6	6" PVC CL 250 Waterline	1050	LF	
7	3" PVC CL 250 Waterline	400	LF	
8	6" Gate Valve	8	EA	
9	3" Gate Valve	11	EA	
10	Leak Detector Assembly	5	EA	
11	Blow-Off Assembly	5	EA	
12	Tie New 6" to Ex. 6" PVC	4	EA	
13	Tie New 3" to Ex. 3" PVC	6	EA	

Continued on next page ...

ITEM NO.	ITEM DESCRIPTION	UNIT QUANTITY		UNIT COST	TOTAL COST
14	Tie New ¾" Service Line to Ex. ¾" Service Line	2	EA		
15	Re-Connect Ex. Meter (S.R. 581)	1	EA		
16	6" End Cap	6	EA		
17	3" End Cap	4	EA		
18	Fiberglass Markers (Stream Crossings)	12	EA		

SERVICE LINE REPLACEMENTS

Due to the complexity of items 19 thru 23, Bidders should review the Basis of Payment (Section 01740)
Also, listing of ALL replacement services are listed at rear of Specification Section 15080.

19	Replacement Service Line - ¾" 250 PSI Polyethylene – for meters on Short Side of watermain less than 30 L.F. shall be Open Cut (Approx. 697 Services)	9,000	LF		
20	Replacement Service Line - ¾" 250 PSI Polyethylene for meters on Short or Long Side of watermain from 30 L.F. to 100 L.F. shall be by Trenchless Service Line Replacement Tool	18,600	LF		
21	Replacement Service Line - ¾" 250 PSI Polyethylene for meters on Short Side of watermain over 100 L.F. shall be by Horizontal Directional Drill (HDD)	13,500	LF		
22	Replacement Service Line - 1" 250 PSI Polyethylene – Short/Long Side of watermain shall be Horizontal Directional Drill (HDD) (Approx. 10 Services)	5,900	LF		
23	Reconnect Meters ¾"- 1" – Short and Long Side	1220	EA		

CARSON LANE – LINE REPLACEMENT/UPGRADE

24	2" HDPE DR11 Waterline (Horizontal Directional Drill) @ U.S. 60	75	LF		
25	2" CL 250 PVC Waterline	300	LF		
26	2" Gate Valve	1	EA		
27	2" Blow-off Assembly	1	EA		
28	Tie New 2" to Ex. 6" Waterline	1	EA		
TOTAL ITEMS BID (1 – 28)					

BIDDER agrees to perform all of the Work described in the Specifications and shown on the Plans for the bid price of : _____ Dollars and _____ Cents (\$ _____). Amount shall be shown in both words and figures. The Unit Price shall govern. The Owner will make corrections in extensions and additions to determine the Total Bid Amount for Award.

No bid will be considered unless all **Items 1 thru 28** in the Bid Schedule are priced, and only one contract will be awarded.

The quantities of each item on the bid, as finally ascertained at the close of the contract, will determine the total payments to accrue under the contract.

No bid will be considered unless all items in the Bid Schedule are priced, and only one contract will be awarded.

The bid will be awarded in the aggregate total of the Bid Schedule.

The above price shall include all labor, materials, overhead, profit, insurance, and other costs necessary to cover the finished work of the several kinds called for including incidentals not set out as specific bid items and in accordance with **Basis for Payment (Section 01740 of Specifications)**. The price per foot for pipe installation includes all labor, materials, excavation backfill, clean-up, seeding, testing etc., for a finished product.

By submission of this Bid, the BIDDER certifies, and in the case of a joint Bid, each party thereto certifies as to its own organization, that this Bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this bid, with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence work under this Contract on or before a date to be specified in the Notice to Proceed and to fully complete the project within 210 consecutive calendar days thereafter. BIDDER further agrees to pay as liquidated damages, the sum of **\$ 500.00** for each consecutive calendar day thereafter.

