

# SPECIFICATIONS

## NORTHERN KENTUCKY WATER DISTRICT

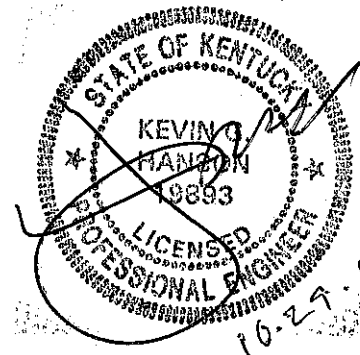
Ripple Creek Pump Station to Main Street  
Tank Water Main Replacement/Extension

Phase 5

Campbell County, Kentucky

October 3, 2013

COMPILED BY:  
Northern Kentucky Water District (Owner)  
2835 Crescent Springs Road  
Erlanger, Kentucky 41018



**SPECIFICATIONS**

**FOR**

**NORTHERN KENTUCKY WATER DISTRICT**

**Ripple Creek Pump Station to Main Street  
Tank Water Main Replacement/Extension**

**Phase 5**

**Campbell County, Kentucky**

**October 3, 2013**

**GOVERNING BODY**

**COMMISSIONERS:**

**DOUG WAGNER – CHAIRMAN  
FRED MACKE, JR – VICE CHAIR  
CLYDE CUNNINGHAM - SECRETARY  
DAVID M. SPAULDING, ESQ. - TREASURER  
ANDREW C. COLLINS - COMMISSIONER  
DR. PATRICIA SOMMERKAMP - COMMISSIONER**

**RON LOVAN, PRESIDENT/CEO**

**COMPILED BY:**

**Northern Kentucky Water District (Owner)  
2835 Crescent Springs Road  
Erlanger, Kentucky 41018**

## TABLE OF CONTENTS

Subject	Pages
<b>BIDDING REQUIREMENTS</b>	
00020 Invitation to Bid	1 - 2
00100 Instructions to Bidders	1 - 7
<b>BID FORMS</b>	
00300 Bid Form	1 - 11
00410 Bid Bond	1 - 2
<b>OWNER'S FORMS</b>	
00460 Non-Collusion Affidavit	1
00470 Kentucky Resident Affidavit	1
<b>CONTRACT FORMS</b>	
00500 Agreement	1 - 7
00610 Performance Bond	1 - 2
00620 Payment Bond	1 - 2
00650 Certificate of Insurance	1
00652 Certificate of Property Insurance	1
<b>CONDITIONS OF CONTRACT</b>	
00700 General Conditions	1 - 67
00800 Supplementary Conditions	1 - 22
00900 Employment Requirements and Wage Rates	1 - 11

## TABLE OF CONTENTS (Continued)

Subject	Page
<b>SPECIFICATIONS</b>	
<b>GENERAL REQUIREMENTS</b>	
01015 Project Requirements	1 - 7
01025 Measurement and Payment	1 - 12
01070 Abbreviations of Terms and Organizations	1 - 2
01300 Submittals	1 - 3
01400 Quality Control	1 - 2
01500 Temporary Facilities	1 - 14
01505 Temporary Services	1 - 3
01600 Technical Provisions	1 - 25
02660 Cathodic Protection	1 - 35
Geotechnical Report	1 - 38
KTC Permit	1 - 13

Section 00020

INVITATION TO BID

Date: October 3, 2013

**PROJECT: Ripple Creek Pump Station to Main Street Tank Water Main Extension  
Phase 5**

SEALED BIDS WILL BE RECEIVED AT:

Northern Kentucky Water District (Owner)  
2835 Crescent Springs Road  
P.O. Box 18640  
Erlanger, Kentucky 41018

UNTIL: Date: October 17, 2013  
Time: 10:00 AM

At said place and time, and promptly thereafter, all Bids that have been duly received will be publicly opened and read aloud.

The proposed Work is generally described as follows: **Construction of 9,347 feet of 24" Class 200 Ductile Iron water main pipe with Cathodic Protection, 56 feet of 8 and 47 feet of 6" Class 50 Ductile Iron Water main pipe along the KY 547 (Riley Road) from AA Highway to Main Street in Alexandria, Campbell County, Kentucky**

All Bids must be in accordance with the Instructions to Bidders and Contract Documents on file, and available for examination at:

Northern Kentucky Water District (Owner)  
2835 Crescent Springs Road  
Erlanger, Kentucky 41018

Or

Cardinal Engineering  
One Mook Road  
Wilder, KY 41071

Copies of the Bidding Documents may be obtained from the office of **Cardinal Engineering** at the address indicated herein. Charges for all documents obtained will be made on the following basis:

	<u>Charge</u>
Complete set of Bidding Documents	<u>\$ 84.00</u>
Mailing and Handling (U.S. Mail) (if requested)	<u>\$ 15.00</u>
Mailing and Handling (FED EX) (if requested)	<u>\$ 30.00</u>

Charges for Bidding Documents and mailing and handling, if applicable, will not be refunded.

Bids will be received on a unit price and/or lump sum basis as described in the Contract Documents.

Bid security, in the form of a certified check or a Bid Bond (insuring/bonding company shall be rated "A" by AM Best) in the amount of ten percent (10%) of the maximum total bid price, must accompany each Bid.

The Successful Bidder will be required to furnish a Construction Payment Bond and a Construction Performance Bond (insuring/bonding company shall be rated "A" by AM Best) as security for the faithful performance of the contract and the payment of all bills and obligations arising from the performance of the Contract.

Contractor and all Subcontractors will be required to conform to the labor standards set forth in the Contract Documents. This project falls under the provisions of KRS 337.505 to 337.550 for prevailing wage rates. Evaluation of Bids and the awarding of a final contract are subject to the reciprocal preference for Kentucky resident bidders pursuant to KRS 45A.490 to 45A.494 and (KAR 200 5:400).

Owner reserves the right to reject any or all Bids, including without limitation the right to reject any or all nonconforming, non-responsive, incomplete, unbalanced, or conditional Bids, to waive informalities, and to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of Owner to make an award to that Bidder. Owner also reserves the right to negotiate with the apparent qualified Bidder to such an extent as may be determined by Owner.

Minority Bidders are encouraged to bid.

Bids shall remain subject to acceptance for 90 days after the day of bid opening or for such longer period of time to which a Bidder may agree in writing upon request of the Owner. If a Contract is to be awarded, the Owner will give the successful Bidder a Notice of Award during the period of time during which the successful Bidder's bid remains subject to acceptance.

Richard Harrison, Vice President of Engineering, Water Quality, & Production  
Northern Kentucky Water District

End of Section

## Section 00100

### INSTRUCTIONS TO BIDDERS

1. **DEFINED TERMS.** Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:

- A. *Bidder* - The individual or entity who submits a Bid directly to Owner.
- B. *Successful Bidder* - The lowest responsible Bidder submitting a responsive Bid to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.

2. **COPIES OF CONTRACT DOCUMENTS.** Complete sets of Contract Documents must be used in preparing Bids; Bidder shall have sole responsibility for errors or misrepresentations resulting from the use of incomplete sets of Bidding Documents.

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 confer a license or grant for any other use.

3. **QUALIFICATIONS OF BIDDERS.** To demonstrate Bidder's qualifications to perform the Work, within five days of Owner's request Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be requested by Owner. Bidders who have not, in the Owner's opinion, had sufficient experience in the size and type of work involved may not be considered.

Each Bid must contain evidence of Bidder's qualifications to transact business in the State of Kentucky or covenant to obtain such qualifications prior to award of the Contract. The Bidder's Organization Number from the Kentucky's Secretary of State and principal place of business as filed with Kentucky's Secretary of State must be included where applicable.

Each Bidder must be registered as a plan holder with the Issuing Office or Engineer on record in the advertised "Invitation to Bid". There shall be no substitution of bidders without proper registration with the Issuing Office or Engineer on record in the advertised "Invitation to Bid"

4. **EXAMINATION OF CONTRACT DOCUMENTS AND SITE.** It is the responsibility of each Bidder, before submitting a Bid, to:

- a. thoroughly examine and study the Instructions to Bidders and the Contract Documents, including any Addenda;
- b. visit the Site and become familiar with and satisfy Bidder as to the general, local, and site conditions that may affect cost, progress, performance, or furnishing of the Work;

- c. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, performance, or furnishing of the Work;
- d. agree at the time of submitting its Bid that 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 and in accordance with the other terms and conditions of the Contract Documents;
- e. correlate the information known to Bidder, information and observations obtained from visits to the Site, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents;
- f. promptly give Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Contract Documents and confirm that the written resolution thereof by Owner is acceptable to Bidder; and
- g. determine that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.01. Underground Facilities. Information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner or others, and Owner and Engineer disclaim responsibility for the accuracy or completeness thereof, unless it is expressly provided otherwise in the Supplementary Conditions.

4.02. Additional Information. Before submitting a Bid, each Bidder may, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests, and studies and obtain any additional information and data which pertain to subsurface or physical conditions at or contiguous to the Site or otherwise, which may affect cost, progress, performance, or furnishing of the Work and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of the Contract Documents. Each Bidder shall be responsible for any claims for personal injury, death or damage to property caused by Bidder's entry on public or private property and shall defend and indemnify Owner and all other parties against any such claims.

4.03. Bidder's Representation. The submission of a Bid will constitute an incontrovertible representation and covenant by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Contract Documents, that Bidder has given Owner written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Contract Documents and the written resolutions thereof are acceptable to Bidder, and that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.



5. SITE AND OTHER AREAS. The Site is identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Contract Documents.

6. INTERPRETATIONS AND ADDENDA. All questions about the meaning or intent of the Bidding Documents are to be submitted to Owner in writing. Any interpretations or clarifications that are considered necessary by Owner in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Owner as having received the Bidding Documents. Questions received less than 72 hours prior to the date for opening of Bids may not be answered. The person submitting questions shall be responsible for their prompt delivery. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.

Owner will not be responsible for explanations or interpretations of the Bidding Documents or Contract Documents except as issued in accordance herewith.

7. BID SECURITY. Each Bid must be accompanied by Bid security made payable to Owner in an amount of 10 percent of Bidder's maximum Bid price and in the form of a Bid Bond (on the form attached) issued by a surety meeting the requirements of paragraphs 5.01 and 5.02 of the General Conditions and shall be rated "A" by AM BEST..

Bid security of the Successful Bidder will be retained until 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 returned. 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 annul the Notice of Award and Bid security of that Bidder will be forfeited. Bid security of other Bidders whom 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 Agreement or one day after the last day the Bids remain subject to acceptance, whereupon Bid security furnished by such Bidders will be returned.

8. CONTRACT TIMES. The numbers of days within which, or the dates by which, the Work is to be (a) Substantially Completed and (b) also completed and ready for final payment are set forth in the Agreement.

9. LIQUIDATED DAMAGES. Provisions for liquidated damages, if any, are set forth in the Agreement.

10. SUBSTITUTE OR "OR-EQUAL" ITEMS. The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be

furnished or used by Contractor if acceptable to Owner, application for such acceptance will not be considered by Owner until after the Effective Date of the Agreement. The procedure for submission of any such application by Contractor and consideration by Owner is set forth in the General Conditions and may be supplemented in the General Requirements.

11. PREPARATION OF BID. The Bid form is included with the Bidding Documents. Additional copies may be obtained from Owner.

All blanks on the Bid form shall be completed by printing in ink or by typewriter and the Bid signed. A Bid price shall be indicated for each lump sum bid item and/or unit price item listed therein, or the words "No Bid", "No Change", or "Not Applicable" entered.

A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

A Bid by a limited liability company shall be executed in the name of the firm by a member (if member-managed) or manager (if manager-managed) and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown below the signature.

A Bid by an individual shall show the Bidder's name and official address.

A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid form. The official address of the joint venture must be shown below the signature.

All names shall be typed or printed in ink below the signatures.

The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid form.

The address and telephone number for communications regarding the Bid shall be shown.

The Bid shall identify whether the Bidder is a resident or nonresident bidder for purposes of Kentucky's reciprocal preference statute (KRS 45A.490 to 45A.494 and 200 KAR 5:400). If the Bidder is claiming a "resident bidder" status as defined in KRS 45A.494(2), the Bid shall include a properly executed and notarized affidavit affirming that it meets the criteria to be considered such a resident bidder. If requested by Owner, Bidder shall also provide documentation proving such resident bidder status; failure to do so shall result in disqualification of the Bidder or contract termination.

While the Bidder should consult the applicable statutes and regulation, generally speaking, a "resident bidder" is an individual or business entity that, on the date the contract is first advertised or announced as available for bidding: (a) is authorized to transact business in the

Commonwealth; AND (b) has for one (1) year prior to and through the date of the advertisement, (i) filed Kentucky corporate income taxes, (ii) made payments to the Kentucky unemployment insurance fund established in KRS 341.490, and (iii) maintained a Kentucky workers' compensation policy in effect. A "nonresident bidder" is any other individual or business entity.

12. **BASIS OF BID.** Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule. The total of all estimated prices will be determined as the sum of the products of the estimated quantity of each item and the unit price Bid for the item. The final quantities and Contract Price will be determined in accordance with paragraph 11.03 of the General Conditions and as amended in the Supplemental Conditions.

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. Discrepancies between words and figures will be resolved in favor of the words.

13. **SUBMITTAL OF BID.** A Bid shall be submitted 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 an opaque sealed envelope plainly marked with the Project title, the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "Bid Enclosed".

Bids shall be addressed to Owner at:

Northern Kentucky Water District (Owner)  
2835 Crescent Springs Road  
P.O. Box 18640  
Erlanger, Kentucky 41018

Two complete and executed Bid Form along with "Non-Collusion Affidavit" and Bid Bond shall be submitted. Bids shall be typed or in ink. Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids. Bids received after the time and date for receipt of Bids may be returned unopened. Oral, telephone, facsimile, or telegraph Bids are invalid and will not receive consideration.

14. **MODIFICATION AND WITHDRAWAL OF BIDS.** A Bid may be modified or withdrawn by an appropriate document duly executed in the 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. For a period ending 72 hours after Bids are opened, any Bidder may request the withdrawal of its Bid by filing with Owner a duly signed written notice and otherwise demonstrating by clear and convincing evidence to the reasonable satisfaction of Owner that the Bid was submitted in good faith but there was a material and/or substantial mistake in the preparation of its Bid. If the withdrawal of the Bid is approved by the Owner in its sole discretion, the Bid security will be returned. Without the advanced full disclosure by the withdrawing Bidder to and written consent of the Owner, (a) no Bid shall be withdrawn under

this section when the result would be the awarding of the contract on another Bid of the same Bidder or of another Bidder in which the withdrawing Bidder has a direct or indirect equitable interest and (b) no Bidder who is permitted to withdraw a Bid shall, for compensation, supply any material or labor to or perform any subcontract or other work agreement for the Bidder to whom the contract is awarded or otherwise benefit, directly or indirectly, from the performance of the Project.

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

16. BIDS TO REMAIN SUBJECT TO ACCEPTANCE. 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.

17. AWARD OF CONTRACT. Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, non-responsive, incomplete, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder which it finds, after reasonable inquiry and evaluation, to be non-responsive. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate with the apparent Successful Bidder to such an extent as may be determined by Owner. The Owner also reserves the right to increase or decrease the quantities of work per the General Conditions.

In the case of Bids for equipment and materials only, Owner may award the Contract to a responsible Bidder other than the lowest in the interest of standardization or ultimate economy, as determined by Owner.

In evaluating Bids, Owner will consider, among other lawful considerations, the following:

- a. Whether or not the Bid complies with the prescribed requirements, and provides such alternates, unit prices and other information or data as may be requested in the Bid form or prior to the Notice of Award.
- b. The qualifications of the Bidder.
- c. If the Bidder maintains a permanent place of business.
- d. If the Bidder has adequate personnel, plant and equipment to perform the Work properly and expeditiously.
- e. Bidder's financial status to meet all obligations and incidentals to the Work.
- f. Whether the Bidder has appropriate technical expertise and experience.
- g. Bidder's performance record.
- h. The amount of the TOTAL BASE BID, exclusive of any additive alternates, if applicable. Any additive alternates will be considered after selection of the lowest

Total Base Bid. Each additive alternate will be considered and selected or not selected individually, at Owner's discretion, for inclusion in the work.

In addition, the evaluation of Bids will be subject to the reciprocal preference for Kentucky resident bidders pursuant to KRS 45A.490 to 45A.494 and KAR 200 5:400. These statutes and regulation provide in part as follows: (a) a resident bidder of the Commonwealth shall be given a preference against a nonresident bidder registered in any state that gives or requires a preference to bidders from that state; (b) the preference shall be equal to the preference given or required by the state of the nonresident bidder; (c) this preference shall not be applied against nonresident bidders residing in states that do not give preference against Kentucky bidders; (d) if a procurement determination results in a tie between a resident bidder and a nonresident bidder, preference shall be given to the resident bidder; and (e) the preference shall not result in a nonresident bidder receiving a preference over another nonresident bidder.

Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders to perform the Work in accordance with the Contract Documents, including, without limitation, a Bidder's claim that it is a resident bidder for purposes of Kentucky's preference statute.

18. CONTRACT SECURITY AND INSURANCE. Article 5 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 executed Agreement to Owner, it must be accompanied by such Bonds.

19. SIGNING OF AGREEMENT. When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents identified in the Agreement as attached thereto. Within 15 days thereafter, the Successful Bidder shall sign, leaving the dates blank, and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within 15 days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

20. RETAINAGE. Provisions concerning retainage are set forth on the Agreement.

End of Section

Section 00150

Statement of Work

The following items are to be completed under this contract. These items include: Construction of 9,347 feet of 24" Class 200 Ductile Iron water main pipe with Cathodic Protection, 56 feet of 8 and 47 feet of 6" Class 50 Ductile Iron Water main pipe along the KY 547 (Riley Road) from AA Highway to Main Street in Alexandria, Campbell County, Kentucky. Please review the Encroachment Permit from KDOT, geotechnical report and cathodic protection system details which are part of this specification book. Plans, specifications, permits, and reports shall be reviewed by the bidder for detailed installation and restoration requirements.

NOTE: Water main construction between station 18+70 and 23+50 will increase the complexity of the project as this area will need to be constructed in phases due to the water main being "laid in place" of the old water main.

End of Section

Section 00300

BID FORM

PROJECT IDENTIFICATION: **Ripple Creek Pump Station to Main Street Tank Water Main Extension Phase 5**

THIS BID IS SUBMITTED TO:

Northern Kentucky Water District (Owner)  
P.O. Box 18640  
2835 Crescent Springs Road  
Erlanger, Kentucky 41018

THIS BID IS SUBMITTED BY: \_\_\_\_\_  
*(Bidder's Company Name)*

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Contract Documents to perform all Work as specified or indicated in the Contract Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
2. Bidder accepts all of the terms and conditions of the Invitation to Bid and the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 calendar days after the Bid opening, or for such longer period of time to which the Bidder may agree in writing upon request of Owner. Bidder understands that certain extensions to the time for acceptance of this Bid may require the consent of the surety for the Bid Bond.
3. In submitting this Bid, Bidder represents and covenants, as set forth in the Agreement, that:
  - a. Bidder has examined and carefully studied the Contract Documents, the other related data identified in the Contract Documents, and the following Addenda, receipt of all of which is hereby acknowledged:  
  
No. \_\_\_\_\_ Dated \_\_\_\_\_  
  
No. \_\_\_\_\_ Dated \_\_\_\_\_  
  
No. \_\_\_\_\_ Dated \_\_\_\_\_
  - b. Bidder 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. Bidder 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. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary explorations, 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 Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.
- e. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
- f. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- g. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
- h. Bidder has given Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Owner is acceptable to Bidder.
- i. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- j. **[Check the one that applies]**

\_\_\_\_\_ Bidder is a "resident bidder" as defined in KRS 45A.494(2) of Kentucky's resident bidder reciprocal preference statute AND submits with this Bid a properly executed and notarized Affidavit that affirms that Bidder meets the resident bidder criteria, which Affidavit is hereby incorporated herein and made a part of this Bid.

OR

\_\_\_\_\_ Bidder is a "nonresident bidder" as defined in KRS 45A.494(3) of Kentucky's resident bidder reciprocal preference statute AND its principal place of business as identified its Certificate of Authority to transact business in Kentucky as filed with Kentucky's Secretary of State or, if Bidder hereby represents and covenants that it is not required to obtain a Certificate of Authority to transact business in Kentucky, its mailing address, is:



---

---

---

- k. Bidder's Organization Number from Kentucky's Secretary of State is #\_\_\_\_\_ [if applicable] and Bidder is qualified to transact business in the State of Kentucky or hereby covenants to obtain such qualifications prior to award of the Contract.
  
- 4. Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.
  