Accompanying this Proposal is a certified check or standard Bid Bond in the sum of _____ Dollars (\$ _____) in accordance with the Information for Bidders to the OWNER that the amount of the bid security deposited with this Bid fairly and reasonably represents the amount of damages the OWNER will suffer due to the failure of this BIDDER to fulfill his agreements as provided in this Proposal.

BIDDER acknowledges receipt of the following Addenda:

<u>Addenda #1</u>	<u>Dated</u>	<u>Addenda #5</u>	<u>Dated</u>
<u>Addenda #2</u>	<u>Dated</u>	<u>Addenda #6</u>	<u>Dated</u>
<u>Addenda #3</u>	<u>Dated</u>	<u>Addenda #7</u>	<u>Dated</u>
<u>Addenda #4</u>	<u>Dated</u>	<u>Addenda #8</u>	<u>Dated</u>

BIDDER agrees that the OWNER reserves the right to delete the whole or any part of the Project from the Contract.

BIDDER understands that the OWNER reserves the right to reject any or all Bids and to waive any informalities in the Bidding.

BIDDER agrees that this Bid shall be good and may not be withdrawn for a period of **90 (ninety)** calendar days after the actual date of bid opening.

Within ten (10) calendar days after receiving written notice of the acceptance of this Bid by the OWNER, the Bidder will execute and deliver to the OWNER 6 (six) copies of the Agreement and such other required Contract Documents.

BIDDER: _____ ADDRESS: _____

BY: _____ DATE SIGNED: _____

TYPED NAME: _____ PHONE NO.: _____

TITLE: _____ FAX NO.: _____

(Seal - If bid is by a corporation)

TO CONTRACTORS: THIS FORM MUST BE USED

BID BOND

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

BIDDER (Name and Address):

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

OWNER (Name and Address):

**BIG SANDY WATER DISTRICT
18200 State Route 3
Catlettsburg, KY 41129**

BID

Bid Due Date:

Project (Brief Description Including Location):

CONTRACT "H-1" PHASE V – WATER SYSTEM IMPROVEMENTS (Stream Crossing Replacements, Service Line Replacements)

BOND

Bond Number:

Date (Not later than Bid due date):

Penal sum

_____ (Words)

_____ (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

SURETY

Bidder's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature and Title

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

Attest: _____
Signature and Title

Attest: _____
Signature and Title

Note: Above addresses are to be used for giving required notice.

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

BIDDER'S QUALIFICATIONS

The Bidder's Qualifications are required by the Owner to be submitted as set forth herewith:

1. Name of Firm : _____
2. This Firm is Corporation or _____Partnership or _____Proprietorship.
3. A permanent place of business is maintained at:

Street	City	State	Zip Code
--------	------	-------	----------

4. The following construction plant and equipment will be made available for use on this contract:

5. In the event the contract is awarded the undersigned, surety bonds will be furnished by:

6. Experience of Contractor on other similar work:

Total Contract	Client Name & Address	Phone	Reference
Contract No. _____	_____	_____	_____
Type _____ \$ _____	_____		
Contract No. _____	_____	_____	_____
Type _____ \$ _____	_____		
Contract No. _____	_____	_____	_____
Type _____ \$ _____	_____		
Contract No. _____	_____	_____	_____
Type _____ \$ _____	_____		

Contract No. _____

Type _____ \$ _____ _____

Contract No. _____

Type _____ \$ _____ _____

Contract No. _____

Type _____ \$ _____ _____

Contract No. _____

Type _____ \$ _____ _____

7. We now have the following jobs under contract and bonded:

Total Contract	Percent Completed	Client Name & Address	Phone	Name of Reference
Contract No. \$ _____				
Location _____				
Contract No. \$ _____				
Location _____				
Contract No. \$ _____				
Location _____				
Contract No. \$ _____				
Location _____				

8. FINANCIAL STATEMENT: SEE ATTACHED BALANCE SHEET

Statement of Assets and Liabilities as of _____, 2018.

This Statement should be prepared by applicant, his bookkeeper, or accountant. Audit report by CPA or licensed accountant may be required.