- 5. The Bidder understands and agrees that during the performance of the Contract, it shall maintain a presence within such proximity of the Work Site which will allow it to respond to an emergency at the Work Site within one hour of receiving notice of an emergency, including emergencies occurring during non-working hours. The Bidder shall provide a list of emergency phone numbers for such purposes. If the Bidder does not have such a presence, it may satisfy this requirement by sub-contracting with a sub-contractor that does have such a presence, provided that any such sub-contractor must be approved by the Owner, in its sole discretion, prior to the project pre-construction meeting.
  
- 6. Bidder will complete the Work for the following unit prices, computed in accordance with paragraph 11.03.B of the General Conditions. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities provided, determined as provided in the Contract Documents.

**Note: Bidder agrees to perform all the following work described in the specifications and shown on the plans, for the following unit prices:**

Note: The bidder agrees to perform all the following work described in the specifications and shown on the plans, for the following prices:

<b>Ripple Creek Pump Station to Main Street Tank WM Extension – Phase 5</b>					
Item No.	Description	Unit of Measure	Estimated Quantity	Unit Cost Total	Total Cost
1	6.01 CLASS 200 DUCTILE IRON PIPE (24-inch including double bonding each joint – 4 cad welds, two jumpers). (Detail 103, 103a, 104, 104a, 110)	LF	7786		
2	6.02B CLASS 200 DUCTILE IRON PIPE (24-inch including double bonding each joint – 4 cad welds, two jumpers) – RESTRAINED JOINT. (Detail 103, 103a, 104, 104a, 110)	LF	1561		
3	6.01 CLASS 50 DUCTILE IRON PIPE (8-inch) – (Detail 103, 103a, 104, 104a, 110)	LF	56		
4	6.01 CLASS 50 DUCTILE IRON PIPE (6-inch) – (Detail 103, 103a, 104, 104a, 110)	LF	47		
5	REMOVE	LF	8		
6	6.04 CASING PIPE (36-inch)	LF	80		
7	7.01 CONNECT TO EXISTING MAIN/TIE-IN (2-inch Main)	EA	1		
8	7.01 CONNECT TO EXISTING MAIN/TIE-IN (6-inch Main)	EA	3		
9	7.01 CONNECT TO EXISTING MAIN/TIE-IN (24-inch Main)	EA	2		
10	8.01 INSTALL FIRE HYDRANT ASSEMBLY	EA	8		
11	8.03 REMOVE EX. FIRE HYDRANT ASSEMBLY	EA	4		
12	9.01 DUCTILE IRON RESILIENT SEATED GATE VALVE (6-inch)	EA	1		
13	9.01 DUCTILE IRON RESILIENT SEATED GATE VALVE (8-inch)	EA	2		
14	9.02 DUCTILE IRON RESILIENT SEATED GATE VALVE WITH BEVELED GEARING (24-inch)	EA	5		
15	10.02 REPLACE SERVICE LINE AND INSTALL WATER METER SETTING (1-1/2") (Service line materials provided by NKWD)	EA	31		
16	11.01 CONCRETE ENCASMENT	LF	20		
17	11.02 4-INCH UNDERDRAIN	LF	137		
18	11.04 PLUG AND BLOCK (6-inch)	EA	2		

Note: The bidder agrees to perform all the following work described in the specifications and shown on the plans, for the following prices:

Item No.	Description	Unit of Measure	Estimated Quantity	Unit Cost Total	Total Cost
19	11.05 AIR RELEASE VALVE (ARV and service line materials provided by NKWD)	EA	1		
20	11.06 ANCHORING TEE AND BLOCK (6-inch x 6-inch x 6-inch)	EA	1		
21	11.06 ANCHORING TEE AND BLOCK (24-inch x 24-inch x 6-inch)	EA	9		
22	REMOVE	EA	1		
23	11.06 ANCHORING TEE AND BLOCK (24-inch x 24-inch x 8-inch)	EA	2		
24	11.15 SLEEVE OUT EXISTING TEE	EA	1		
24	11.16 CORROSION TEST STATION (standard test station including all wiring, electrode, cadwelds, and test box per details and specifications)	EA	13		
25	11.17 MAGNESIUM ANODE (Includes the labor, equipment and materials required to place magnesium anodes and associated wiring per details and specifications)	EA	102		
26	11.18 END TREATMENT DETAIL (SHEET C-1.0)	EA	3		
26	12.05 ASPHALTIC CONCRETE MILLING AND PAVING (1.5-inch thick, Class 2)	SY	750		
27	12.07 ASPHALTIC CONCRETE – DRIVEWAY	SY	323		
28	12.09 CONCRETE PAVEMENT – STREET	SY	111		
29	12.10 CONCRETE PAVEMENT – DRIVEWAY	SY	21		
30	12.12 CONCRETE SIDEWALK	SY	8		
31	12.13 GRAVEL DRIVEWAY	SY	7		
32	12.14 BEST MANAGEMENT PRACTICE	LS	1		
33	12.15 ASPHALT CONCRETE BINDER (3-inch thick, Class 3, 0.75E PG 64-22)	SY	182		
34	12.16 ASPHALT CONCRETE BASE (6-inch thick, Class 3, 0.75E PG 64-22)	SY	182		
35	12.17 REMOVE AND INSTALL 15-INCH CMP	LF	90		
36	12.18 GROUTED RIP RAP (KYTC Class II Channel Lining)	SY	270		

Note: The bidder agrees to perform all the following work described in the specifications and shown on the plans, for the following prices:

Item No.	Description	Unit of Measure	Estimated Quantity	Unit Cost Total	Total Cost
37	12.19 REMOVE AND REINSTALL EXISTING CHAIN LINK FENCE	LF	50		
38	12.20 REMOVE AND PROPERLY DISPOSE OF ABANDONED FORCE MAIN	LF	500		
<b>TOTAL BASE BID</b>					
<p><i>Note: See section 01025 Measurement and Payment for bid form definitions</i>  Bidder selection will be based upon the lowest "TOTAL BASE BID"</p>					

**Total bid in words**

- 7. Bidder agrees that the Work will be substantially complete within 265 calendar days after the date when the Contract Times 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.B of the General Conditions within 295 calendar days after the date when the Contract Times commence to run.

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

8. References

Contact Person	Company Name	Phone No.	Project Name
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____

SUBMITTED on \_\_\_\_\_, 2013.

- 9. Communications concerning this Bid shall be sent to Bidder at the following address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- 10. The terms in this Bid, which are defined in the General Conditions included as part of the Contract Documents, have the meanings assigned to them in the General Conditions.

**SIGNATURE OF BIDDER**

**If an Individual**

Name (typed or printed): \_\_\_\_\_

By \_\_\_\_\_ (SEAL)  
*(Individual's signature)*

doing business as \_\_\_\_\_

Business address \_\_\_\_\_

\_\_\_\_\_

Phone No.: \_\_\_\_\_ Fax No.: \_\_\_\_\_

Date \_\_\_\_\_

**If a Partnership**

Partnership Name: \_\_\_\_\_ (SEAL)

By \_\_\_\_\_  
*(Signature of general partner - attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Business address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No.: \_\_\_\_\_

Date \_\_\_\_\_

**If a Corporation**

Corporation Name: \_\_\_\_\_ (SEAL)

State of Incorporation: \_\_\_\_\_

Type (General, Professional Service): \_\_\_\_\_

By \_\_\_\_\_  
*(Signature - attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_ (CORPORATE SEAL)

Attest \_\_\_\_\_

Business address \_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No.: \_\_\_\_\_

Date \_\_\_\_\_

**If a Limited Liability Company**

Company Name: \_\_\_\_\_ (SEAL)

State of Organization: \_\_\_\_\_

Type (General, Professional): \_\_\_\_\_

By \_\_\_\_\_  
*Signature of Member or Manager (as applicable)- attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_ (COMPANY SEAL)

Attest \_\_\_\_\_

Business address \_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No.: \_\_\_\_\_

Date \_\_\_\_\_

**If a Joint Venture**

(Each joint venturer must sign. The manner for signing for each individual, partnership, and corporation that is party to the joint venture should be in the manner indicated above.)

Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
*(Signature - attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Business address: \_\_\_\_\_

\_\_\_\_\_

Phone No.: \_\_\_\_\_ Fax No.: \_\_\_\_\_

Date \_\_\_\_\_

Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
*(Signature - attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Business address: \_\_\_\_\_

\_\_\_\_\_

Phone No.: \_\_\_\_\_ Fax No.: \_\_\_\_\_

Date \_\_\_\_\_



**BID BOND**

**BIDDER (Name and Address)**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**OWNER (Name and Address)**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**BID**

BID DUE DATE \_\_\_\_\_  
PROJECT (Brief Description Including Location)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**BOND**

BOND NUMBER \_\_\_\_\_  
DATE (Not later than Bid due date) \_\_\_\_\_  
PENAL SUM \_\_\_\_\_ (Words) \_\_\_\_\_ (Figures)

IN WITNESS WHEREOF 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**

\_\_\_\_\_(Seal)  
Bidder's Name and Corporate Seal

\_\_\_\_\_(Seal)  
Surety's Name and Corporate Seal

By \_\_\_\_\_  
Signature and Title

By \_\_\_\_\_  
Signature and Title  
(Attach Power of Attorney)

Attest \_\_\_\_\_  
Signature and Title

Attest \_\_\_\_\_  
Signature and Title

- Note (1) Above addresses are to be used for giving required notice  
(2) Any singular reference to Bidder Surety OWNER or other party shall be considered plural where applicable

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

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 and 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

Section 00460

NON-COLLUSION AFFIDAVIT

STATE OF: \_\_\_\_\_ )

COUNTY OF: \_\_\_\_\_ ) SS

\_\_\_\_\_, being first duly sworn, deposes

and says that he/she is the \_\_\_\_\_ of  
(sole owner, a partner, president, secretary, etc.)

\_\_\_\_\_, the party making the foregoing bid; that such bid is genuine and not collusive or sham; that said bidder is not financially interested in, or otherwise affiliated in a business way with any other bidder on the same contract; that said bidder has not colluded, conspired, connived, or agreed, directly or indirectly, with any bidder or person, to put in a sham bid, or that such other person shall refrain from bidding, and has not in any manner directly or indirectly sought by agreement or collusion, or communication or conference, with any person, to fix the price or affidavit of any other bidder, or that of any other bidder, or to secure any advantage against Owner, or any person or persons interested in the proposed Contract; and that all statements contained in said bid are true; and further, that such bidder has not, directly or indirectly submitted this bid, or the contents thereof, or divulged information of data relative thereto to any association or to any member or agent thereof.

\_\_\_\_\_  
AFFIANT

Sworn to and subscribed before me, a Notary Public in and for the above named

State and County, this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_.

\_\_\_\_\_  
NOTARY PUBLIC

End of Section



Section 00500

AGREEMENT

**Ripple Creek Pump Station to Main Street Tank Water Main Extension Phase 5**

THIS AGREEMENT is by and between the Northern Kentucky Water District (herein called Owner) and \_\_\_\_\_ (herein called Contractor).

Owner and Contractor, in consideration of the mutual covenants herein 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: Construction of 9,347 feet of 24" Class 200 Ductile Iron water main pipe with Cathodic Protection, 56 feet of 8 and 47 feet of 6" Class 50 Ductile Iron Water main pipe along the KY 547 (Riley Road) from AA Highway to Main Street in Alexandria, Campbell County, Kentucky

Article 2. ENGINEER.

The Project has been designed by Cardinal Engineering, who is referred to in the Contract Documents as Engineer.

Article 3. CONTRACT TIMES, LIQUIDATED DAMAGES, DELAYS, AND DAMAGES.

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.

3.1. Contract Times. The Work will be substantially completed within 265 days after the date when the Contract Times 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 295 days after the date when the Contract Times commence to run.

3.2. Liquidated Damages. Owner and Contractor 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 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expenses, and difficulties involved in proving in a legal 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 \$ 500.00 for each day that expires after the time specified in paragraph 3.1 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 Times or any proper extension thereof granted by Owner, Contractor shall pay Owner as liquidated damages (but not as a penalty) \$ 500.00 for each day that expires after the time specified in paragraph 3.1 for

completion and readiness for final payment until the Work is completed and ready for final payment.

Owner shall have the right to deduct the liquidated damages from any money in its hands, otherwise due, or to become due, to Contractor, or to initiate action to recover liquidated damages for nonperformance of this Contract within the time stipulated.

3.3. Delays and Damages. In the event Contractor is delayed in the prosecution and completion of the Work because of any delays caused by Owner or Engineer, Contractor shall have no claim against Owner or Engineer for damages (including but not limited to acceleration costs or damages) or contract adjustment other than an extension of the Contract Times and the waiving of liquidated damages during the period occasioned by the delay.

Contractor shall provide advance written notice to Owner and Engineer of Contractor's intention to accelerate the Work prior to commencing any acceleration. Such written notice shall include a detailed explanation of the nature and scope of the acceleration, the reason for the acceleration, the anticipated duration of the acceleration, and the estimated additional costs to Contractor, if any, related to the acceleration. This requirement shall not in any way affect or alter the agreement of Owner and Contractor with respect to delays and damages as set forth above and in Article 7 of the General Conditions.

Article 4. CONTRACT PRICE.

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 established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in the Contractor's Bid, attached hereto as an exhibit, for the total amount of:

---

(words)	(figures)
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 as provided in paragraph 9.08 of the General Conditions and as modified by the Supplementary Conditions. Unit Prices have been computed as provided in paragraph 11.03 of the General Conditions.	

Article 5. PAYMENT PROCEDURES.

Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Owner as provided in the General Conditions and as modified by the Supplementary Conditions.

5.1. Progress Payments. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 25th day of each month during performance of the Work. All such payments will be measured by the schedule of values

established 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.

5.2. Retainage. In addition to any amounts withheld from payment in accordance with Paragraph 14.02 of the General Conditions, Owner shall retain from progress payments amounts equal to the following percentages:

- a. Ten percent (10%) of the amount of the Work completed. This amount may be reduced by the Owner in its sole and absolute discretion, if the project is substantially completed; and
- b. Ten percent (10%) of the value of materials and equipment that are not incorporated in the Work but are delivered, suitably stored, and accompanied by documentation satisfactory to Owner as provided in paragraph 14.02 of the General Conditions. Retainage for stored materials and equipment will be released when the materials and equipment are incorporated in the Work.

All retainage will be paid to Contractor when the Work is completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions. Consent of the Surety shall be obtained before retainage is paid by Owner. Consent of the Surety, signed by an agent, must be accompanied by a certified copy of such agent's authority to act for the Surety.

5.3. Final Payment. Upon final completion and acceptance of the Work in accordance with paragraphs 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as provided in said paragraph 14.07.

## Article 6. CONTRACTOR'S REPRESENTATION

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 obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary explorations, 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 applying the specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by Contractor, and safety precautions and programs incident thereto.

- e. 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.
- f. 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.
- g. 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.
- h. Contractor has given Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Owner is acceptable to Contractor.
- i. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

**Article 7. CONTRACT DOCUMENTS.**

The Contract Documents, which are incorporated as part of the Agreement, consist of the following:

- A. This Agreement;
- B. Performance Bond;
- C. Payment Bond;
- D. General Conditions;
- E. Supplementary Conditions;
- F. Specifications as listed in the table of contents of the Project Manual;
- G. Drawings consisting of a cover sheet and sheets numbered C-1.0 through C-3.16 inclusive, with each sheet bearing the following general title;  
**Phase V Ripple Creek to Main Street 24-inch Water Main Extension**
- H. Addenda (numbers \_\_\_ to \_\_\_, inclusive);
- I. Exhibits to this Agreement (enumerated as follows):
  - 1. Notice to Proceed;
  - 2. Contractor's Bid;
  - 3. Documentation submitted by Contractor prior to Notice of Award;
- J. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
  - 1. Written Amendments;



2. Work Change Directives;
3. Change Orders.

There are no Contract Documents other than those listed above in this Article 7. The Contract Documents may only be amended, modified, or supplemented as provided in paragraphs 3.05 of the General Conditions.

#### Article 8. CONTRACT CORRECTION PERIOD

Notwithstanding the reference to "one year after the date of Substantial Completion" at the beginning of paragraph 13.07.A of the General Conditions, the Contractor's Correction Period with respect to the obligations set forth in paragraph 13.07.A of the General Conditions shall be twenty-four (24) months after the issuance of "Certificate of Substantial Completion" for all machinery, piping, materials, equipment, fittings, roadway pavement work, general restoration, shoulder & ditch restoration furnished under the Contract Documents. The correction period referenced in paragraph 13.07.C of the General Conditions shall be twenty-four (24) months for all machinery, piping, materials, equipment, fittings and all roadway pavement work.

#### Article 9. COMPLIANCE WITH KENTUCKY LAW

Contractor represents and warrants that it has revealed to Owner any and all final determinations of a violation of KRS Chapters 136, 139, 141, 337, 338, 341, and 342 by Contractor or any subcontractor within the past five years. Contractor further represents and warrants that it and each of its subcontractors will remain in continuous compliance with the provisions of KRS Chapters 136, 139, 141, 337, 338, 341 and 342 for the duration of this Agreement. Contractor understands that its failure to reveal a final determination of a violation or to comply with the above statutory requirements constitutes grounds for cancellation of the Agreement and for disqualification of Contractor from eligibility for any contracts for a period of two years.

#### Article 10. EQUAL OPPORTUNITY

Unless exempted under KRS 45.590, during the performance of the Agreement, the Contractor agrees as follows:

- a. Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age forty (40) and over, disability, veteran status, or national origin;
- b. Contractor will take affirmative action in regard to employment, upgrading, demotion, transfer, recruitment, recruitment advertising, layoff, termination, rates of pay or other forms of compensation, and selection for training, so as to ensure that applicants are employed and that employees during employment are treated without regard to their race, color, religion, sex, age forty (40) and over, disability, veteran status, or national origin;
- c. Contractor will state in all solicitations or advertisements for employees placed by or on behalf of Contractor that all qualified applicants will receive consideration for employment

without regard to race, color, religion, sex, age forty (40) or over, disability, veteran status, or national origin;

d. Contractor will post notices in conspicuous places, available to employees and applicants for employment, setting forth the provisions of the nondiscrimination clauses required by this section; and

e. Contractor will send a notice to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding advising the labor union or workers' representative of Contractor's commitments under the nondiscrimination clauses.

Article 11. MISCELLANEOUS.

- a. Terms used in this Agreement will have the meanings indicated in the General Conditions.
- b. 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.
- c. 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 of all covenants, agreements, and obligations contained in the Contract Documents.
- d. 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.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. One counterpart each has been delivered to Owner, Contractor, Surety, and Engineer.

This Agreement will be effective on \_\_\_\_\_ (which is the Effective Date of the Agreement).