ASSETS	LIABILITIES
Cash in Bank	Notes Payable
Cash on Hand	(a) Banks
	(b) Material men
	(c) Other
<hr/>	
Accounts Receivable (Including Retentions)	
(a) Completed Contracts	
(b) Uncompleted Contracts	
<hr/>	
Accounts Payable	(a) Sub-Contractors
Unbilled Job Costs	

(b) Material men

 Other Accounts Receivable

 Marketable Securities

 Billings in Excess of Job Costs

 Materials in Stock Not
 Included in Items above
 (a) For Jobs underway

 Current Debt
 (Due in 1 Year)
 (a) Equipment

 (b) Other

 (b) Real Estate

 Income Tax
 (a) Current

 Automobiles

 Sub-Total Current Assets

 Sub-Total Current Liabilities

 Notes Receivable

 Equipment Debt-Over 1 year

 Cash Value Life Insurance

 Real Estate Debt-Over 1 year

 Equipment at Book Value

 Real Estate at Book Value

 (a) Business

 (b) Homestead

 (c) Investment

 Automobiles

 Furniture & Fixtures

 Capital Stock
 Surplus & Undivided Profits

 Total Assets

 Total Liabilities

TOTAL ASSETS MUST EQUAL TOTAL LIABILITIES

Respectfully Submitted: _____

Company Name

Signature Address

Name Typed

Title Date

Phone Fax

ATTEST: _____

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)

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

EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION
FOR
BIG SANDY WATER DISTRICT
CATLETTSBURG, KENTUCKY
CONTRACT No. "H-1"
PHASE V – WATERS SYSTEM IMPROVEMENTS
(Stream Crossing Replacements, Service Line Replacements, etc.)
PROJECT NO. 15030

I, _____, _____,
 (print name) (title)

of _____,
 (firm)

hereby certify that my firm is an equal opportunity employer and is in compliance with all applicable local, state, and federal Equal Employment Opportunity laws.

Respectfully submitted,

By: _____
 (Signature required)

 (Name printed or typed)

Title: _____

Date: _____

STATE OF]
] SS
 COUNTY OF]

I, the undersigned notary public within and for the state and county aforesaid, do hereby certify that the foregoing instrument of writing was this day produced to me in said state, and county by _____, and was acknowledged and delivered by him/her to be his/her act and deed.

WITNESS by my hand this _____ day of _____, 20__.

My Commission expires _____, 20__.

 Notary Public (signature)

 Notary Public (Name typed or printed)

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

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.

EQUAL OPPORTUNITY AGREEMENT

This agreement, dated _____ between _____

(herein called "Recipient" whether one or more) and United States Department of Agriculture (USDA), pursuant to the rules and regulations of the Secretary of Labor (herein called the "Secretary") issued under the authority of Executive Order 11246 as amended, witnesseth:

In consideration of financial assistance (whether by a loan, grant, loan guaranty, or other form of financial assistance) made or to be made by the USDA to Recipient, Recipient hereby agrees, if the cash cost of construction work performed by Recipient or a construction contract financed with such financial assistance exceeds \$10,000 - unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965.

1. To incorporate or cause to be incorporated into any contract for construction work, or modification thereof, subject to the relevant rules, regulations, and orders of the Secretary or of any prior authority that remain in effect, which is paid for in whole or in part with the aid of such financial assistance, the following "Equal Opportunity Clause":

During the performance of this contract, the contractor agrees as follows:

- (a) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited, to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the USDA setting forth the provisions of this nondiscrimination clause.
- (b) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
- (c) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the USDA, advising the said labor union or workers' representative of the contractor's commitments under this agreement and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (d) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of all rules, regulations and relevant orders of the Secretary of Labor.
- (e) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, rules, regulations, and orders, or pursuant thereto, and will permit access to his books, records, and accounts by the USDA Civil Rights Office, and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (f) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be cancelled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by Law.
- (g) The contractor will include the provisions of paragraph 1 and paragraph (a) through (g) in every subcontract or purchase order, unless exempted by the rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the USDA may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the USDA, the contractor may request the United States to enter into such litigation to protect the interest of the United States.