OWNER: Northern Kentucky Water District

Richard Harrison  
Vice President of Engineering & Water Quality & Production

**Address for giving notices**

2835 Crescent Springs Road  
PO Box 18640  
Erlanger, Kentucky 41018

CONTRACTOR: \_\_\_\_\_

By: \_\_\_\_\_  
*Signature*

\_\_\_\_\_  
*Printed Name*

\_\_\_\_\_  
*Title*

(Corporate Seal)

**Address for giving notices**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Joint Venture**

CONTRACTOR: \_\_\_\_\_

By: \_\_\_\_\_  
(Corporate Seal)

Address for giving notices

\_\_\_\_\_  
\_\_\_\_\_

# Performance Bond

Any singular reference to Contractor Surety Owner or other party shall be considered plural where applicable

CONTRACTOR (Name and Address)

SURETY (Name and Address of Principal Place  
of Business)

OWNER (Name and Address)

## CONTRACT

Date

Amount

Description (Name and Location)

## BOND

Date (Not earlier than Contract Date)

Amount

Modifications to this Bond Form

Surety and Contractor intending to be legally bound hereby subject to the terms printed on the reverse side hereof do each cause this Performance Bond to be duly executed on its behalf by its authorized officer agent or representative

## CONTRACTOR AS PRINCIPAL

Company (Corp Seal)

Signature \_\_\_\_\_  
Name and Title

## SURETY

Company (Corp Seal)

Signature \_\_\_\_\_  
Name and Title  
(Attach Power of Attorney)

(Space is provided below for signatures of additional parties if required )

## CONTRACTOR AS PRINCIPAL

Company (Corp Seal)

Signature \_\_\_\_\_  
Name and Title

## SURETY

Company (Corp Seal)

Signature \_\_\_\_\_  
Name and Title

EJCDC No 1910 28 A (1996 Edition)

Originally prepared through the joint efforts of the Surety Association of America Engineers Joint Contract Documents Committee the Associated General Contractors of America and the American Institute of Architects

1 The CONTRACTOR and the Surety jointly and severally bind themselves their heirs executors administrators successors and assigns to the Owner for the performance of the Contract which is incorporated herein by reference

2 If the CONTRACTOR performs the Contract, the Surety and the CONTRACTOR have no obligation under this Bond except to participate in conferences as provided in paragraph 3.1

3 If there is no OWNER Default, the Surety's obligation under this Bond shall arise after

3.1 The OWNER has notified the CONTRACTOR and the Surety at the addresses described in paragraph 10 below that the OWNER is considering declaring a CONTRACTOR Default and has requested and attempted to arrange a conference with the CONTRACTOR and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Contract. If the OWNER, the CONTRACTOR and the Surety agree, the CONTRACTOR shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive the OWNER's right if any subsequently to declare a CONTRACTOR Default and

3.2 The OWNER has declared a CONTRACTOR Default and formally terminated the CONTRACTOR's right to complete the Contract. Such CONTRACTOR Default shall not be declared earlier than twenty days after the CONTRACTOR and the Surety have received notice as provided in paragraph 3.1 and

3.3 The OWNER has agreed to pay the Balance of the Contract Price to

3.3.1 The Surety in accordance with the terms of the Contract,

3.3.2 Another contractor selected pursuant to paragraph 4.3 to perform the Contract

4 When the OWNER has satisfied the conditions of paragraph 3 the Surety shall promptly and at the Surety's expense take one of the following actions

4.1 Arrange for the CONTRACTOR, with consent of the OWNER to perform and complete the Contract, or

4.2 Undertake to perform and complete the Contract itself through its agents or through independent contractors or

4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the OWNER for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the OWNER and the contractor selected with the OWNER's concurrence to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract, and pay to the OWNER the amount of damages as described in paragraph 6 in excess of the Balance of the Contract Price incurred by the OWNER resulting from the CONTRACTOR Default or

4.4 Waive its right to perform and complete, arrange for completion or obtain a new contractor and with reasonable promptness under the circumstances

4.4.1 After investigation, determine the amount for which it may be liable to the OWNER and as soon as practicable after the amount is determined tender payment therefor to the OWNER, or

4.4.2 Deny liability in whole or in part and notify the OWNER citing reasons therefor

5 If the Surety does not proceed as provided in paragraph 4 with reasonable promptness the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the OWNER to the Surety demanding that the Surety perform its obligations under this Bond and the OWNER shall be entitled to enforce any remedy available to the OWNER. If the Surety proceeds as provided in paragraph 4.4 and the OWNER refuses the payment tendered or the Surety has denied

liability in whole or in part without further notice the OWNER shall be entitled to enforce any remedy available to the OWNER

6 After the OWNER has terminated the CONTRACTOR's right to complete the Contract, and if the Surety elects to act under paragraph 4.1, 4.2 or 4.3 above then the responsibilities of the Surety to the OWNER shall not be greater than those of the CONTRACTOR under the Contract, and the responsibilities of the OWNER to the Surety shall not be greater than those of the OWNER under the Contract. To a limit of the amount of this Bond but subject to commitment by the OWNER of the Balance of the Contract Price to mitigation of costs and damages on the Contract the Surety is obligated without duplication for

6.1 The responsibilities of the CONTRACTOR for correction of defective Work and completion of the Contract

6.2 Additional legal design professional and delay costs resulting from the CONTRACTOR's Default and resulting from the actions or failure to act of the Surety under paragraph 4 and

6.3 Liquidated damages or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non performance of the CONTRACTOR

7 The Surety shall not be liable to the OWNER or others for obligations of the CONTRACTOR that are unrelated to the Contract and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the OWNER or its heirs executors administrators or successors

8 The Surety hereby waives notice of any change including changes of time to the Contract or to related subcontracts purchase orders and other obligations

9 Any proceeding legal or equitable under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after CONTRACTOR Default or within two years after the CONTRACTOR ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond whichever occurs first. If the provisions of this paragraph are void or prohibited by law the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable

10 Notice to the Surety the OWNER or the CONTRACTOR shall be mailed or delivered to the address shown on the signature page

11 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the Contract was performed any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted here from and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond

12 Definitions

12.1 Balance of the Contract Price: The total amount payable by the OWNER to the CONTRACTOR under the Contract after all proper adjustments have been made including allowance to the CONTRACTOR of any amounts received or to be received by the OWNER in settlement of insurance or other Claims for damages to which the CONTRACTOR is entitled reduced by all valid and proper payments made to or on behalf of the CONTRACTOR under the Contract

12.2 Contract: The agreement between the OWNER and the CONTRACTOR identified on the signature page including all Contract Documents and changes thereto

12.3 CONTRACTOR Default: Failure of the CONTRACTOR, which has neither been remedied nor waived to perform or otherwise to comply with the terms of the Contract

12.4 OWNER Default: Failure of the OWNER, which has neither been remedied nor waived to pay the CONTRACTOR as required by the Contract or to perform and complete or comply with the other terms thereof

(FOR INFORMATION ONLY Name Address and Telephone)  
AGENT or BROKER OWNER'S REPRESENTATIVE (Engineer or other party)

# Payment Bond

Any singular reference to Contractor Surety Owner or other party shall be considered plural where applicable

CONTRACTOR (Name and Address)

SURETY (Name and Address of Principal Place  
of Business)

OWNER (Name and Address)

## CONTRACT

Date  
Amount  
Description (Name and Location)

## BOND

Date (Not earlier than Contract Date)  
Amount  
Modifications to this Bond Form

Surety and Contractor intending to be legally bound hereby subject to the terms printed on the reverse side hereof do each cause this Payment Bond to be duly executed on its behalf by its authorized officer agent or representative

CONTRACTOR AS PRINCIPAL

Company (Corp Seal)

Signature \_\_\_\_\_  
Name and Title

SURETY

Company (Corp Seal)

Signature \_\_\_\_\_  
Name and Title  
(Attach Power of Attorney)

(Space is provided below for signatures of additional parties if required )

CONTRACTOR AS PRINCIPAL

Company (Corp Seal)

Signature \_\_\_\_\_  
Name and Title

SURETY

Company (Corp Seal)

Signature \_\_\_\_\_  
Name and Title

EJCDC No 1910 28 B (1996 Edition)

Originally prepared through the joint efforts of the Surety Association of America Engineers Joint Contract Documents Committee the Associated General Contractors of America the American Institute of Architects the American Subcontractors Association, and the Associated Specialty Contractors

1 The CONTRACTOR and the Surety jointly and severally bind themselves their heirs executors administrators successors and assigns to the OWNER to pay for labor materials and equipment furnished for use in the performance of the Contract, which is incorporated herein by reference

2 With respect to the OWNER this obligation shall be null and void if the CONTRACTOR

2.1 Promptly makes payment directly or indirectly for all sums due Claimants and

2.2 Defends indemnifies and holds harmless the OWNER from all claims demands liens or suits by any person or entity who furnished labor materials or equipment for use in the performance of the Contract provided the OWNER has promptly notified the CONTRACTOR and the Surety (at the addresses described in paragraph 12) of any claims demands liens or suits and tendered defense of such claims demands liens or suits to the CONTRACTOR and the Surety and provided there is no OWNER Default

3 With respect to Claimants this obligation shall be null and void if the CONTRACTOR promptly makes payment directly or indirectly for all sums due

4 The Surety shall have no obligation to Claimants under this Bond until

4.1 Claimants who are employed by or have a direct contract with the CONTRACTOR have given notice to the Surety (at the addresses described in paragraph 12) and sent a copy or notice thereof to the OWNER stating that a claim is being made under this Bond and with substantial accuracy the amount of the claim

4.2 Claimants who do not have a direct contract with the CONTRACTOR.

1 Have furnished written notice to the CONTRACTOR and sent a copy or notice thereof to the OWNER, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating with substantial accuracy the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed and

2 Have either received a rejection in whole or in part from the CONTRACTOR or not received within 30 days of furnishing the above notice any communication from the CONTRACTOR by which the CONTRACTOR had indicated the claim will be paid directly or indirectly and

3 Not having been paid within the above 30 days have sent a written notice to the Surety and sent a copy or notice thereof to the OWNER stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the CONTRACTOR

5 If a notice required by paragraph 4 is given by the OWNER to the CONTRACTOR or to the Surety that is sufficient compliance

6 When the Claimant has satisfied the conditions of paragraph 4 the Surety shall promptly and at the Surety's expense take the following actions

6.1 Send an answer to the Claimant with a copy to the OWNER within 45 days after receipt of the claim stating the amounts that are undisputed and the basis for challenging any amounts that are disputed

6.2 Pay or arrange for payment of any undisputed amounts

7 The Surety's total obligation shall not exceed the amount of this Bond and the amount of this Bond shall be credited for any payments made in good faith by the Surety

8 Amounts owed by the OWNER to the CONTRACTOR under the Contract shall be used for the performance of the Contract and to satisfy claims if any under any Performance Bond By the CONTRACTOR furnishing and the OWNER accepting this Bond they agree that all funds earned by the CONTRACTOR in the performance of the Contract are dedicated to satisfy obligations of the CONTRACTOR and the Surety under this Bond subject to the OWNER's priority to use the funds for the completion of the Work

9 The Surety shall not be liable to the OWNER Claimants or others for obligations of the CONTRACTOR that are unrelated to the Contract The OWNER shall not be liable for payment of any costs or expenses of any Claimant under this Bond and shall have under this Bond no obligations to make payments to give notices on behalf of or otherwise have obligations to Claimants under this Bond

10 The Surety hereby waives notice of any change including changes of time to the Contract or to related Subcontracts purchase orders and other obligations

11 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by paragraph 4.1 or paragraph 4.2.3 or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs If the provisions of this paragraph are void or prohibited by law the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable

12 Notice to the Surety the OWNER or the CONTRACTOR shall be mailed or delivered to the addresses shown on the signature page Actual receipt of notice by Surety the OWNER or the CONTRACTOR however accomplished shall be sufficient compliance as of the date received at the address shown on the signature page

13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the Contract was to be performed any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond

14 Upon request of any person or entity appearing to be a potential beneficiary of this Bond the CONTRACTOR shall promptly furnish a copy of this Bond or shall permit a copy to be made

#### 15 DEFINITIONS

15.1 Claimant An individual or entity having a direct contract with the CONTRACTOR or with a Subcontractor of the CONTRACTOR to furnish labor materials or equipment for use in the performance of the Contract The intent of this Bond shall be to include without limitation in the terms labor materials or equipment that part of water gas power light, heat, oil gasoline telephone service or rental equipment used in the Contract architectural and engineering services required for performance of the Work of the CONTRACTOR and the CONTRACTOR's Subcontractors and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor materials or equipment were furnished

15.2 Contract The agreement between the OWNER and the CONTRACTOR identified on the signature page including all Contract Documents and changes thereto

15.3 OWNER Default Failure of the OWNER which has neither been remedied nor waived to pay the CONTRACTOR as required by the Contract or to perform and complete or comply with the other terms thereof

(FOR INFORMATION ONLY--Name Address and Telephone)

AGENCY or BROKER

OWNER'S REPRESENTATIVE (Engineer or other party)

# CERTIFICATE OF INSURANCE

Issue Date:

PRODUCER:

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

COMPANIES AFFORDING COVERAGE

Code

Sub-Code

COMPANY  
LETTER A

INSURED:

COMPANY  
LETTER B

COMPANY  
LETTER C

COMPANY  
LETTER D

COMPANY  
LETTER E

**COVERAGES**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE	POLICY EXPIRATION DATE	ALL LIMITS IN THOUSANDS
	GENERAL LIABILITY				GENERAL AGGREGATE \$1,000,
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY	(Completed Operations & Products Liability remains in force for 2 years after final payment)			PRODUCTS-COMP/OPS \$1,000,
	<input checked="" type="checkbox"/> OCCURRENCE				AGGREGATE \$1,000,
	<input checked="" type="checkbox"/> BLANKET CONTRACTUAL				PERSONAL & ADVERTISING INJURY \$1,000, EACH OCCURRENCE \$1,000,
	AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT \$1,000, EACH OCCURRENCE Bodily Injury & Property Damage
	<input checked="" type="checkbox"/> OWNED AUTOS				
	<input checked="" type="checkbox"/> HIRED AUTOS				
	<input checked="" type="checkbox"/> NON-OWNED AUTOS				
	EXCESS LIABILITY				EACH OCCURRENCE \$4,000,
	<input checked="" type="checkbox"/> UMBRELLA FORMITY	(Follows Form of the Primary)			AGGREGATE \$4,000,
	WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY				STATUTORY
		(Includes US Longshoremen and Harbor Workers Act and Maritime Coverage Where Applicable and All States Endorsement).			EACH ACCIDENT \$1,000,
					DISEASE-POLICY LIMIT \$1,000,
					DISEASE-EACH EMPLOYEE \$1,000,
	OTHER				EACH OCCURRENCE
					AGGREGATE

**DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS**

1. Certificate Holder(s) and their Officers, Directors, Partners, Employees, & Agents Named as Additional Insured (all policies except WC). The coverage afforded the Additional Insured under these policies shall be primary insurance. If the Additional Insured has other insurance which is applicable to the loss, such other insurance shall be on an excess or contingent basis. (Copy of Additional Insured Endorsement attached).
2. Blanket Coverage for XCU Hazards (General Liability & Excess Liability).
3. Waiver of Subrogation Against Certificate Holder(s), their Officers, Directors, Partners, Employees, & Agents (all policies).
4. Contractual Coverage covers liability assumed in the Indemnification Clause of the Contract between Certificate Holder and Insured (General Liability & Excess Liability).
5. General and Products/Completed Operations aggregates apply for each Certificate Holder contract(s) or amendments (General Liability & Excess Liability).
6. Contractual Liability Limitation Endorsement CG2139 or its equivalent is not included in either General or Excess Liability policies.
7. Severability of Interest or Cross Liability clause or endorsement included (General Liability & Excess Liability).

**CERTIFICATE HOLDERS**

**CANCELLATION**

1.

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELED, TERMINATED, OR MATERIALLY CHANGED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDERS NAMED TO THE LEFT. ANY IMPAIRMENT OR EXHAUSTION OF AGGREGATES WILL BE THE SUBJECT OF IMMEDIATE NOTICE TO THE CERTIFICATE HOLDERS.

2.

AUTHORIZED REPRESENTATIVE



<b>CERTIFICATE OF PROPERTY INSURANCE</b>		ISSUE DATE _____ (mm/dd/yy)	
THIS IS EVIDENCE THAT INSURANCE AS IDENTIFIED BELOW HAS BEEN ISSUED IS IN FORCE AND CONVEYS ALL THE RIGHTS AND PRIVILEGES AFFORDED UNDER THE POLICY			
PRODUCER  Code                      Sub-Code		COMPANY	
INSURED		POLICY NUMBER	
		EFFECTIVE DATE (mm/dd/yy)	EXPIRATION DATE (mm/dd/yy)
<b>PROPERTY INFORMATION</b>			
LOCATION/DESCRIPTION			
<b>COVERAGE INFORMATION</b>			
<b>COVERAGES/PERILS/FORMS</b>		<b>AMOUNT OF INSURANCE</b>	<b>DEDUCTIBLE</b>
BUILDERS RISK/INSTALLATION FLOATER All Risk of Physical Damage or Loss to Equipment and Materials at or incidental to the Jobsite on Completed Value Form		Insurable value of completed work	
<b>REMARKS (including Special Conditions)</b>			
1 Certificate Holder and others identified in the property insurance paragraph of the Contract Documents are Named Insureds 2 Waiver of Subrogation against Named Insureds 3 Any similar insurance carried by Named Insureds is excess of coverage described hereon 4 Losses are payable to Owner as fiduciary for the Named Insureds			
<b>CANCELLATION</b>			
THIS POLICY IS SUBJECT TO THE PREMIUMS FORMS AND RULES IN EFFECT FOR EACH POLICY PERIOD. SHOULD THE POLICY BE TERMINATED OR MATERIALLY CHANGED, THE COMPANY WILL GIVE THE CERTIFICATE HOLDERS IDENTIFIED BELOW 30 DAYS' WRITTEN NOTICE, AND WILL SEND NOTIFICATION OF ANY CHANGES TO THE POLICY THAT WOULD AFFECT THAT INTEREST IN ACCORDANCE WITH THE POLICY PROVISIONS OR AS REQUIRED BY LAW.			
<b>CERTIFICATE HOLDERS</b>			
Name and Address		Nature of Interest	
1		X Additional Named Insured	
2		SIGNATURE OF AUTHORIZED AGENT OF THE COMPANY	

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

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly by



AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

AMERICAN SOCIETY OF CIVIL ENGINEERS

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE

*A Practice Division of the*

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

Copyright © 2007 National Society of Professional Engineers  
1420 King Street, Alexandria, VA 22314-2794  
(703) 684-2882  
[www.nspe.org](http://www.nspe.org)

American Council of Engineering Companies  
1015 15th Street N.W., Washington, DC 20005  
(202) 347-7474  
[www.acec.org](http://www.acec.org)

American Society of Civil Engineers  
1801 Alexander Bell Drive, Reston, VA 20191-4400  
(800) 548-2723  
[www.asce.org](http://www.asce.org)

Associated General Contractors of America  
2300 Wilson Boulevard, Suite 400, Arlington, VA 22201-3308  
(703) 548-3118  
[www.agc.org](http://www.agc.org)

The copyright for this EJCDC document is owned jointly by the four EJCDC sponsoring organizations and held in trust for their benefit by NSPE.

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

## TABLE OF CONTENTS

	Page
Article 1 – Definitions and Terminology.....	1
1.01 Defined Terms.....	1
1.02 Terminology.....	5
Article 2 – Preliminary Matters.....	6
2.01 Delivery of Bonds and Evidence of Insurance.....	6
2.02 Copies of Documents.....	6
2.03 Commencement of Contract Times; Notice to Proceed.....	6
2.04 Starting the Work.....	7
2.05 Before Starting Construction.....	7
2.06 Preconstruction Conference; Designation of Authorized Representatives.....	7
2.07 Initial Acceptance of Schedules.....	7
Article 3 – Contract Documents: Intent, Amending, Reuse.....	8
3.01 Intent.....	8
3.02 Reference Standards.....	8
3.03 Reporting and Resolving Discrepancies.....	9
3.04 Amending and Supplementing Contract Documents.....	9
3.05 Reuse of Documents.....	10
3.06 Electronic Data.....	10
Article 4 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions; Reference Points.....	11
4.01 Availability of Lands.....	11
4.02 Subsurface and Physical Conditions.....	11
4.03 Differing Subsurface or Physical Conditions.....	12
4.04 Underground Facilities.....	13
4.05 Reference Points.....	14
4.06 Hazardous Environmental Condition at Site.....	14
Article 5 – Bonds and Insurance.....	16
5.01 Performance, Payment, and Other Bonds.....	16
5.02 Licensed Sureties and Insurers.....	16
5.03 Certificates of Insurance.....	17
5.04 Contractor’s Insurance.....	17
5.05 Owner’s Liability Insurance.....	19
5.06 Property Insurance.....	19
5.07 Waiver of Rights.....	20
5.08 Receipt and Application of Insurance Proceeds.....	21

5.09	Acceptance of Bonds and Insurance; Option to Replace .....	21
5.10	Partial Utilization, Acknowledgment of Property Insurer .....	22
Article 6 – Contractor’s Responsibilities.....		22
6.01	Supervision and Superintendence .....	22
6.02	Labor; Working Hours .....	22
6.03	Services, Materials, and Equipment .....	22
6.04	Progress Schedule .....	23
6.05	Substitutes and “Or-Equals” .....	23
6.06	Concerning Subcontractors, Suppliers, and Others .....	25
6.07	Patent Fees and Royalties.....	27
6.08	Permits.....	27
6.09	Laws and Regulations .....	28
6.10	Taxes.....	28
6.11	Use of Site and Other Areas.....	28
6.12	Record Documents .....	29
6.13	Safety and Protection.....	29
6.14	Safety Representative .....	30
6.15	Hazard Communication Programs.....	30
6.16	Emergencies .....	30
6.17	Shop Drawings and Samples .....	31
6.18	Continuing the Work.....	32
6.19	Contractor’s General Warranty and Guarantee .....	33
6.20	Indemnification .....	33
6.21	Delegation of Professional Design Services.....	34
Article 7 – Other Work at the Site .....		35
7.01	Related Work at Site .....	35
7.02	Coordination.....	35
7.03	Legal Relationships .....	36
Article 8 – Owner’s Responsibilities.....		36
8.01	Communications to Contractor .....	36
8.02	Replacement of Engineer .....	36
8.03	Furnish Data .....	36
8.04	Pay When Due.....	36
8.05	Lands and Easements; Reports and Tests .....	36
8.06	Insurance.....	36
8.07	Change Orders.....	37
8.08	Inspections, Tests, and Approvals.....	37
8.09	Limitations on Owner’s Responsibilities.....	37
8.10	Undisclosed Hazardous Environmental Condition .....	37
8.11	Evidence of Financial Arrangements.....	37
8.12	Compliance with Safety Program .....	37
Article 9 – Engineer’s Status During Construction.....		37
9.01	Owner’s Representative .....	37

9.02	Visits to Site .....	37
9.03	Project Representative.....	38
9.04	Authorized Variations in Work.....	38
9.05	Rejecting Defective Work.....	38
9.06	Shop Drawings, Change Orders and Payments .....	39
9.07	Determinations for Unit Price Work.....	39
9.08	Decisions on Requirements of Contract Documents and Acceptability of Work .....	39
9.09	Limitations on Engineer's Authority and Responsibilities .....	39
9.10	Compliance with Safety Program .....	40
Article 10 – Changes in the Work; Claims.....		40
10.01	Authorized Changes in the Work.....	40
10.02	Unauthorized Changes in the Work.....	41
10.03	Execution of Change Orders .....	41
10.04	Notification to Surety .....	41
10.05	Claims.....	41
Article 11 – Cost of the Work; Allowances; Unit Price Work .....		42
11.01	Cost of the Work .....	42
11.02	Allowances .....	45
11.03	Unit Price Work .....	45
Article 12 – Change of Contract Price; Change of Contract Times.....		46
12.01	Change of Contract Price .....	46
12.02	Change of Contract Times .....	47
12.03	Delays .....	47
Article 13 – Tests and Inspections; Correction, Removal or Acceptance of Defective Work.....		48
13.01	Notice of Defects.....	48
13.02	Access to Work .....	48
13.03	Tests and Inspections .....	49
13.04	Uncovering Work.....	49
13.05	Owner May Stop the Work .....	50
13.06	Correction or Removal of Defective Work .....	50
13.07	Correction Period .....	50
13.08	Acceptance of Defective Work.....	51
13.09	Owner May Correct Defective Work.....	52
Article 14 – Payments to Contractor and Completion .....		52
14.01	Schedule of Values.....	52
14.02	Progress Payments.....	52
14.03	Contractor's Warranty of Title.....	55
14.04	Substantial Completion .....	55
14.05	Partial Utilization .....	56
14.06	Final Inspection .....	57
14.07	Final Payment.....	57
14.08	Final Completion Delayed .....	58

14.09 Waiver of Claims .....	58
Article 15 – Suspension of Work and Termination.....	59
15.01 Owner May Suspend Work.....	59
15.02 Owner May Terminate for Cause.....	59
15.03 Owner May Terminate For Convenience .....	60
15.04 Contractor May Stop Work or Terminate.....	60
Article 16 – Dispute Resolution .....	61
16.01 Methods and Procedures .....	61
Article 17 – Miscellaneous .....	61
17.01 Giving Notice .....	61
17.02 Computation of Times .....	62
17.03 Cumulative Remedies .....	62
17.04 Survival of Obligations .....	62
17.05 Controlling Law .....	62
17.06 Headings .....	62

## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. 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 which is evidence of the agreement between Owner and Contractor covering the Work.
  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. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
  5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
  7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
  8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
  9. *Change Order*—A document recommended by Engineer 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, issued on or after the Effective Date of the Agreement.
  10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
  11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.



12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given 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 under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *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.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *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.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *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 for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *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 at the Site.
44. *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.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *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 Subcontractor.
48. *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 those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *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, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

## 1.02 Terminology

A. The words and terms discussed in Paragraph 1.02.B through F 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 Paragraph 9.09 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 14.04 or 14.05).

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. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- 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. 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 Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

### 2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

### 2.03 *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 Agreement 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 Agreement. 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 Agreement, whichever date is earlier.

## 2.04 *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 the date on which the Contract Times commence to run.

## 2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), 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 Documents;
  - 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.

## 2.06 *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 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, 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 instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

## 2.07 *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 2.05.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 component parts of the Work.

### **ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, 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. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

#### **3.02 *Reference Standards***

- A. Standards, Specifications, Codes, Laws, and Regulations
  1. Reference to standards, specifications, manuals, 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, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement 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, 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 Contract Documents. 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 Contract Documents.

### 3.03 *Reporting and Resolving Discrepancies*

#### A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, 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) any standard, specification, manual, or code, or (c) 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 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
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 Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
  - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); 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 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:



1. A Field Order;
2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
3. Engineer's written interpretation or clarification.

### 3.05 *Reuse of Documents*

#### A. Contractor and any Subcontractor or Supplier 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
2. 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.

#### 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.

### 3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

**ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS;  
HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

**4.01 *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. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- 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 the Work is to be performed 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.

**4.02 *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 contiguous to the Site; and
  - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "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.

#### 4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed 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 4.02 is materially inaccurate; or
2. is of such a nature as to require a change in the Contract Documents; 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 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer’s Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner’s obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer’s findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition 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 meet any one or more of the categories described in Paragraph 4.03.A; and
  - 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 Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
  - a. Contractor knew of the existence of such conditions at the time Contractor made a final 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
  - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

- c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.

#### 4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to 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 shall not be responsible for 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 such information and data;
  - b. locating all Underground Facilities shown or indicated in the Contract Documents;
  - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
  - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, 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 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

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

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 4.05 *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.

#### 4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "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 any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) 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 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. 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, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. 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. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. 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: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- H. 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 a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

## ARTICLE 5 – BONDS AND INSURANCE

### 5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, 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 Documents. 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 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds 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 each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, 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 requirements of Paragraphs 5.01.B and 5.02.

### 5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also

meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

#### 5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

#### 5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which 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:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
  - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
  - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
  - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:



- a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
  - b. by any other person for any other reason;
5. 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; and
  6. 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.
- B. The policies of insurance required by this Paragraph 5.04 shall:
1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and 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;
  2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
  3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
  4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
  5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
  6. include completed operations coverage:
    - a. Such insurance shall remain in effect for two years after final payment.
    - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

### 5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, 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.

### 5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full 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 interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
  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, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, 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.
  3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
  4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
  5. allow for partial utilization of the Work by Owner;
  6. include testing and startup; and
  7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

#### 5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies 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 of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their 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 Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (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 as trustee 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 utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.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, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, 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. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's

interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

**ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES**

6.01 *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. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- 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.

6.02 *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. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *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.

- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, 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.

#### 6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 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 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
  - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

#### 6.05 *Substitutes and "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 specification or description 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 or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
  - 1. "*Or-Equal*" Items: If in Engineer's sole discretion 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, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, 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; and
  - 3) it has a proven record of performance and availability of responsive service.
- 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.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. 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:
  - 1) shall certify that the proposed substitute item will:
    - a) perform adequately the functions and achieve the results called for by the general design,
    - b) be similar in substance to that specified, and
    - c) be suited to the same use as that specified;
  - 2) will state:
    - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
    - b) 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

- c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
  - 3) will identify:
    - a) all variations of the proposed substitute item from that specified, and
    - b) available engineering, sales, maintenance, repair, and replacement services; and
  - 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. 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.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

#### 6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be



required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. 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 any right of Owner or Engineer to reject defective Work.
- C. 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. 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 moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. 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.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner,

Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (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 such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

#### 6.07 *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.

#### 6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, 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 opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

## 6.09 *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 knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear 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. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

## 6.10 *Taxes*

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

## 6.11 *Use of Site and Other Areas*

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

- 1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
- 2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
- 3. 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 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 by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other 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 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 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 property to stresses or pressures that will endanger it.

#### 6.12 *Record Documents*

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

#### 6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. 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, 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 owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

- 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 6.13.A.2 or 6.13.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 (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 for protection of the Work 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 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *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.

#### 6.15 *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.

#### 6.16 *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.

#### 6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

##### 1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- 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 6.17.D.

##### 2. *Samples:*

- a. Submit number of Samples specified in the Specifications.
- b. 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 6.17.D.

B. 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. *Submittal Procedures:*

I. Before submitting each Shop Drawing or Sample, Contractor shall have:

- a. reviewed and coordinated each 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 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 and approval of that 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 both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

*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 (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval 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 6.17.C.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's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

*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.

**6.18** *Continuing the Work*

- A. 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, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

## 6.19 *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 representation of 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 or the issuance of a notice of acceptability by Engineer;
  6. any inspection, test, or approval by others; or
  7. any correction of defective Work by Owner.

## 6.20 *Indemnification*

- A. 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 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 6.20.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 6.20.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.

#### 6.21 *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 law.
- 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, Shop Drawings 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 6.21, 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 6.17.D.1.

- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

## **ARTICLE 7 – OTHER WORK AT THE SITE**

### **7.01 *Related Work at Site***

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
  - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
  - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. 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. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, 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.

### **7.02 *Coordination***

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
  - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
  - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
  - 3. the extent of such authority and responsibilities will be provided.

- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

### 7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

## ARTICLE 8 – OWNER'S RESPONSIBILITIES

### 8.01 *Communications to Contractor*

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

### 8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

### 8.03 *Furnish Data*

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

### 8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

### 8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

### 8.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *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.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *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.

8.12 *Compliance with Safety Program*

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 pursuant to Paragraph 6.13.D.

**ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION**

9.01 *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 Documents.

9.02 *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 9.09. 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.

#### 9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. 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.

#### 9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which 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. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

#### 9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with 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, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. 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 Paragraph 10.05.

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

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents 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 14.07.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 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

#### 9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

### **ARTICLE 10 – CHANGES IN THE WORK; CLAIMS**

#### 10.01 *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 by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

## 10.02 *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 as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

## 10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
  - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
  - 2. 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; and
  - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

## 10.04 *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.

## 10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data



shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
  2. approve the Claim; or
  3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

## **ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

### **11.01 *Cost of the Work***

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs 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 11.01.B, 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, 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 11.01.
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 5.06.D), 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 telegrams, long distance telephone calls, telephone 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 Contractor is required by the Contract Documents to purchase and maintain.

B. *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 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which 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 Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work 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 or when a Claim for an 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 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, 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.

#### 11.02 *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:*
  1. Contractor agrees that:
    - a. 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
    - b. 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:*
  1. 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.

#### 11.03 *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. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- 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. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 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; and
  - 2. there is no corresponding adjustment with respect to any other item of Work; and
  - 3. Contractor believes that Contractor 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 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES**

### **12.01 *Change of Contract Price***

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for 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, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
  - 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
  - 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* 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 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
  - b. for costs incurred under Paragraph 11.01.A.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 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
  - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
  - 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 12.01.C.2.a through 12.01.C.2.e, inclusive.

#### 12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

#### 12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or

neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, 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 Price or the Contract Times, or both. 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.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is 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 described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

## **ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

### **13.01 *Notice of Defects***

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

### **13.02 *Access to Work***

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests 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.

### 13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
  - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
  - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
  - 3. as otherwise specifically provided in the Contract Documents.
- 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 and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. 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.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

### 13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, 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, furnishing all necessary labor, material, and equipment.



- C. If it is found that the uncovered Work is defective, 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 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 Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. 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, Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 13.05 *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, 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.

#### 13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. 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 removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

#### 13.07 *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 land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
  2. correct such defective Work; or
  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 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. 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) will be paid by Contractor.
- 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 13.07, 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 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

#### 13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. 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) 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 pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

### 13.09 *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 in accordance with Paragraph 13.06.A, 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, 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 13.09, 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, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, 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 (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) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. 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 13.09.

## ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

### 14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A 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.

### 14.02 *Progress Payments*

#### A. *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 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.

*B. Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, 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 9.07, 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 Documents; 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 moneys 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 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
    - a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
    - b. the Contract Price has been reduced by Change Orders;
    - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
    - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

*C. Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
  - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
  - b. 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;
  - c. there are other items entitling Owner to a set-off against the amount recommended; or
  - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action 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, when Contractor remedies the reasons for such action.
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 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *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 (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- 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 tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before

final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and 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 Engineer believes justified after consideration of any objections from Owner.

- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. 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 tentative list.

#### 14.05 *Partial Utilization*

- 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. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and 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 14.04.A through D for that part of the Work.
  - 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and 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 14.04 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 5.10 regarding property insurance.

#### 14.06 *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 is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

#### 14.07 *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, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
  - b. consent of the surety, if any, to final payment;
  - c. a list of all Claims against Owner that Contractor believes are unsettled; and
  - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) 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.

##### 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 Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. 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 14.09. 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. Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

*14.08 Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

*14.09 Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
  1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
  2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

## ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

### 15.01 *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 notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

### 15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will 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 established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
  2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
  3. Contractor's repeated disregard of the authority of Engineer; or
  4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
  1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
  2. 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
  3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.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 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) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed 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.

- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. 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. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

#### 15.03 *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;
  - 3. 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) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
  - 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

#### 15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) 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 15.03.

- 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 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 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 16 – DISPUTE RESOLUTION**

### **16.01 *Methods and Procedures***

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
  2. agrees with the other party to submit the Claim to another dispute resolution process; or
  3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

## **ARTICLE 17 – MISCELLANEOUS**

### **17.01 *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 to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

#### 17.02 *Computation of Times*

- A. When any period of time is referred to in the Contract Documents 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.

#### 17.03 *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 Documents. 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.

#### 17.04 *Survival of Obligations*

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

#### 17.05 *Controlling Law*

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

#### 17.06 *Headings*

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

Section 00800

SUPPLEMENTARY CONDITIONS

SCOPE. These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (C-700, 2007 Edition) and other provisions of the Contract Documents as indicated herein. All provisions which are not so amended or supplemented remain in full force and effect.

SC-1. DEFINITIONS AND TERMINOLOGY.

SC-1.01. DEFINED TERMS. The terms used in these Supplementary Conditions which are defined in the Standard General Conditions of the Construction Contract (C-700, 2007 Edition) have the meanings assigned to them in the General Conditions.

Amend the terms as follows:

3. Application for Payment: Strike out the word "Engineer" and insert the word "Owner" in its place.
9. Change Order: Strike out the words "recommended by Engineer".
12. Contract Documents: In the first sentence, strike out the word "Engineer's" and insert the word "Owner's" in its place.
14. Contract Times: Strike out the words "as evidenced by Engineer's written recommendation of final payment".
15. Contractor: Delete the term "Contractor" and substitute therefore the terms "Contractor or Prime Contractor."
17. Drawings: Add the following sentence to the definition: "Drawings may also be described as Plans."
20. Field Order: Strike out the word "Engineer" and insert the word "Owner" in its place.
22. Hazardous Environmental Conditions: Delete the words " or Radioactive Material" and substitute therefore the words "Radioactive Material or other pollutants or contaminants".
44. Substantial Completion: Strike out the word "Engineer" and insert the word "Owner" in its place. Add the following to the first sentence: "and a Certificate of Substantial Completion has been completed."
51. Work Change Directive: In the first sentence strike out the words "and recommended by Engineer".

Additional terms used in these Supplementary Conditions have the meanings indicated herein, which are applicable to both the singular and plural thereof.

Add the following new definitions to paragraph 1.01:

- "52. Final Completion – The time when all work is complete, including all punch list items, and all documents required for occupancy of the facility are completed and submitted to the OWNER. These documents include, but are not limited to, Certificate of Occupancy, Letters of Approval from various regulatory agencies, inspection certificates, and all other items as required in paragraph 14.07."
- "53. General Contractor – The person, firm, or corporation with whom OWNER has entered into an Agreement for a complete project, general trades, or complete project less a part of the project."
- "54. Without exception – The term "without exception", when used in the Contract Documents following the name of a Supplier or a proprietary item of equipment, product, or material, shall mean that the sources of the product are limited to the listed Suppliers or products and that no like, equivalent, or "or-equal" item and no substitution will be considered."
- "55. Written Notice – Notice to any party which is in writing and which shall be considered delivered and the service thereof completed once posted by certified or registered mail to the party to whom the notice is sent at its last given address or delivered in person to said party or its authorized representative on the work."

SC-102. TERMINOLOGY. Add the following paragraphs G, H, and I.

"G. Imperative Mood. These specifications are written to the BIDDER before the award of the Contract and to the CONTRACTOR after award of the Contract. The sentences that direct the CONTRACTOR to perform work are mostly written as commands. For example, a requirement to provide cold-weather protection would be expressed as, 'Provide cold-weather protection for concrete,' rather than 'The Contractor shall provide cold-weather protection for concrete.' In the imperative mood, the subject "the Bidder" or "the Contractor" is understood.

SC-2. PRELIMINARY MATTERS.

SC-2.02. Copies of Documents. Delete the second sentence of paragraph 2.02.A and insert the following new sentence in its place:

"Two (2) sets of contract drawings and specifications will be furnished the Contractor without charge. Additional sets will be furnished upon request at the cost of reproduction. The Contractor shall keep one (1) set of approved plans and specifications on the site of the work. This set shall be kept current by addition of all approved changes, addenda and amendments thereto. One set of as-built plans shall be returned to the Owner after the project is complete."

The plans and specifications are intended to be complementary; but should any discrepancy appear or any misunderstanding arise as to the import of anything

contained in either, the decision of the District shall be final and binding on the Contractor. The District may make any corrections of errors or omissions in the drawings and specifications when such corrections are necessary for the proper fulfillment of their intention as construed by the District.

All work or materials shown on the plans and not mentioned in the specifications or any work specified and not shown on the plans, shall be furnished, performed and done by the Contractor as if the same were both mentioned in the specifications and shown on the plans.

Should the Contractor in preparing its bid find anything necessary for the construction of the project that is not mentioned in the specifications or shown on the plans, or any discrepancy, it shall notify the District so that such items may be included. Should the Contractor fail to notify the District of such items, it will be assumed that its bid included everything necessary for the complete construction in the spirit and intent of the designs shown.

In case of discrepancy, figure dimensions shall govern over scale dimensions, large-scale details shall govern over small-scale drawings, plans shall govern over specifications, detailed technical specifications shall govern over general specifications, and the more restrictive specifications shall prevail."

SC-2.03. Commencement of Contract Times; Notice to Proceed. Delete the paragraph and insert in its place:

"A. The Contract Times will commence to run on the day indicated in the Notice to Proceed. The date for the Contract Times may be extended by mutual agreement between the OWNER and the CONTRACTOR."

SC-2.05. Before Starting Construction. Amend paragraphs 2.05.A and 2.05.B by striking out the word "Engineer" in all locations where it appears in the paragraphs and inserting the word "Owner" in its place.

SC-2.06. Preconstruction Conference. Delete paragraph 2.06.A in its entirety and insert the following new paragraph in its place:

If requested by Owner, within 20 days after the Contract Times start to run, but before any work at the Site is started, a conference attended by Contractor, Owner, 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 2.05.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

SC-2.07. Initial Acceptance of Schedules. Amend paragraph 2.07.A, including paragraphs 2.07.A.1, 2.07.A.2, and 2.07.A.3, by striking out the word "Engineer" in all locations where it appears in the paragraph and inserting the word "Owner" in its place.



**SC-3. CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE.**

SC-3.01. Intent. Amend paragraph 3.01.C by striking out the word "Engineer" and inserting the word "Owner" in its place.

SC-3.03. Reporting and Resolving Discrepancies. Amend paragraph 3.03.A by striking out the word "Engineer" and inserting the word "Owner" in its place.

SC-3.04. Amending and Supplementing Contract Documents. Amend paragraph 3.04.B by striking out the word "Engineer" and inserting the word "Owner" in its place.

**SC-4. AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS.**

SC-4.02. Subsurface and Physical Conditions. Add the following new paragraph(s) immediately after paragraph 4.02.B:

C. In the preparation of Drawings and Specifications, Engineer or Engineer's Consultants relied upon the following reports of explorations and tests of subsurface conditions at the Site:

- a. Report prepared by H.C.Nutting March 16, 2010. This report shall be considered technical data upon which Contractor may rely on and shall be consider part of these project specifications.

Test holes have been made on the site of the Work. The locations of test holes are indicated on the Drawings.

SC-4.03. Differing Subsurface or Physical Conditions.

Replace paragraph 4.03.A with the following:

"A. Notice: If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

- "1. Is of such nature as to require a change in the Contract Documents; or
- "2. Differs materially from that shown or indicated in the Contract Documents; or
- "3. Is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent on 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 6.16.A), notify OWNER and ENGINEER in writing about such condition. CONTRACTOR shall not further disturb such condition or perform any work in connection therewith (except as aforesaid) until receipt of written order to do so."

Delete paragraph 4.03.B in its entirety and insert the following new paragraph in its place:

**B. Owner's Review.** After receipt of written notice as required by paragraph 4.03.A, Owner will promptly review the pertinent condition, determine the necessity if obtaining additional explorations or tests with respect thereto, and advise Contractor in writing of Owner's findings and conclusions.

**SC-4.04. Underground Facilities.**

Add the following immediately after paragraph 4.04.A.2.