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 a 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.

2. To be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, that if the organization so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.
3. To notify all prospective contractors to file the required 'Compliance Statement', Form RD 400-6, with their bids.
4. Form AD-425, Instructions to Contractors, will accompany the notice of award of the contract. Bid conditions for all nonexempt federal and federally assisted construction contracts require inclusion of the appropriate "Hometown" or "Imposed" plan affirmative action and equal employment opportunity requirements. All bidders must comply with the bid conditions contained in the invitation to be considered responsible bidders and hence eligible for the award.
5. To assist and cooperate actively with USDA and the Secretary in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary, that it will furnish USDA and the Secretary such information such as, but not limited to, Form AD 560, Certification of Nonsegregated Facilities, to submit the Monthly Employment Utilization Report, Form CC-257, as they may require for the supervision of such compliance, and that it will otherwise assist USDA in the discharge of USDA's primary responsibility for securing compliance.
6. To refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by USDA or the Secretary of Labor pursuant to Part II, Subpart D, of the Executive Order.
7. That if the recipient fails or refuses to comply with these undertakings, the USDA may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the organization under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such organization; and refer the case to the Department of Justice for appropriate legal proceedings.

Signed by the Recipient on the date first written above.

Recipient

Recipient

(CORPORATE SEAL)

Name of Corporate Recipient

Attest:

By _____
President

Secretary

**CONTRACTOR'S CERTIFICATION CONCERNING
LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS**

**CONTRACTOR'S CERTIFICATION CONCERNING
LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS**

TO (Appropriate Recipient):	DATE
C/O	PROJECT NUMBER (if any)
	PROJECT NAME

1. The undersigned, having executed a contract with _____ for the construction of the above identified project, acknowledges that:

(a) The Labor Standards provisions are included in the aforesaid contract;

(b) Correction of any infractions of the aforesaid conditions, including infractions by any of his subcontractors and any lower tier subcontractors, is his responsibility.

2. He certifies that:

(a) Neither he nor any firm, partnership or association in which he has substantial interest is designated as an ineligible contractor by the Comptroller of the United States pursuant to Section 5.6(b) of the Regulations of the Secretary of Labor., Part 5 (29 CFR, Part 5) or pursuant to Section 3(a) of the Davis-Bacon Act, as amended (40 U.S. C. 276a-2(a)).

(b) No part of the aforementioned contract has been or will be subcontracted to any subcontractor if such subcontractor or any firm, corporation, partnership or association in which such subcontractor has a substantial interest is designed as an ineligible contractor pursuant to any of the aforementioned regulatory or statutory provisions.

3. He agrees to obtain and forward to the aforementioned recipient within ten days after the execution of any subcontract, including those executed by his subcontractors and any lower tier subcontractors, a Subcontractor's Certification Concerning Labor Standards and Prevailing Wage Requirements executed by the subcontractors.

4. He certifies that:

(a) The legal name and the business address of the undersigned are:

(b) The undersigned is:

(1) A SINGLE PROPRIETORSHIP	(3) A CORPORATION ORGANIZED IN THE STATE OF:
(2) A PARTNERSHIP	(4) OTHER ORGANIZATION (Describe)

(c) The name, title and address of the owner, partners, or officers of the undersigned are:

NAME	TITLE	ADDRESS

(d) The names and addresses of all other persons, both natural and corporate, having a substantial interest in the undersigned, and the nature of the interest are (if none, so state)

NAME	ADDRESS	NATURE OF INTENT

(e) The names, addresses and trade classifications of all other building construction contractors in which undersigned ha a substantial interest (if none, so state):

NAME	ADDRESS	TRADE CLASSIFICATION

Date _____ (Contractor)

By: _____

WARNING

U.S. Criminal Code, Section 1010, Title 18, U.S. C., provides in part: "Whoever makes, passes, utters, or publishes any statement knowing the same to be false..... shall be fined not more than \$5,000 or imprisoned not more than two years, or both