**"4.04.A.3 Location of Subsurface Utilities.**

"a. The location of subsurface utilities is shown on the plans from information furnished by the utility owners.

"b. The CONTRACTOR shall, no later than 2 working days, excluding Saturdays, Sundays, and legal holidays, prior to construction in the area of the subsurface utility, notify the subsurface utility Owner in writing, by telephone, or in person. The marking or locating shall be coordinated to stay approximately 2 days ahead of the planned construction.

"c. The CONTRACTOR shall alert immediately the occupants of nearby premises as to any emergency that it may create or discover at or near such premises.

"d. The CONTRACTOR shall have full responsibility for coordination of the work with owners of such underground facilities during construction, for the safety and protection thereof as provided in paragraph 6.13 and repairing any damage thereto resulting from the work, the cost of all of which will be considered as having been included in the Contract Price.

"4.04.A.4 Where existing utilities and structures are indicated as being in the line of the proposed improvement, the CONTRACTOR shall expose them sufficiently in advance of the construction operations to permit adjustments in line or grade, if required, to eliminate interferences.

"4.04.A.5 Existing pipes or conduits crossing a trench, or otherwise exposed, shall be adequately braced and supported to prevent movement during construction.

**"4.04.A.6 Broken Utility Services.**

"a. Utility services broken or damaged shall be repaired at once to avoid inconvenience to customers and utility owners.

"b. Temporary arrangements, as approved by the ENGINEER, may be used until any damaged items can be permanently repaired.

"c. All items damaged or destroyed by construction and subsequently repaired must be properly maintained by the CONTRACTOR.

"d. CONTRACTOR must work 24 hours a day until service is restored to a damaged utility.

**"4.04.A.7 Existing Utility Relocation.**

"a. Where it is necessary to relocate an existing utility or structure, the work shall be done in such manner as is necessary to restore it to a condition equal to that of the original utility or structure.

"b. No such relocation shall be done until approval is received from the authority responsible for the utility or structure being changed."

Amend the first sentence of paragraph 4.04.B.1 by striking out the words "and Engineer".

Amend the second sentence of paragraph 4.04.B.2 by striking out the word "Engineer" and inserting the word "Owner" in its place.

Amend the first sentence of paragraph 4.04.B.2 by striking out the word "Engineer" and inserting the word "Owner" in its place.

Add the following new paragraph immediately after paragraph 4.04.B:

Generally, service connections are not indicated on the Drawings. Contractor shall be responsible for discovery of existing underground installations, in advance of excavating or trenching, by contacting all local utilities and by prospecting.

**SC-4.06 Hazardous Environmental Conditions at Site.**

Delete paragraph 4.06.A. in its entirety and substitute the following paragraph therefore:

A. The following reports and drawings related to Hazardous Environmental Conditions identified at the Site are known to Owner: (None).

Amend paragraph 4.06.B by adding the words "that is created by, or" immediately after the words "a Hazardous Environmental Condition" in the fourth line.

Amend paragraph 4.06.G by deleting all words following the words "Hazardous Environmental Condition" in the seventh line and substituting therefore the following words: "was created by Owner or by anyone for whom Owner is responsible, other than Contractor and all persons, subcontractors and entities for which Contractor is responsible."

**SC-5. BONDS AND INSURANCE.**

**SC-5.02. Licensed Sureties and Insurers.** Add the following new sentence at the end of paragraph 5.02.A:

The surety company shall be rated "A" by AM BEST.

SC-5.03. Certificates of Insurance. Add the following new sentence at the end of paragraph 5.03.A:

Contractor shall deliver to Owner properly completed certificates of insurance prior to the start of any Work at the Site, on the forms included in the Contract Documents.

SC-5.04. Contractor's Insurance.

Add the following new paragraphs immediately after paragraph 5.04.A.6:

7. Claims arising out of pollution and excluded from the Contractor's general liability and comprehensive automobile liability policies. This insurance shall be coordinated with the Contractor's general liability policy and shall provide bodily injury and property damage coverage similar to the Contractor's general liability policy. Coverage shall include contractual liability.

Add the following new paragraphs immediately after paragraph 5.04.B.6:

7. contain a cross liability or severability of interest clause or endorsement. Insurance covering the specified additional insureds shall be primary insurance, and all other insurance carried by the additional insureds shall be excess insurance;
8. with respect to workers' compensation and employers' liability, comprehensive automobile liability, commercial general liability, and umbrella liability insurance, and all other liability insurance specified herein to be provided by Contractor, Contractor shall require its insurance carriers to waive all rights of subrogation against Owner, Engineer, and their respective officers, directors, partners, employees, and agents.

Add the following new paragraphs immediately after paragraph 5.04.B:

- C. The insurance required by paragraph 5.04 shall include coverage as necessary for the benefits provided under the United States Longshoremen's and Harbor Workers' Act and the Jones Act. This policy shall include an "all states" endorsement.
- D. The limits of liability for the insurance required by paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts but shall provide coverage in greater amounts where required by Laws and Regulations. This coverage may be primary or a combination of primary and umbrella excess liability.
  1. Workers' Compensation, and related coverage under paragraphs 5.04.A.1 and 5.04.A.2 of the General Conditions:
    - a. State Statutory
    - b. Applicable Federal (e.g., Longshoreman's) Statutory

- b. Employer's Liability \$1,000,000 each occurrence
2. Commercial General Liability under paragraphs 5.04.A.3 through 5.04.A.6 of the General Conditions shall be occurrence type, written in comprehensive form, and shall protect Contractor, Owner, and Engineer as additional insureds, against claims arising from injuries, sickness, disease, or death of any person or damage to property arising out of performance of the Work. The policy shall also include a per project aggregate limit endorsement, personal injury liability coverage, contractual liability coverage for blasting, explosion, collapse of buildings, and damage to underground property.
- a. General Aggregate \$1,000,000
  - 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. Property Damage liability insurance will provide Explosion, Collapse and Underground coverage's where applicable.
3. Automobile Liability under paragraph 5.04.A.6 of the General Conditions shall be occurrence type, written in comprehensive form, and shall protect Contractor, Owner, and Engineer as additional insureds, against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, either on or off the project site whether they are owned, nonowned, or hired. The liability limit shall be not less than:
- 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 \$1,000,000
4. Umbrella Liability Insurance shall protect Contractor, Owner, and Engineer as additional insureds, against claims in excess of the limits provided under workers' compensation and employers' liability, comprehensive automobile liability, and commercial general liability policies. The umbrella policy shall follow the forms of the primary insurance, including the application of the primary limits. The liability limits shall be not less than:

Bodily injury and  
Property damage

\$1,000,000 combined single  
limit for each occurrence

\$1,000,000 general  
aggregate

SC-5.05. Owner's Liability Insurance. Delete paragraph 5.05 in its entirety and insert the following new paragraph in its place:

5.05. *Owner's Liability Insurance*. This insurance shall be obtained by Contractor and issued in the name of Owner, and shall protect and defend Owner against claims arising as a result of the operations of Contractor or Contractor's Subcontractors. The liability limits shall be not less than:

- |    |                   |             |
|----|-------------------|-------------|
| a. | Bodily Injury     |             |
|    | Each Occurrence   | \$1,000,000 |
|    | General Aggregate | \$1,000,000 |
| b. | Property Damage   |             |
|    | Each Occurrence   | \$1,000,000 |
|    | General Aggregate | \$1,000,000 |

SC-5.06. Property Insurance. Delete paragraph 5.06 in its entirety and insert the following new paragraphs in their place:

5.06. *Property Insurance*

- A. Contractor shall purchase and maintain property insurance coverage upon the Work at the Site in the amount of the full replacement cost thereof. This insurance shall:
1. include the interests of Owner, Contractor, Subcontractors, Engineer, Engineer's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;
  2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, flood, damage caused by frost and freezing, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;
  3. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work,

provided that such materials and equipment have been included in an Application for Payment accepted by Owner;

4. include expenses incurred in the repair or replacement of any insured property (including, but not limited to, fees and charges of engineers and architects);
5. allow for partial utilization of the Work by Owner;
6. include testing and startup; and
7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer, with 30 days' written notice to each other additional insured to whom a certificate of insurance has been issued.

B. Contractor shall be responsible for any deductible or self-insured retention.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with paragraph 5.06 shall contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.07.

D. If Owner requests in writing that other special insurance be included in the property insurance policies provided under paragraph 5.06, Contractor shall, if possible, include such insurance, and the cost thereof will be charged to Owner by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the Site, Contractor shall in writing advise Owner whether or not Contractor has procured such other special insurance.

#### SC-6. CONTRACTOR'S RESPONSIBILITIES.

SC-6.02. Labor; Working Hours. Add the following new paragraphs immediately after paragraph 6.02.B:

C. No Work shall be done between 6:00 p.m. and 7:00 a.m. without permission of Owner. However, emergency work may be done without prior permission.

D. Night Work may be undertaken as a regular procedure with the permission of Owner; such permission, however, may be revoked at any time by Owner if Contractor fails to maintain adequate equipment and supervision for the proper prosecution and control of the Work at night.

SC-6.03. Services, Materials, and Equipment. Amend the second sentence of paragraph 6.03.B by striking out the word "Engineer" and inserting the word "Owner" in its place.

SC-6.04. Progress Schedule. Amend the first sentence of paragraph 6.04.A.1 by striking out the word "Engineer" and inserting the word "Owner" in its place.

SC-6.05. Substitutes and "Or-Equals". Amend paragraph 6.05, including paragraphs 6.05.A, 6.05.A.1, 6.05.A.1.a, 6.05.A.1.b, 6.05.A.2, 6.05.A.2.a, 6.05.A.2.b, 6.05.A.2.c, 6.05.A.2.d, 6.05.B, 6.05.C, 6.05.D, and 6.05.E by striking out the words "Engineer" and "Engineer's" in all locations where they appear in the paragraph and inserting the words "Owner" and "Owner's", respectively, in their place.

Add the following new paragraph after paragraph 6.05.A.2.d:

e. "If a proposed substitute item is accepted, all incidental costs associated with the use of the substitute including, but not limited to, redesign, claims of other Contractors, changes to electrical supply equipment, additional equipment or material required for the installation, etc., shall be at the expense of the Contractor proposing the substitute unless otherwise agreed to by the Owner."

SC-6.08. Permits. Add the following new paragraph immediately after paragraph 6.08.A:

B. Owner will obtain and pay for the following permits: Road & Highway Encroachment Permits, Kentucky Division of Water, and Stream Crossing Permits.

SC-6.09. Laws and Regulations. Add the following new paragraph immediately after paragraph 6.09.C:

D. Employment requirements shall be as specified herein and in the attachments at the end of the Supplementary Conditions.

SC-6.10. Taxes. Add the following new paragraph immediately after Paragraph 6.10.A of the General Conditions:

B. Portions of this project may be exempt from taxes. It is the Contractor's responsibility to determine any applicable exemptions.

SC-6.12. Record Documents. Amend the second sentence of paragraph 6.12.A by striking out the word "Engineer" and inserting the word "Owner" in its place.

Amend the third sentence of paragraph 6.12.A by striking out the words "Engineer for".

SC-6.16. Emergencies. Amend paragraph 6.16 by striking out the word "Engineer" in all locations where it appears in the paragraph and inserting the word "Owner" in its place.

Add the following new paragraph immediately after paragraph 6.16.A:



B. The Contractor understands and agrees that during the performance of the Contract, it shall maintain a presence within such proximity of the Work Site which will allow it to respond to an emergency at the Work Site within one hour of receiving notice of an emergency, including emergencies occurring during non-working hours. The Contractor shall provide a list of emergency phone numbers for such purposes. If the Contractor does not have such a presence, it may satisfy this requirement by sub-contracting with a sub-contractor that does have such a presence, provided that any such sub-contractor must be approved by the Owner, in its sole discretion, prior to the project pre-construction meeting.

SC-6.17. Shop Drawings and Samples. Amend paragraph 6.17, including paragraphs 6.17.A, 6.17.B, 6.17.C, 6.17.D, 6.17.D.1, 6.17.D.1.a, 6.17.D.1.b, 6.17.D.1.c, 6.17.D.1.d, 6.17.D.2, 6.17.D.3, 6.17.E.1, 6.17.E.2, 6.17.E.3, and 6.17.F.1 by striking out the words "Engineer" and "Engineer's" in all locations where they appear in the paragraph and inserting the words "Owner" and "Owner's", respectively, in their place.

SC-6.19. Contractor's General Warranty and Guarantee. Amend paragraph 6.19.C.1 by adding the words "or Owner" at the end of the paragraph.

Amend paragraph 6.19.C.2 by striking out the words "recommendation by Engineer or".

Amend paragraph 6.19.C.3 by striking out the words "by Engineer".

Amend paragraph 6.19.C.6 by striking out the word "Engineer" and inserting the word "Owner" in its place.

Delete paragraph 6.19.C.7 and substitute the following new paragraph therefore:

7. any correction of defective Work by Owner; or

Add the following new paragraph immediately after paragraph 6.19.C.7:

8. any expiration of a correction period.

#### SC-7. OTHER WORK.

SC-7.01. Related Work at Site. Amend paragraphs 7.01.B and 7.01.C by striking out the word "Engineer" in all locations where it appears in the paragraphs and inserting the word "Owner" in its place.

#### SC-8. OWNER'S RESPONSIBILITIES.

SC-8.01. Communications to Contractor. Amend paragraph A by striking out "through Engineer".

SC-8.02. Replacement of Engineer. Delete paragraph 8.02 in its entirety.

#### SC-9. ENGINEER'S STATUS DURING CONSTRUCTION.

SC-9.01. Owner's Representative. Delete paragraph 9.01 in its entirety.

SC-9.02. Visits to Site. Amend paragraphs 9.02.A and 9.02.B by striking out the words "Engineer" and "Engineer's" in all locations where they appear in the paragraph and inserting the words "Owner" and "Owners", respectively, in their place. Add following new paragraph:

B. Engineer may make visits to the Site as Owner 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, at the request and benefit of Owner, may 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 advise Owner of the progress of the Work and will endeavor to guard Owner against defective Work.

SC-9.04. Clarifications and Interpretations. Amend paragraph 9.04 by striking out the word "Engineer" in all locations where it appears in the paragraph and inserting the word "Owner" in its place.

SC-9.05. Authorizing Variations in Work. Amend paragraph 9.05 by striking out the word "Engineer" in all locations where it appears in the paragraph and inserting the word "Owner" in its place.

SC-9.06. Rejecting Defective Work. Amend paragraph 9.06 by striking out the word "Engineer" in all locations where it appears in the paragraph and inserting the word "Owner" in its place.

SC-9.07. Shop Drawings, Change Orders and Payments. Delete paragraph 9.07 in its entirety.

SC-9.08. Determinations for Unit Price Work. Delete paragraph 9.08 in its entirety.

SC-9.09. Decisions on Requirements of Contract Documents and Acceptability of Work. Delete paragraph 9.09 in its entirety.

SC-9.10. Limitations on Engineer's Authority and Responsibilities. Delete paragraph 9.10.D in its entirety.

## SC-10. CHANGES IN THE WORK.

SC-10.03. Execution of Change Orders. Amend paragraph 10.03.A by striking out the words "recommended by Engineer".

Amend paragraph 10.03.A.3 by striking out the word "Engineer" and inserting the word "Owner" in its place.

SC-10.05. Claims and Disputes. Amend paragraph 10.05 by deleting paragraphs 10.05.A, 10.05.B, 10.05.B.1, 10.05.B.2, and 10.05.C in their entirety and inserting the following new paragraphs in their place:

A. *Notice*. Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by Contractor to Owner no later than 30 days after the start of the event giving rise thereto. Notice of the amount of extent of the Claim, dispute, or other matter with supporting data shall be delivered to Owner within 60 days after the start of such event, unless the Owner allows, in writing, additional time for Contractor to submit additional or more accurate data in support of such Claim, dispute, or other matter. A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of paragraph 12.02.B. Each Claim shall be accompanied by Contractor's written statement that the adjustment claimed is the entire adjustment to which Contractor believes it is entitled as a result of said event.

B. *Owner's Decisions*. Owner will render a formal decision in writing within 30 days after receipt of the last submittal of Contractor.

C. If Owner does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of Contractor, unless Owner notifies Contractor in writing that a formal decision is pending and will be rendered within a specified number of days or by a specified date.

SC-11. COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK.

SC-11.01. Cost of the Work. Amend the second sentence of paragraph 11.01.A.3 by striking out the words "with the advice of Engineer".

Amend paragraph 11.01.D by striking out the word "Engineer" and inserting the word "Owner" in its place.

SC-11.02. Cash Allowances. Amend paragraph 11.02.A by striking out the words "and Engineer".

Amend paragraph 11.02.B by striking out the words "as recommended by Engineer".

SC-11.9. Unit Price Work. Add the following new paragraph immediately after paragraph 11.9.3.3

11.9.4. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment by Change Order if the variation in the actual quantity of an item of Unit Price Work performed by Contractor differs by more than 25 percent from the estimated quantity of that item indicated in the Bid.

SC-12. CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES.

SC-12.01. Change of Contract Price. Delete paragraph 12.01.A in its entirety and insert the following new paragraph in its place:

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by Contractor to Owner in accordance with the provisions of paragraph 10.05.

SC-12.02. Change of Contract Times. Delete paragraph 12.02.A in its entirety and insert the following new paragraph in its place:

A. The Contract Times (or Milestones) may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times (or Milestones) shall be based on written notice submitted by Contractor to owner in accordance with the provisions of paragraph 10.05.

SC-12.03. Delays. Insert the following new sentence following the first sentence of paragraph 12.03.A:

This extension shall be Contractor's sole and exclusive remedy for such delay.

Insert the following new paragraph 12.03.F immediately after paragraph 12.03.E:

F. In no event shall Owner be liable to Contractor, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages (including acceleration costs) arising out of or resulting from any delay.

**SC-13. TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK.**

SC-13.02. Access to Work. Add the following new paragraph immediately after paragraph 13.02.A:

B. Authorized representatives of the U.S. Environmental Protection Agency and the Kentucky Division of Water shall have access to the Work whenever it is in preparation or progress. Contractor shall provide proper facilities for such access and inspection.

SC-13.03. Tests and Inspections. Amend paragraph 13.03.A by striking out the word "Engineer" and inserting the word "Owner" in its place.

Amend paragraph 13.03.C by striking out the word "Engineer" and inserting the word "Owner" in its place.

Amend paragraph 13.03.E by striking out the word "Engineer" in both locations where it appears in the paragraph and inserting the word "Owner" in its place.

Amend paragraph 13.03.F by striking out the word "Engineer" in both locations where it appears in the paragraph and inserting the word "Owner" in its place.

SC-13.04. Uncovering Work. Amend paragraph 13.04.A by striking out the words "Engineer" and "Engineer's" in all locations where they appear in the paragraph and inserting the words "Owner" and "Owner's", respectively, in their place.

Delete paragraph 13.04.B in its entirety and insert the following new paragraph in its place:

B. If Owner considers it necessary or advisable that covered Work be observed by Engineer or Owner's representatives, or inspected or tested by others, Contractor, at Owner's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Owner may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective, 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 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 Owner shall be entitled to an appropriate decrease in the Contract Price. If, however, such 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 Milestones), 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, Contractor may make a Claim therefor as provided in paragraph 10.05.

SC-13.06. Correction or Removal of Defective Work. Amend paragraph 13.06.A by inserting the words "or Owner" following the word "Engineer".

SC-13.07. Correction Period. Add the following new paragraph after paragraph 13.07.E:

F. Nothing in Article 13 concerning the correction period shall establish a period of limitation with respect to any other obligation which Contractor has under the Contract Documents. The establishment of time periods relates only to the specific obligations of Contractor to correct the Work, and has no relationship to the time within which Contractor's obligations under the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish Contractor's liability with respect to Contractor's obligations other than to specifically correct the Work.

All machinery, piping, materials, equipment, fittings, and restoration of every kind furnished under this Contract by the Contractor shall be free from defects of manufacture and/or workmanship. The Contractor agrees to replace materials, workmanship, and restoration, which includes all roadway pavement work, shoulder and ditch restoration and repairs, which are found to be defective within twenty four (24) months after issuance of the "Certificate of Substantial Completion". In cases where such defects shall be caused by forces beyond the Contractor's control, as judged by the Owner, the replacements will not have to be made by the Contractor.

SC-13.08. Acceptance of Defective Work. Delete paragraph 13.08.A in its entirety and insert the following new paragraph in its place:

A. If, instead of requiring correction or removal and replacement of defective Work, Owner, prior to making final payment, prefers to accept it, Owner may do so. 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) attributable to Owner's evaluation of and determination to accept such defective Work and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Owner making final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of the Work so accepted. If the acceptance occurs after making final payment, an appropriate amount will be paid by Contractor to Owner.

SC-13.09. Owner May Correct Defective Work. Amend paragraph 13.09.A by striking out the word "Engineer" in all locations where it appears in the paragraph and inserting the word "Owner" in its place.

#### SC-14. PAYMENTS TO CONTRACTOR AND COMPLETION.

SC-14.01. Schedule of Values. Amend paragraph 14.01.A by striking out the word "Engineer" and inserting the word "Owner" in its place.

SC-14.02. Progress Payments. Amend paragraph 14.02.A by striking out the word "Engineer" and inserting the word "Owner" in its place.

Add the following new paragraphs immediately after paragraph 14.02.A.3:

4. Contractor's Applications for Payment shall be accompanied by the documentation specified herein.
5. Payments for stored materials and equipment shall be based only upon the actual cost to Contractor of the materials and equipment and shall not include any overhead or profit to Contractor. Partial payments will not be made for undelivered materials or equipment.
6. During the progress of the Work, each Application for Payment shall be accompanied by Contractor's updated schedule of operations, or progress report, with such shop drawings schedules, procurement schedules, value of material on hand included in application, and other data specified in Contract Documents or reasonably required by Owner.

Delete paragraphs 14.02.B and 14.02.C in their entirety and insert the following new paragraphs in their place:

#### B. *Review of Applications*

1. Owner will, within 10 days after receipt of each Application for Payment, either begin processing the Application for Payment to Contractor or return the Application to Contractor indicating in writing Owner's reasons for refusing payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Owner's review of Contractor's Application for Payment will consider whether the following have been achieved:

- 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, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08, and to any other qualifications as reasonably applied by Owner); and
- c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as Owner or Engineer has observed the Work.

3. By processing and making such payment Owner 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; or
- b. that 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 Owner's review of Contractor's Work for the purposes of processing payments nor Owner's making any such payments, including final payment, will impose responsibility on Owner:

- 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 performance of the Work.
- d. to make any examination to ascertain how or for what purposes Contractor has used the moneys 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. Owner may refuse to process or make the whole or any part of any payment if, in Owner's opinion, the criteria referred to in paragraph 14.02.B.2 has not been met. Owner may also refuse to process or make any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment previously made, to such extent as may be necessary in Owner's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Written Amendment or Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with paragraph 13.09; or
- d. Owner has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A.

Delete paragraphs 14.02.C in its entirety and insert the following new paragraphs in its place:

*C. Payment Becomes Due*

1. Twenty-five days after presentation of the Application for Payment to Owner, the amount recommended will (subject to the provisions of paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

Amend paragraph 14.02.D.1 by striking out the words "recommended by Engineer" and inserting the words "requested by Contractor" in their place.

Delete paragraph 14.02.D.2 in its entirety and insert the following new paragraph in its place:

2. If Owner refuses to make payment of the full amount requested by Contractor, Owner must give Contractor immediate written notice stating the reasons for such action 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, when Contractor corrects to Owner's satisfaction the reasons for such action.

SC-14.04. Substantial Completion. Delete paragraph 14.04.A in its entirety and insert the following new paragraph in its place:

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Owner issue a certificate of Substantial Completion.
- B. Promptly thereafter, Owner and Contractor shall make an inspection of the Work to determine the status of completion. If Owner does not consider the Work substantially complete, Owner will notify Contractor in writing giving the reasons therefor.
- C. If Owner considers the Work substantially complete, Owner will within 14 days after the inspection of the Work execute and deliver to Contractor a statement of Substantial Completion.
- D. At the time of delivery of the certificate of Substantial Completion, Owner will deliver to Contractor a statement as to division of responsibilities pending final payment



between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor subsequently agree otherwise in writing, Owner's aforesaid statement will be binding on Owner and Contractor until final payment.

Add the following new paragraphs following paragraph 14.04.A:

To be considered substantially complete, the following portions of the Work must be operational and ready for Owner's continuous use as intended: Water main is tested and placed into service, services are connected to the new main if applicable to the project, and rough restoration is complete.

Portions of the Work not essential to operation, which can be completed without interruption of the Owner's operation, may be completed after the Work is accepted as substantially complete, and may include the following items: final restoration such as seeding and sodding.

SC-14.05. Partial Utilization. Amend paragraph 14.05.A by striking out the word "Engineer".

SC-14.06. Final Inspection. Delete paragraph 14.06.A in its entirety and insert the following new paragraph in its place:

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

SC-14.07. Final Application for Payment. Amend paragraph 14.07.A.1 by striking out the word "Engineer" and inserting the word "Owner" in its place.

Add the following new sentence immediately after the last sentence of paragraph 14.07.A.2.b.:

Consent of the surety, signed by an agent, must be accompanied by a certified copy of such agent's authority to act for the surety. The Contractor shall be responsible for providing all of the documents identified in this paragraph.

Delete paragraph 14.07.B in its entirety and insert the following new paragraph in its place:

B. *Review of Application and Acceptance*. If, on the basis of Owner's observation of the Work during construction and final inspection, and Owner's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Owner is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Owner will process the final Application for Payment. Otherwise, Owner will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to process final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

Amend paragraph 14.07.C by striking out the words "recommended by Engineer" and inserting the words "requested by Contractor" in their place.

SC-14.08. Final Completion Delayed. Delete paragraph 14.08.A in its entirety and insert the following new paragraph in its place:

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, Owner shall, upon receipt of Contractor's final Application for Payment, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Owner with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

#### SC-15. SUSPENSION OF WORK AND TERMINATION.

SC-15.01. Owner May Suspend Work. Amend paragraph 15.01.A by striking out the words "and Engineer".

SC-15.02. Owner May Terminate for Cause. Amend paragraph 15.02.B by deleting the fourth sentence of the paragraph, in its entirety, which begins: "Such Claims, costs, losses, and damages incurred...".

SC-15.04. Contractor May Stop Work or Terminate. Delete paragraph 15.04.A and 15.04.B in their entirety and insert the following new paragraph in its place:

A. If, through no act or fault of Contractor, the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or Owner fails to act on any Application for Payment within 30 days after it is submitted, or 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 provided Owner does 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 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if 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, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph 15.04 are not intended to preclude Contractor from making a Claim under paragraph 10.05 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.

#### SC-16. DISPUTE RESOLUTION.

Delete Article 16 in its entirety and insert the following new article in its place:

**ARTICLE 16 - DISPUTES.**

Arbitration will not be acceptable as a means for settling claims, disputes, and other matters.

**SC-17. MISCELLANEOUS.**

**SC-17.04. Survival of Obligations.** Add the following new paragraph immediately after paragraph 17.04.A:

**B. Contractor shall obtain from all Suppliers and manufacturers any and all warranties and guarantees of such Suppliers and manufacturers, whether or not specifically required by the Specifications, and shall assign such warranties and guarantees to Owner. With respect thereto, Contractor shall render reasonable assistance to Owner when requested, in order to enable Owner to enforce such warranties and guarantees. The assignment of any warranties or guarantees shall not affect the Correction Period or any other provisions of these Contract Documents.**

End of Section

## EMPLOYMENT REQUIREMENTS AND WAGE RATES

R-1. GENERAL. This Contract shall be based upon payment by the Contractor and his Subcontractors of wage rates not less than the prevailing hourly wage rate for each craft or type of workman engaged on the Work as determined by the Department of Labor of the Commonwealth of Kentucky.

The Contractor shall comply with the prevailing wage law of Kentucky, Kentucky Revised Statutes 337.510 to 337.550, including latest amendments thereto.

The Contractor and each Subcontractor shall keep accurate records indicating the hours worked each day by each employee in each classification of work and the amount paid each employee for his work in each classification. Such records shall be open to the inspection and transcript of the Commissioner of Labor or his duly authorized representatives at any reasonable time. These payroll records shall not be destroyed or removed from the state for one year following completion of the improvement.

The Contractor and each Subcontractor shall post and keep posted in a conspicuous place or places at the construction site a copy or copies of prevailing rates of wages and working hours as prescribed in these Contract Documents.

If, during the life of this Contract, the prevailing hourly rate of wages is changed by the Department of Labor, such change shall not be the basis of any claim by the Contractor against the Owner, nor will deductions be made by the Owner against sums due the Contractor by reason of any such change.

The prevailing wage law does not prohibit payment of more than the prevailing rate of wages.

Pursuant to Kentucky Revised Statute 337.540, no laborer, workman, mechanic, helper, assistant, or apprentice shall be permitted to work more than 8 hours in one calendar day, nor more than 40 hours in one week, except in cases of emergency caused by fire, flood, or damage to life or property. Whenever work in excess of 8 hours per day or 40 hours per week is required, payment for overtime shall be at not less than one and one-half times the prevailing rate of wages.

R-2. PREVAILING WAGES. The following wage rate schedule is the prevailing wage rate determination made by the Department of Labor of the Commonwealth of Kentucky on the designated date, and shall be a part of the Contract.



**Steven L. Beshear**  
Governor

**KENTUCKY LABOR CABINET**  
DEPARTMENT OF WORKPLACE STANDARDS  
DIVISION OF EMPLOYMENT STANDARDS,  
APPRENTICESHIP & MEDIATION  
1047 US Hwy 127 S - Suite 4  
Frankfort, Kentucky 40601  
Phone: (502) 564-3534  
Fax (502) 696-1897  
[www.labor.ky.gov](http://www.labor.ky.gov)

**Larry Roberts**  
Secretary

**Anthony Russell**  
Commissioner

September 26, 2013

Steve Broering  
Northern KY Water District  
2835 Crescent Springs Road  
Erlanger KY 41018

Re: Northern KY Water District, Ripple Creek Water Main Replacement Phase 5

Advertising Date as Shown on Notification: October 3, 2013

Dear Steve Broering:

This office is in receipt of your written notification on the above project as required by KRS 337.510 (1).

I am enclosing a copy of the current prevailing wage determination number CR 3-024, dated August 9, 2013 for CAMPBELL County. This schedule of wages shall be attached to and made a part of the specifications for the work, printed on the bidding blanks, and made a part of the contract for the construction of the public works between the public authority and the successful bidder or bidders.

The determination number assigned to this project is based upon the advertising date contained in your notification. There may be modifications to this wage determination prior to the advertising date indicated. In addition, if the contract is not awarded within 90 days of this advertising date or if the advertising date is modified, a different set of prevailing rates of wages may be applicable. It will be the responsibility of the public authority to contact this office and verify the correct schedule of the prevailing rates of wages for use on the project. Your project number is as follows: 019-H-00501-13-3, Heavy/Highway

Sincerely,

Anthony Russell  
Commissioner



KENTUCKY LABOR CABINET  
PREVAILING WAGE DETERMINATION  
CURRENT REVISION  
LOCALITY 24

CAMPBELL & PENDLETON COUNTIES

Determination No. CR 3-024 2013

Date of Determination: August 9, 2013

PROJECT NO. 019-H-00501-13-3

\_\_\_\_\_ BLDG    \_\_\_x\_\_\_ HH

This schedule of the prevailing rate of wages for Campbell & Pendleton Counties has been determined in accordance with the provisions of KRS 337.505 to 337.550. This determination shall be referred to as Prevailing Wage Determination No. CR 3-024 2013.

Apprentices shall be permitted to work as such subject to Administrative Regulations 803 KAR 1:010. Copies of these regulations will be furnished upon request to any interested person.

Overtime is to be computed at not less than one and one-half (1 1/2) times the indicated BASE RATE for all hours worked in excess of eight (8) hours per day, and/or in excess of forty (40) hours per week. However, KRS 337.540 permits an employee and employer to agree, in writing, that the employee will be compensated at a straight time base rate for hours worked in excess of eight (8) hours in any one calendar day, but not more than ten (10) hours worked in any one calendar day, if such written agreement is prior to the over eight (8) hours in a calendar day actually being worked, or where provided for in a collective bargaining agreement. The fringe benefit rate is to be paid for each hour worked at a straight time rate for all hours worked.

Fringe benefit amounts are applicable for all hours worked except when otherwise noted. Welders will receive rate for craft in which welding is incidental.

NOTE: The type of construction shall be determined by applying the following definitions:

**BUILDING CONSTRUCTION**

Building construction is the construction of sheltered enclosures with walk-in access for the purpose of housing persons, machinery, equipment, or supplies. It includes all construction of such structures, the installation of utilities and the installation of equipment, both above and below grade level, as well as incidental grading, utilities and paving.

**HIGHWAY CONSTRUCTION**

Highway construction includes the construction, alteration or repair of roads, streets, highways, runways, taxiways, alleys, trails, paths, parking areas, and other similar projects not incidental to building or heavy construction. It includes all incidental construction in conjunction with the highway construction project.

**HEAVY CONSTRUCTION**

Heavy projects are those projects that are not properly classified as either "building" or "highway". For example, dredging projects, water and sewer line projects, dams, flood control projects, sewage treatment plants and facilities, and water treatment plants and facilities are considered heavy.



---

Anthony Russell, Commissioner  
Department of Workplace Standards  
Kentucky Labor Cabinet

Determination No. CR 3-024 2013  
August 9, 2013

**ASBESTOS/INSULATION WORKERS:**

CAMPBELL & PENDLETON COUNTIES:

Including duct (cold/hot), pipe insulator, pipe wrapping):

BASE RATE	\$29.05
FRINGE BENEFITS	13.47

Hazardous Material Handler ((Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems):

BASE RATE	\$23.60
FRINGE BENEFITS	9.80

**BOILERMAKERS:**

CAMPBELL & PENDLETON COUNTIES:

BASE RATE	\$35.79
FRINGE BENEFITS	16.71

**BRICKLAYERS:**

CAMPBELL & PENDLETON COUNTIES:

Bricklayers:

BASE RATE	\$21.86
FRINGE BENEFITS	4.75

Tile Setters: BUILDING

BASE RATE	\$26.43
FRINGE BENEFITS	9.78

Tile Finishers: BUILDING

BASE RATE	\$21.99
FRINGE BENEFITS	9.78

Bricklayer: HEAVY HIGHWAY

BASE RATE	\$26.12
FRINGE BENEFITS	9.73

**CARPENTERS / BUILDING:**

CAMPBELL & PENDLETON COUNTIES:

Drywall Hanging & Metal Stud Installation Only: BUILDING

BASE RATE	\$21.47
FRINGE BENEFITS	10.67

**CARPENTERS / BUILDING:**

PENDLETON COUNTY:

(Excludes Drywall Hanging & Metal Stud Installation):

BASE RATE	\$18.86
FRINGE BENEFITS	6.71

**CARPENTERS / BUILDING:**

CAMPBELL COUNTY:

(Excludes Drywall Hanging & Metal Stud Installation)

BASE RATE	\$14.00
FRINGE BENEFITS	.54

**CARPENTERS / HEAVY/HIGHWAY:**

CAMPBELL & PENDLETON COUNTIES:

Carpenters & Piledrivermen: HEAVY & HIGHWAY

BASE RATE	\$27.05
FRINGE BENEFITS	9.69

Divers: HEAVY & HIGHWAY

BASE RATE	\$40.58
FRINGE BENEFITS	9.69

**CEMENT MASONS / CONCRETE FINISHERS:**

CAMPBELL & PENDLETON COUNTIES:

BUILDING

BASE RATE \$22.00  
FRINGE BENEFITS 11.65

HEAVY & HIGHWAY

BASE RATE \$25.75  
FRINGE BENEFITS 8.60

---

**ELECTRICIANS:**

CAMPBELL & PENDLETON COUNTIES:

Electricians:

BASE RATE \$26.35  
FRINGE BENEFITS 16.09

**LINE CONSTRUCTION:**

Lineman:

BUILDING

BASE RATE \$30.50  
FRINGE BENEFITS 11.15

Equipment Operator:

BUILDING

BASE RATE \$27.45  
FRINGE BENEFITS 10.51

Groundman:

BUILDING

BASE RATE \$19.83  
FRINGE BENEFITS 8.92

SOUND & COMMUNICATION TECHNICIAN:

BASE RATE \$21.55  
FRINGE BENEFITS 8.46

---

**ELEVATOR MECHANICS:**

BASE RATE \$37.47  
FRINGE BENEFITS 20.035

---

**GLAZIERS:**

CAMPBELL & PENDLETON COUNTIES:

BASE RATE \$15.45  
FRINGE BENEFITS 0.00

---

**IRONWORKERS:**

CAMPBELL & PENDLETON COUNTIES:

Ornamental & Structural:

BASE RATE \$25.00  
FRINGE BENEFITS 18.40

Fence Erector:

BASE RATE \$22.70  
FRINGE BENEFITS 18.40

REINFORCING:

BASE RATE \$26.47  
FRINGE BENEFITS 19.30

---



**LABORERS / BUILDING:**

**CAMPBELL COUNTY:**

Common or General:	BUILDING	BASE RATE	\$22.90
		FRINGE BENEFITS	9.20

Mason Tender-Cement/Concrete:

BUILDING	BASE RATE	\$14.45
	FRINGE BENEFITS	0.00

Pipelayer and Screw Operator: BUILDING

BASE RATE	\$23.00
FRINGE BENEFITS	9.20

LABORER MASON TENDER-BRICK

BASE RATE	\$14.75
FRINGE BENEFITS	2.04

**LABORERS / HEAVY HIGHWAY:**

**CAMPBELL COUNTY:**

GROUP 1 - Asphalt Laborer; Carpenter Tender; Concrete Curing Applicator; Dump Man (Batch Truck); Guardrail and Fence Installer; Joint Setter; Laborer (Construction); Landscape Laborer; Mesh Handlers & Placer; Right-of-way Laborer; Riprap Laborer & Grouter; Scaffold Erector; Seal Coating; Surface Treatment or Road Mix Laborer; Sign Installer; Slurry Seal; Utility Man; Bridge Man; Handyman; Waterproofing Laborer; Flagperson; Hazardous Waste (level D); Diver Tender; Zone Person & Traffic Control:

HEAVY & HIGHWAY	*BASE RATE	\$26.72
	FRINGE BENEFITS	9.75

GROUP 2 - Skid Steer; Asphalt Raker; Concrete Puddler; Kettle Man (Pipeline); Machine Driven Tools (Gas, Electric, Air); Mason Tender; Brick Paver; Mortar Mixer; Power Buggy or Power Wheelbarrow; Sheeting & Shoring Man; Surface Grinder Man; Plastic Fusing Machine Operator; Pug Mill Operator; & Vacuum Devices (wet or dry); Rodding Machine Operator; Diver; Screwman or Paver; Screed Person; Water Blast, Hand Held Wand; Pumps 4" & Under (Gas, Air or Electric) & Hazardous Waste (level C); Air Track and Wagon Drill; Bottom Person; Cofferdam (below 25 ft. deep); Concrete Saw Person; Cutting with Burning Torch; Form Setter; Hand Spiker (Railroad); Pipelayer; Tunnel Laborer (without air) & Caisson; Underground Person (working in Sewer and Waterline, Cleaning, Repairing & Reconditioning); Sandblaster Nozzle Person; & Hazardous Waste (level B):

HEAVY & HIGHWAY	*BASE RATE	\$26.89
	FRINGE BENEFITS	9.75

GROUP 3 - Blaster; Mucker; Powder Person; Top Lander; Wrencher (Mechanical Joints & Utility Pipeline); Yarnier; Hazardous Waste (level A); Concrete Specialist; Concrete Crew in Tunnels (With Air-pressurized - \$1.00 premium); Curb Setter & Cutter; Grade Checker; Utility Pipeline Tapper; Waterline; and Caulker:

HEAVY & HIGHWAY	*BASE RATE	\$27.22
	FRINGE BENEFITS	9.75

GROUP 4 - Miner (With Air-pressurized - \$1.00 premium); & Gunite Nozzle Person:

HEAVY & HIGHWAY	*BASE RATE	\$27.67
	FRINGE BENEFITS	9.75

\*Signal Person will receive the rate equal to the rate paid the laborer classification for which he or she is signaling.

**LABORERS / BUILDING:**  
PENDLETON COUNTY:

GROUP 1: Common or General and Landscape Laborer:

BUILDING	BASE RATE	\$22.76
	FRINGE BENEFITS	10.35

GROUP 2: Grade Checker and Mason Tender-Cement/Concrete, Mason Tender-Brick (Hod), Pipelayer and Screw Operator:

BUILDING	BASE RATE	\$23.16
	FRINGE BENEFITS	10.35

LABORER	MASON TENDER-BRICK	BASE RATE	\$14.75
		FRINGE BENEFITS	2.04

LABORER	MASON TENDER – CEMENT/CONCRETE	BASE RATE	\$14.45
		FRINGE BENEFITS	0.00

**LABORERS/HEAVY HIGHWAY:**  
PENDLETON COUNTY:

GROUP 1 - Aging & Curing of Concrete; Asbestos Abatement Worker; Asphalt Plant; Asphalt; Batch Truck Dump; Carpenter Tender; Cement Mason Tender; Cleaning of Machines; Concrete; Demolition; Dredging; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level D; Flagperson; Grade Checker; Hand Digging & Hand Back Filling; Highway Marker Placer; Landscaping, Mesh Handler & Placer; Puddler; Railroad; Rip-rap & Grouter; Right-of-Way; Sign, Guard Rail & Fence Installer; Signal Person; Sound Barrier Installer; Storm & Sanitary Sewer; Swamper; Truck Spotter & Dumper; Wrecking of Concrete Forms; General Cleanup:

HEAVY & HIGHWAY	BASE RATE	\$21.35
	FRINGE BENEFITS	11.61

GROUP 2 - Batter Board Man (Sanitary & Storm Sewer); Brickmason Tender; Mortar Mixer Operator; Scaffold Builder; Burner & Welder; Bushhammer; Chain Saw Operator; Concrete Saw Operator; Deckhand Scow Man; Dry Cement Handler; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level C; Forklift Operator for Masonary; Form Setter; Green Concrete Cutting; Hand Operated Grouter & Grinder Machine Operator; Jackhammer; Pavement Breaker; Paving Joint Machine; Pipelayer; Plastic Pipe Fusion; Power Driven Georgia Buggy & Wheel Barrow; Power Post Hole Digger; Precast Manhole Setter; Walk-Behind Tamper; Walk-Behind Trencher; Sand Blaster; Concrete Chipper; Surface Grinder; Vibrator Operator; Wagon Driller:

HEAVY & HIGHWAY	BASE RATE	\$21.60
	FRINGE BENEFITS	11.61

GROUP 3 - Asphalt Luteman & Raker; Gunnite Nozzleman; Gunnite Operator & Mixer; Grout Pump Operator; Side Rail Setter; Rail Paved Ditches; Screw Operator; Tunnel (Free Air); Water Blaster:

HEAVY & HIGHWAY	BASE RATE	\$21.65
	FRINGE BENEFITS	11.61

GROUP 4 - Caisson Worker (Free Air); Cement Finisher; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Levels A & B; Miner & Driller (Free Air); Tunnel Blaster; & Tunnel Mucker (Free Air); Directional & Horizontal Boring; Air Track Driller (All Types); Powderman & Blaster; Troxler & Concrete Tester if Laborer is Utilized:

HEAVY & HIGHWAY	BASE RATE	\$22.25
	FRINGE BENEFITS	11.61

**MILLWRIGHTS:**  
CAMPBELL & PENDLETON COUNTIES:

	BASE RATE	\$27.55
	FRINGE BENEFITS	15.39

**OPERATING ENGINEERS / BUILDING:  
 CAMPBELL & PENDLETON COUNTIES:**

GROUP 1: Boom & Jib 250' & Over:			
	BUILDING	BASE RATE	\$30.74
		FRINGE BENEFITS	12.25
GROUP 2: Boom & Jib Over 180' through 249':			
	BUILDING	BASE RATE	\$30.49
		FRINGE BENEFITS	12.25
GROUP 3: Boom & Jib 150' through 180':			
	BUILDING	BASE RATE	\$29.99
		FRINGE BENEFITS	12.25
GROUP 4: Master Mechanic:	BUILDING	BASE RATE	\$29.74
		FRINGE BENEFITS	12.25
GROUP 5: Crane (Compact track or rubber over 4,000 lbs capacity, self erecting, stationary, track or truck (all configurations)), elevating grader, forklift (rough terrain with winch/hoist), backhoe, backhoe track, trackhoe, hoist (2 or more drums), horizontal directional drill, rotary drill, slip form paver:			
	BUILDING	BASE RATE	\$29.49
		FRINGE BENEFITS	12.25
GROUP 6: Asphalt paver, bobcat-type and/or skid steer loader with how attachment greater than 7,000 lbs, bulldozer, endloader, power grader, power scraper:			
	BUILDING	BASE RATE	\$29.37
		FRINGE BENEFITS	12.25
GROUP 7: Forklift (except Masonry), highway drills-all types, hoist (1 drum):			
	BUILDING	BASE RATE	\$28.33
		FRINGE BENEFITS	12.25
GROUP 8: Roller (except asphalt), self propelled sub grader, tractor (pulling sheep foot roller or grader):			
	BUILDING	BASE RATE	\$27.15
		FRINGE BENEFITS	12.25
GROUP 9: Allen Screed Paver (concrete); Crane-Compact, Track or Rubber under 4,000 lbs.; Masonry Forklift; Oiler:			
	BUILDING	BASE RATE	\$21.69
		FRINGE BENEFITS	12.25
OPERATOR	BOBCAT/SKID LOADER	BASE RATE	\$20.77
		FRINGE BENEFITS	5.38
OPERATOR	COMPACTOR	BASE RATE	\$24.53
		FRINGE BENEFITS	0.00
OPERAOR	EXCAVATOR	BASE RATE	\$19.18
		FRINGE BENEFITS	5.16
OPERATOR	HIGHLIFT	BASE RATE	\$25.00
		FRINGE BENEFITS	0.00

-----

**OPERATING ENGINEERS / HEAVY HIGHWAY  
 CAMPBELL & PENDLETON COUNTIES:**

Master Mechanic & Boom from 150 to 180:

HEAVY & HIGHWAY	BASE RATE	\$31.04
	FRINGE BENEFITS	13.01

Boom from 180 & over:

HEAVY & HIGHWAY	BASE RATE	\$31.29
	FRINGE BENEFITS	13.01

GROUP 1: Air Compressor on Steel Erection; Barrier Moving Machine; Boiler Operator on Compressor or Generator when mounted on a Rig; Cableway; Combination Concrete Mixer & Tower; Concrete Plant (over 4 yd. Capacity); Concrete Pump; Crane (All Types, Including Boom Truck, Cherry Picker); Crane-Compact, Track or Rubber over 4,000 lbs. capacity; Cranes-Self Erecting, Stationary, Track or Truck (All Configurations); Derrick; Dragline; Dredge (Dipper, Clam or Suction); Elevating Grader or Euclid Loader; Floating Equipment (All Types); Grade-All; Helicopter Crew (Operator-Hoist or Winch); Hoe (all types); Hoisting Engine on Shaft or Tunnel Work; Horizontal Directional Drill (over 500,000 ft. lbs. thrust); Hydraulic Gantry (Lifting System); Industrial-Type Tractor; Jet Engine Dryer (D8 or D9) Diesel Tractor; Locomotive (Standard Gauge); Maintenance Operator Class A; Mixer, Paving (Single or Double Drum); Mucking Machine; Multiple Scraper; Piledriving Machine (All Types); Power Shovel; Prentice Loader; Quad 9 (Double Pusher); Rail Tamper (with auto lifting & aligning device); Refrigerating Machine (Freezer Operation); Rotary Drill, on Caisson work; Rough Terrain Fork Lift with Winch/Hoist; Side-Boom; Slip-Form Paver; Tower Derrick; Tree Shredder; Trench Machine (Over 24" wide); Truck Mounted Concrete Pump; Tug Boat; Tunnel Machine and/or Mining Machine; & Wheel Excavator:

HEAVY & HIGHWAY	BASE RATE	\$30.79
	FRINGE BENEFITS	13.01

GROUP 2 - Asphalt Paver; Automatic Subgrader Machine, Self-Propelled (CMI Type); Bobcat Type and/or Skid Steer Loader with Hoe Attachment Greater than 7,000 lbs.; Boring Machine More than 48"; Bulldozer; Endloader; Hydro Milling Machine; Kolman-type Loader (production type-Dirt); Lead Greaseman; Lighting & Traffic Signal Installation Equipment (includes all groups or classifications); Material Transfer Equipment (Shuttle Buggy) Asphalt; Pettibone-Rail Equipment; Power Grader; Power Scraper; Push Cat; Rotomill (all), Grinders & Planers of All types; Trench Machine (24" wide & under); & Vermeer type Concrete Saw:

HEAVY & HIGHWAY	BASE RATE	\$30.67
	FRINGE BENEFITS	13.01

GROUP 3: A-Frame; Air Compressor on Tunnel Work (low pressure); Asphalt Plant Engineer; Bobcat-type and/or Skid Steer Loader with or without Attachments; Highway Drills (all types); Locomotive (narrow gauge); Material Hoist/Elevator; Mixer, Concrete (more than one bag capacity); Mixer, one bag capacity (Side Loader); Power Boiler (Over 15 lbs. Pressure) Pump Operator installing & operating Well Points; Pump (4" & over discharge); Roller, Asphalt; Rotovator (lime soil stabilizer); Switch & Tie Tampers (without lifting & aligning device); Utility Operator (Small equipment); & Welding Machines:

HEAVY & HIGHWAY	BASE RATE	\$29.63
	FRINGE BENEFITS	13.01

GROUP 4 - Backfiller; Ballast Re-locator; Bars, Joint & Mesh Installing Machine; Batch Plant; Boring Machine Operator (48" or less); Bull Floats; Burlap & Curing Machine; Concrete Plant (capacity 4 yd. & under); Concrete Saw (Multiple); Conveyor (Highway); Crusher; Deckhand; Farm-type Tractor with attachments (highway) except Masonry; Finishing Machine; Fireperson, Floating Equipment (all types); Fork Lift (highway); Form Trencher; Hydro Hammer; Hydro Seeder; Pavement Breaker; Plant Mixer; Post Driver; Post Hole Digger (Power Auger); Power Brush Burner; Power Form Handling Equipment; Road Widening Trencher; Roller (Brick, Grade & Macadam); Self-Propelled Power Spreader; Self-Propelled Power Subgrader; Steam Fireperson; Tractor (Pulling Sheepfoot, Roller or Grader); & Vibratory Compactor with Integral Power:

HEAVY & HIGHWAY	BASE RATE	\$28.45
	FRINGE BENEFITS	13.01

**OPERATING ENGINEERS / HEAVY HIGHWAY**  
CAMPBELL & PENDLETON COUNTIES:

GROUP 5: Compressor (Portable, Sewer, Heavy & Highway); Drum Fireperson (Asphalt); Generator; Masonry Fork Lift; Inboard-Outboard Motor Boat Launch; Masonry Fork Lift; Oil Heater (asphalt plant); Oiler; Power Driven Heater; Power Sweeper & Scrubber; Pump (under 4" discharge); Signalperson; Tire Repairperson; & VAC/ALLS:  
HEAVY & HIGHWAY

BASE RATE \$22.99  
FRINGE BENEFITS 13.01

**PAINTERS / BUILDING:**  
CAMPBELL & PENDLETON COUNTIES:

Brush & Roller Only: BUILDING  
BASE RATE \$21.52  
FRINGE BENEFITS 5.30

Spray Only: BUILDING  
BASE RATE \$23.89  
FRINGE BENEFITS 8.36

Sign Painter & Erector: BUILDING  
BASE RATE \$20.23  
FRINGE BENEFITS 3.25

**PAINTERS / HEAVY/HIGHWAY**  
CAMPBELL & PENDLETON COUNTIES:

Bridge/Equipment Tender and/or Containment Builder:  
HEAVY & HIGHWAY  
BASE RATE \$20.73  
FRINGE BENEFITS 8.36

Brush & Roller: HEAVY & HIGHWAY  
BASE RATE \$23.39  
FRINGE BENEFITS 8.36

Spray: HEAVY & HIGHWAY  
BASE RATE \$23.89  
FRINGE BENEFITS 8.36

Sandblasting; Waterblasting: HEAVY & HIGHWAY  
BASE RATE \$24.14  
FRINGE BENEFITS 8.36

Bridge: HEAVY & HIGHWAY  
BASE RATE \$24.39  
FRINGE BENEFITS 8.36

**PLASTERERS:**  
CAMPBELL & PENDLETON COUNTIES:  
BUILDING

BASE RATE \$22.00  
FRINGE BENEFITS 10.10

**PLUMBERS & PIPEFITTERS:**  
CAMPBELL & PENDLETON COUNTIES:  
(Including HVAC Pipe & System Installation):

BASE RATE \$29.60  
FRINGE BENEFITS 17.09

**ROOFERS:**

CAMPBELL & PENDLETON COUNTIES:

(excluding metal roofs):

(Including built up roof, modified bitumen roof, rubber roof, shake & shingle roof, single ply roof):

BASE RATE	\$26.31
FRINGE BENEFITS	12.30

-----  
**SHEETMETAL WORKERS**

CAMPBELL COUNTY:

(HVAC duct installation only):

BASE RATE	\$26.86
FRINGE BENEFITS	17.08

Excluding HVAC duct installation:

BASE RATE	\$15.50
FRINGE BENEFITS	1.06

**SHEETMETAL WORKERS**

PENDLETON COUNTY:

(including metal roofs & HVAC duct installation):

BASE RATE	\$28.66
FRINGE BENEFITS	17.46

-----  
**SPRINKLER FITTERS:**

CAMPBELL & PENDLETON COUNTIES:

(Fire Sprinklers)

BASE RATE	\$30.14
FRINGE BENEFITS	17.12

-----  
**TRUCK DRIVERS / BUILDING:**

CAMPBELL & PENDLETON COUNTIES:

10 Yard Truck: BUILDING

BASE RATE	\$16.27
FRINGE BENEFITS	1.50

Dump Truck: BUILDING

BASE RATE	\$15.47
FRINGE BENEFITS	2.74

**TRUCK DRIVERS / HEAVY/HIGHWAY:**

Driver: HEAVY & HIGHWAY

BASE RATE	\$15.85
FRINGE BENEFITS	4.60

Euclid Wagon; End Dump; Lowboy; Heavy Duty Equipment; Tractor-Trailer Combination; & Drag:

HEAVY & HIGHWAY

BASE RATE	\$16.29
FRINGE BENEFITS	4.60

-----  
End of Document  
CR 3-024 2013  
August 9, 2013

## Section 01015

### PROJECT REQUIREMENTS

1. **GENERAL DESCRIPTION OF WORK.** The Work to be performed under these Contract Documents is generally described as follows: Furnishing all plant, materials, equipment, supplies, labor and transportation, including fuel, power, water, (except any materials, equipment, utility, or service, if any, specified herein to be furnished by the District), and performing all work required in the scope of work in the Contract, in strict accordance with the specifications, schedules, and drawings, all of which are made a part hereof and including such detail drawings as may be furnished by the District from time to time during the prosecution of the work in explanation of said drawings.

2. **COORDINATION.** Contractor shall plan, schedule, and coordinate its operations in a manner which will facilitate the simultaneous progress of the work included under other contracts outside the scope of these Contract Documents if applicable.

3. **MATERIALS TO BE FURNISHED BY OWNER.** If the Owner is supplying some of the materials for this project (eg. air release valves, meter materials) it shall be indicated on the bid item unit price sheet and Measurement and Payment Section 1025. Items will be available at the Owner's storage yard unless other provisions have been made.

#### 4. **RESPONSIBILITY FOR MATERIALS AND EQUIPMENT.**

4.01. **Items Furnished by Owner.** Contractor's responsibility for materials and equipment furnished by Owner shall begin at the point of delivery on acceptance by Contractor. Contractor shall carefully examine each shipment prior to acceptance and shall reject all defective items. Owner reserves the right, however, to accept items rejected by Contractor and to authorize their installation in the Work.

Defective materials and equipment discovered after installation and prior to final acceptance of the Work, where the defect is of a nature not detectable by visual examination and other appropriate field inspection methods, shall be replaced by Owner, together with such additional materials and supplies as may be necessary for their replacement. Contractor shall furnish all necessary tools, equipment, and appliances, and perform all necessary labor, for the removal and replacement of such defective items in a manner acceptable to Owner; adjustment to the Contract Price for the costs of the removal and replacement shall be made in accordance with Article 11 of the General Conditions.

All materials and equipment furnished by Owner which disappear or are damaged after their acceptance by Contractor shall be replaced by and at the expense of Contractor. Replacements shall conform to the original procurement specifications.

Contractor shall be responsible for all unloading, reloading, transporting to the site, storage if necessary, re-handling, and installation.

All items shall be unloaded promptly after arrival. All charges for demurrage due to negligence or delay by Contractor shall be paid by Contractor. Equipment and materials shall be handled by methods which will prevent damage.

Equipment and materials shall be protected from exposure to the elements. All equipment shall be stored in accordance with the General Equipment Stipulations.

Contractor shall accept the risk of any delay in delivery of equipment or materials furnished by Owner, and if the Work is delayed, Contractor shall have no claim for damages or contract adjustment other than an extension of time and the waiving of liquidated damages occasioned by the delay.

All equipment shall be arranged and installed as indicated on the Drawings, and in conformity with installation drawings and instructions furnished to Owner by the manufacturer of the equipment.

4.02. Items Furnished by Contractor. Contractor shall be fully responsible for all materials and equipment which it has furnished.

5. OFFSITE STORAGE. Offsite storage arrangement shall be approved by Owner for all materials and equipment not incorporated into the Work but included in Applications for Payment. Such offsite storage arrangement shall be presented in writing and shall afford adequate and satisfactory security and protection. Offsite storage facilities shall be accessible to Owner.

6. SUBSTITUTES AND "OR-EQUAL" ITEMS. Provisions for evaluation of substitutes and "or-equal" items of materials and equipment are covered in Paragraph 6.05 of the General Conditions. Requests for review of equivalency will not be accepted by Owner from anyone except Contractor, and such requests will not be considered until after the Contract has been awarded.

7. PREPARATION FOR SHIPMENT. All materials shall be suitably packaged to facilitate handling and protect against damage during transit and storage. Painted surfaces shall be protected against impact, abrasion, discoloration, and other damage. All painted surfaces which are damaged prior to acceptance of equipment shall be repainted to the satisfaction of Owner.

Each item, package, or bundle of material shall be tagged or marked as identified in the delivery schedule or on the Shop Drawings. Complete packing lists and bills of material shall be included with each shipment.

8. SALVAGE OF MATERIALS AND EQUIPMENT. Existing materials and equipment removed, and not reused as a part of the Work, shall become Contractor's property, except the following items which shall remain Owner's property: Fire Hydrants, temporary plugs, and any unused materials supplied by the Owner.

Contractor shall carefully remove, in a manner to prevent damage, all materials and equipment specified or indicated to be salvaged and reused or to remain the property of Owner. Contractor shall store and protect salvaged items specified or indicated to be reused in the Work.



Salvaged items not to be reused in the Work, but to remain Owner's property, shall be delivered by Contractor in good condition to Owner's storage yard.

Any items damaged in removal, storage, or handling through carelessness or improper procedures shall be replaced by Contractor in kind or with new items.

Contractor may furnish and install new items instead of those specified or indicated to be salvaged and reused, in which case such removed items will become Contractor's property.

Existing materials and equipment removed by Contractor shall not be reused in the Work except where so specified or indicated.

9. EASEMENTS AND RIGHTS-OF-WAY. The easements and rights-of-way for the pipelines will be provided by Owner. Contractor shall confine its construction operations within the limits indicated on the Drawings. Contractor shall use due care in placing construction tools, equipment, excavated materials, and pipeline materials and supplies in order to avoid damage to property and interference with traffic.

9.01. On Private Property. Easements across private property are indicated on the Drawings. Contractor shall set stakes to mark the boundaries of construction easements across private property. The stakes shall be protected and maintained until completion of construction and cleanup.

Contractor shall not enter any private property outside the designated construction easement boundaries without written permission from the owner of the property.

Whenever the easement is occupied by crops which will be damaged by construction operations, Contractor shall notify the owner sufficiently in advance so that the crops may be removed before excavation or trenching is started. Contractor shall be responsible for all damage to crops outside the easement and shall make satisfactory settlement for the damage directly with the owner.

Where the line crosses fields which are leveled for irrigation or terraced, Contractor shall relevel irrigated fields and replace all terraces to their original or better condition, and to the satisfaction of the owner.

9.02. Work Within Highway and Railroad Rights-of-Way. Permits shall be obtained by Owner. All Work performed and all operations of Contractor, its employees, or Subcontractors within the limits of railroad and highway rights-of-way shall be in conformity with the requirements and be under the control (through Owner) of the railroad or highway authority owning, or having jurisdiction over and control of, the right-of-way in each case.

10. OPERATION OF EXISTING FACILITIES. The existing water transmission and distribution system must be kept in continuous operation throughout the construction period. No interruption will be permitted which adversely affects the degree of service provided. Provided permission is obtained from Owner in advance, portions of the existing facilities may be taken out of service for short periods corresponding with

periods of minimum service demands. This may facilitate work at night or weekends which is considered incidental to the project.

Contractor shall provide temporary facilities and make temporary modifications as necessary to keep the existing facilities in operation during the construction period.

11. NOTICES TO OWNERS AND AUTHORITIES. Contractor shall, as provided in the General Conditions, notify owners of adjacent property and utilities when prosecution of the Work may affect them.

When it is necessary to temporarily deny access to property, or when any utility service connection must be interrupted, Contractor shall give notices sufficiently in advance to enable the affected persons to provide for their needs. Notices shall conform to any applicable local ordinance and, whether delivered orally or in writing, shall include appropriate information concerning the interruption and instructions on how to limit inconvenience caused thereby.

Utilities and other concerned agencies shall be notified at least 24 hours prior to cutting or closing streets or other traffic areas or excavating near underground utilities or pole lines.

12. LINES AND GRADES. All Work shall be done to the lines, grades, and elevations indicated on the Drawings.

Basic horizontal and vertical control points will be established or designated by Owner to be used as datums for the Work. All additional survey, layout, and measurement work shall be performed by Contractor as a part of the Work.

Contractor shall provide an experienced instrument person, competent assistants, and such instruments, tools, stakes, and other materials required to complete the survey, layout, and measurement work. In addition, Contractor shall furnish, without charge, competent persons and such tools, stakes, and other materials as Owner may require in establishing or designating control points, or in checking survey, layout, and measurement work performed by Contractor.

Contractor shall keep Owner informed, a reasonable time in advance, of the times and places at which it wishes to do Work, so that horizontal and vertical control points may be established and any checking deemed necessary by Owner may be done with minimum inconvenience to Owner and minimum delay to Contractor.

Contractor shall remove and reconstruct work which is improperly located.

13. CONNECTIONS TO EXISTING FACILITIES. Unless otherwise specified or indicated, Contractor shall make all necessary connections to existing facilities, including structures, drain lines, and utilities such as water, sewer, gas, telephone, and electric. In each case, Contractor shall receive permission from Owner or the owning utility prior to undertaking connections. Contractor shall protect facilities against deleterious substances and damage.

Connections to existing facilities which are in service shall be thoroughly planned in advance, and all required equipment, materials, and labor shall be on hand at the time of undertaking the connections. Work shall proceed continuously (around the clock) if necessary to complete connections in the minimum time. Operation of valves or other appurtenances on existing utilities, when required, shall be by or under the direct supervision of the owning utility.

14. UNFAVORABLE CONSTRUCTION CONDITIONS. During unfavorable weather, wet ground, or other unsuitable construction conditions, Contractor shall confine its operations to work which will not be affected adversely by such conditions. No portion of the Work shall be constructed under conditions which would affect adversely the quality or efficiency thereof, unless special means or precautions are taken by Contractor to perform the Work in a proper and satisfactory manner.

15. CUTTING AND PATCHING. As provided in General Conditions, Contractor shall perform all cutting and patching required for the Work and as may be necessary in connection with uncovering Work for inspection or for the correction of defective Work.

Contractor shall perform all cutting and patching required for and in connection with the Work, including but not limited to the following:

- Removal of improperly timed Work.
- Removal of samples of installed materials for testing.
- Alteration of existing facilities.
- Installation of new Work in existing facilities.

Contractor shall provide all shoring, bracing, supports, and protective devices necessary to safeguard all Work and existing facilities during cutting and patching operations. Contractor shall not undertake any cutting or demolition which may affect the structural stability of the Work or existing facilities without Owner's concurrence.

Materials shall be cut and removed to the extent indicated on the Drawings or as required to complete the Work. Materials shall be removed in a careful manner, with no damage to adjacent facilities or materials. Materials which are not salvable shall be removed from the site by Contractor.

All Work and existing facilities affected by cutting operations shall be restored with new materials, or with salvaged materials acceptable to Owner, to obtain a finished installation with the strength, appearance, and functional capacity required. If necessary, entire surfaces shall be patched and refinished.

16. ASBESTOS REMOVAL. If, during the progress of the Work, suspected asbestos-containing products are identified, Contractor shall stop work in the affected area and engage an asbestos removal Subcontractor to verify the materials and, if necessary, encapsulate, enclose, or remove and dispose of all asbestos in accordance with current regulations of the Environmental Protection Agency and the U. S. Department of Labor - Occupational Safety and Health Administration, the state asbestos regulating agency, and any local government agency. Payment for such work will be made by Change Order.

16.01. Subcontractor's Qualifications. The Subcontractor for asbestos removal shall be regularly engaged in this type of activity and shall be familiar with the regulations which govern this work. The Subcontractor shall demonstrate to the satisfaction of Owner that it has successfully completed at least three asbestos removal projects, that it has the necessary staff and equipment to perform the work, and that it has an approved site for disposal of the asbestos. The Subcontractor shall carry insurance as specified in the Supplementary Conditions.

16.02. Removal Methods. The asbestos removal Subcontractor shall submit a work plan of its proposed removal procedure to Owner before beginning work and shall certify that the methods are in full compliance with the governing regulations. The work plan shall cover all aspects of the removal, including health and safety of employees and building occupants, hygiene facilities, employee certification, clearance criteria, transportation and disposal, enclosure techniques, and other techniques appropriate for the proposed work.

17. CLEANING UP. Contractor shall keep the premises free at all times from accumulations of waste materials and rubbish. Contractor shall provide adequate trash receptacles about the site and shall promptly empty the containers when filled.

Construction materials, such as concrete forms and scaffolding, shall be neatly stacked by Contractor when not in use. Contractor shall promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids, and cleaning solutions from surfaces to prevent marring or other damage.

Volatile wastes shall be properly stored in covered metal containers and removed daily.

Wastes shall not be buried or burned on the site or disposed of into storm drains, sanitary sewers, streams, or waterways. All wastes shall be removed from the site and disposed of in a manner complying with local ordinances and anti-pollution laws.

Adequate cleanup will be a condition for processing of progress payment applications.

18. APPLICABLE CODES. References in the Contract Documents to local codes mean the following:

- Kentucky Building Code
- Kentucky Plumbing Code
- National Electric Code
- BOCA Mechanical Code

Other standard codes which apply to the Work are designated in the Specifications.

19. PRECONSTRUCTION CONFERENCE. Prior to the commencement of Work at the site, a pre-construction conference will be held at a mutually agreed time and place. The conference shall be attended by:

- Contractor and its superintendent.
- Principal Subcontractors.
- Representatives of principal Suppliers and manufacturers as appropriate.
- Representatives of Owner.

Government representatives as appropriate.  
Others as requested by Contractor or Owner.

Unless previously submitted to Owner, Contractor shall bring to the conference a preliminary schedule for each of the following:

- Progress.
- Procurement.
- Values for progress payment purposes.
- Shop Drawings and other submittals.

The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda will include:

- Contractor's preliminary schedules.
- Transmittal, review, and distribution of Contractor's submittals.
- Processing Applications for Payment.
- Maintaining record documents.
- Critical Work sequencing.
- Field decisions and Change Orders.
- Use of premises, office and storage areas, security, housekeeping, and Owner's needs.
- Contractor's assignments for safety and first aid.

Owner will preside at the conference and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.

**20. PROGRESS MEETINGS.** Contractor shall schedule and hold regular progress meetings at least monthly and at other times as requested by Owner or required by progress of the Work. Contractor, Owner, and all Subcontractors active on the site shall be represented at each meeting. Contractor may at its discretion request attendance by representatives of its Suppliers, manufacturers, and other Subcontractors.

Contractor shall preside at the meetings. Meeting minutes will be prepared and distributed by Contractor. The purpose of the meetings will be to review the progress of the Work, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop.

End of Section

## Section 01025

### MEASUREMENT AND PAYMENT

1. **SCOPE**. This section covers methods of measurement and payment for items of Work under this Contract.
2. **GENERAL**. The total Contract Price shall cover all Work required by the Contract Documents. All costs in connection with the proper and successful completion of the Work, including furnishing all materials, equipment, supplies, and appurtenances; providing all construction plant, equipment, and tools; and performing all necessary labor and supervision to fully complete the Work, shall be included in the unit and lump sum prices bid. All Work not specifically set forth as a pay item in the Bid Form shall be considered a subsidiary obligation of Contractor and all costs in connection therewith shall be included in the prices bid. The Contractor shall be responsible for supplying all project materials, except for items supplied by the Owner as indicated in the Bid Item Descriptions below and on the bid form.
3. **ESTIMATED QUANTITIES**. All estimated quantities stipulated in the Bid Form or other Contract Documents are approximate and are to be used only (a) as a basis for estimating the probable cost of the Work and (b) for the purpose of comparing the bids submitted for the Work. The actual amounts of work done and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of work done and materials furnished. Contractor agrees that it will make no claim for damages, anticipated profits, or otherwise on account of any difference between the amounts of work actually performed and materials actually furnished and the estimated amounts therefor.
4. **EXCAVATION AND TRENCHING**. Except where otherwise specified, the unit or lump sum price bid for each item of Work, which involves excavation, or trenching shall include all costs for such Work. No direct payment shall be made for excavation or trenching. All excavation and trenching shall be unclassified as to materials, which may be encountered; in addition, trenches shall be unclassified as to depth.
5. **BID PRICES TO INCLUDE INCIDENTAL WORK**. The bid prices will cover and include the cost and expense of all contingents, accessories and incidental work and material required to complete the improvement. This includes replacement of services, pavement, fences and any other objects which are affected in the process of construction on this work. It shall also include where necessary, watchmen, flagmen, barricades, red lights, all backfill material such as gravel, flowable fill and any temporary restoration, construction joints, finishing and curing concrete, dust control, maintenance of traffic, maintenance of existing sewage flow, provision for access to property, and many other incidents which occur on a normal construction job.

### DESCRIPTION OF BID ITEMS

NOTE: Descriptions of each material can be found in Section 01600 Technical Provisions

6. **PIPELINES**. Pipelines which are to be paid for on a unit price basis shall be measured for payment on a horizontal plane after installation of the pipe. Where lines are laid to

conform to stationed profiles, payment shall be made on linear quantities based on the pipe-line stationing as determined by surveys made after installation.

The measurement of the length of each line or run of pipe of each size will begin and end at:

- a. The end of the pipe where connected to an existing pipe, fitting, or valve; or at the end of a dead-end run.
- b. The center lines intersection of the run and branch on tees, crosses, or laterals where a branch line connecting therewith is constructed under this Contract. Where a branch fitting is installed under this Contract, and the branch or connecting line is to be constructed by others at some future date or under another contract, the pay measurement will include the entire laying length of the branch or branches of such fitting.
- c. The measurement of each line of pipe of each size which is to be paid for on a unit price basis will be continuous through, and shall include the full laying lengths of, all fittings and valves installed between the ends of each line; except that the laying lengths of reducers and increasers will be divided equally between the connected pipe sizes. Connecting piping for fire hydrants will be paid under the unit price for fire hydrants.

**6.01 CLASS 50, 52 and 200 DUCTILE IRON PIPE (ALL SIZES).** (Detail 103, 103a, 104, 104a, 110). Includes the specified pipe, polyethylene wrap, fittings, bends, tracing wire, excavation, labor, equipment, bedding, backfill disinfection, dechlorination, pressure testing, restoration of non-paved areas, etc. required to install the specified pipe at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Paid LINEAR FEET (LF).

**6.02.A CLASS 50 or 52 DUCTILE IRON PIPE (ALL SIZES) – INTERNAL RESTRAINED JOINT.** (Detail 103, 103a, 104, 104a, 110). Includes the specified pipe, polyethylene wrap, fittings, bends, tracing wire, excavation, labor, equipment, bedding, backfill, disinfection, dechlorination, pressure testing, restoration of non-paved areas, etc. required to install the specified pipe at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Paid LINEAR FEET (LF).

**6.02.B CLASS 50, 52 and 200 DUCTILE IRON PIPE (ALL SIZES) – RESTRAINED JOINT.** (Detail 103, 103a, 104, 104a, 110). Includes the specified pipe, polyethylene wrap, fittings, bends, tracing wire, excavation, labor, equipment, bedding, backfill, disinfection, dechlorination, pressure testing, restoration of non-paved areas, etc. required to install the specified pipe at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Pipe gaskets shall develop a wedging action between pairs of high-strength stainless steel stainless steel elements spaced around the gasket (Field Lok®, Fast-Grip® or approved equal gaskets). The bend shall be restrained using mechanical joint restraint devices consisting of multiple gripping wedges incorporated into a follower gland compatible with all mechanical joints (Megalug Series 1100®, MJ Field Lok® or approved equal) Paid LINEAR FEET (LF).

**6.03 C-900, C-909 Poly Vinyl Chloride (PVC) (ALL SIZES).** (Detail 103, 103a, 104, 104a, 111). Includes the specified pipe, polyethylene wrap, fittings, bends, excavation, labor, equipment, bedding, backfill, disinfection, pressure testing, restoration of non-paved areas, tracing wire etc. required to install the specified pipe at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Paid LINEAR FEET (LF).

**6.03B C-900, C-909 Poly Vinyl Chloride (PVC) (ALL SIZES) – RESTRAINED JOINT.** (Detail 103, 103a, 104, 104a, 111). Includes the specified pipe, polyethylene wrap, fittings, bends, tracing wire, excavation, labor, equipment, bedding, backfill, disinfection, pressure testing, restoration of non-paved areas, etc. required to install the specified pipe at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Pipe push on joints shall be restrained using devices designed and approved by the AWWA for C900 or C909 PVC pipe (Megalug Series 1600®, Eagle Loc 900® or approved equal restraint systems). Transitional joints shall be restrained using mechanical joint restraint devices designed for PVC pipe and consisting of multiple gripping wedges incorporated into a follower gland compatible with all mechanical joints (Megalug Series 2000®, MJ Field Lok® PV Series or approved equal) Paid LINEAR FEET (LF).

**6.04 CASING PIPE.** Includes the casing pipe (K.D.O.T. or Railroad Spec.), labor, equipment, excavation, backfill, restoration, etc. required to install the casing pipe at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Paid LINEAR FEET (LF).

- a. Crossings. Where tunneling is required in connection with railroad, highway, or primary road crossings, each crossing shall be measured for payment horizontally along the longitudinal center line of the enclosing conduit or pipe installed therein, from end to end of the enclosing conduit, or from end to end of the tunnel excavation where an enclosing conduit is not required. Each designated type of crossing shall include the following:
- b. Crossings in Earth Backfill Tunnel. The unit price bid for each crossing in earth backfill tunnel shall include all costs in connection with excavation and backfilling, the excess cost of installing pipe in tunnel above the amount bid for the pipe laid in open trench, all skids, jointing materials, stabilized sand backfill, and all other work for and in connection with the crossing, not paid for separately. Separate payment shall not be made for tunnel liner or supports which may be needed for Contractor's convenience; all such items shall be considered a subsidiary obligation of Contractor.
- c. Crossings in Conduit. The unit price bid for each crossing in pipe conduit or tunnel liner shall include all costs in connection with excavation and backfilling, pipe conduit or tunnel liner, the excess cost of installing pipe in pipe conduit or tunnel liner above the amount bid for the pipe laid in open trench, all skids, jointing materials, jacking pipe, jacking pits, sand backfill, end closures, and all other work for and in connection with the crossing, not paid for separately.

**6.05 CLASS 200 S.D.R. 9 HDPE (HIGH DENSITY POLY-ETHYLENE) PIPE (2").** (Detail 115). Includes the specified pipe, preparation of the host pipe, insertion of HDPE



pipe into host pipe, fittings, bends, excavation, labor, equipment, bedding, backfill, disinfection, pressure testing, restoration of non-paved areas, tracing wire etc. District shall supply service line tees, saddle, curb stop and straight coupling. Contractor is required to install the specified pipe at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Paid LINEAR FEET (LF).

7. Connections to Existing Water Mains. Connections to existing water mains will be paid for at the lump sum prices bid. Each lump sum price named for a connection shall include all costs incurred for making the connection over and above the price of the connecting piping in place. Each lump sum price shall include furnishing and installing the tapping sleeve and valve, fittings; all excavation, blocking and backfilling work; tapping of existing main; and all other costs not included under other bid items.

**7.01 CONNECT TO EXISTING MAIN/TIE-IN (ALL SIZES).** Includes all labor, equipment, excavation, fittings, sleeves, couplings, blocking, anchoring, polyethylene wrap, disinfection, pressure testing, backfill and restoration, required to make the connection as shown on the plans, and in accordance with the specifications. Pipe for connection shall be paid under pipe bid item and shall be measured thru connection fittings. Paid EACH (EA).

**7.02 TAPPING SLEEVE & VALVE (ALL SIZES)** Includes the District approved tapping sleeve and valve, polyethylene wrap, labor, equipment, excavation, blocking, anchoring, disinfection, backfill, restoration, etc. to install the specified fitting at the locations shown on the plans in accordance with the specifications and standard drawing complete and ready for use. Paid EACH (EA) when complete.

8. Fire Hydrants. Fire hydrants will be paid for at the unit price bid. The unit price named for each fire hydrant installation shall include all costs incurred in furnishing and installing the fire hydrant; auxiliary gate valve, all connecting piping to the adjacent water main, accessories, and appurtenances, concrete blocking behind and under the fire hydrant, drainage facilities, yard restoration and all other costs not included under other bid items.

**8.01 INSTALL FIRE HYDRANT ASSEMBLY.** (Detail 109). Includes all labor, equipment, excavation, concrete blocking, 6" Ductile Iron Resilient Seated Gate Valve, Valve box, 6" Ductile Iron Anchor Coupling, 6" ductile iron leads (restrained) Fire Hydrant, extensions, granular drainage material, backfill and yard restoration to install fire hydrant complete and in accordance with the specifications and standard drawings. Paid EACH (EA).

**8.02 INSTALL FUTURE FIRE HYDRANT VALVE.** (Detail 109). Includes all labor, equipment, excavation, 6" Ductile Iron Resilient Seated Gate Valve, Valve box, Plug, backfill and yard restoration to install future fire hydrant assembly complete and in accordance with the specifications and standard drawings. Paid EACH (EA).

**8.03 REMOVE FIRE HYDRANT.** Includes all labor, equipment, excavation, backfill and yard restoration to remove an existing fire hydrant, cap hydrant lead if necessary and return to the Northern Kentucky Water District warehouse. Paid EACH (EA).

**8.04 RELOCATE FIRE HYDRANT.** Includes allowing for Northern Kentucky Water District's Inspector to inspect the existing fire hydrant prior to reuse, returning unusable fire hydrants to the Northern Kentucky Water District Warehouse and picking up a replacement hydrant for use. Includes the labor, equipment, excavation, bedding, backfill, testing, disinfection, and yard restoration to relocate existing fire hydrant to valve, pipe, and anchoring tee as indicated on plans and on standard drawings contained in the plans. The pipe, valve and anchoring tee shall be paid under separate bid items when required. The Contractor to supply and install all anchoring devices, fire hydrant extensions, 6" ductile iron leads (restrained), concrete blocking, yard restoration, granular drainage material, etc, needed to install the fire hydrant complete and ready for use as shown on the plans, and in accordance with the specifications and standard drawings. Paid EACH (EA).

**8.05 ADJUST FIRE HYDRANT TO GRADE.** Includes the labor, equipment, excavation, bedding, backfill, testing, disinfection, and yard restoration to adjust the existing fire hydrant using the fire hydrant manufacturer's extension kit for adjustments of 18" or less. Adjustments greater than 18" require anchoring couplings and vertical bends to adjust to grade. The Contractor will supply and install all anchor couplings, bends, fire hydrant extension, concrete blocking, yard restoration, granular drainage material, etc, needed to adjust the fire hydrant complete and ready for use as shown on the plans, and in accordance with the specifications and standard drawings. Paid EACH (EA).

9. Valves. Sectionalizing valves in water mains will be paid for at the unit price bid for each size. The unit price shall include all costs incurred in completing the sectionalizing valve installation over and above the amount paid for piping in place. The unit price shall include furnishing and installing the sectionalizing valve, valve box, and appurtenances; excavation and backfill not included under piping; and all other costs not included under other bid items.

No separate payment will be made for fire hydrant auxiliary gate valves or tapping valves.

**9.01 DUCTILE IRON RESILIENT SEATED GATE VALVE (4", 6", 8", 12").** (Detail 105). Includes the specified valve, labor, equipment, excavation, polyethylene wrap, bedding, backfill, disinfection, pressure testing, restoration, etc. (contractor must supply mechanical joint restraints on restrained joint applications), required to install the specified valve at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. All External Dome and Packing Bolts Shall be Stainless Steel. Paid EACH (EA).

**9.02 BUTTERFLY VALVE (16" AND LARGER).** Includes the labor, equipment, valve and appurtenances, material, excavation, polyethylene wrap, bedding, backfill, disinfection, pressure testing, restoration, etc. (contractor must supply mechanical joint restraints on restrained joint applications), required to install the specified valve at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Paid EACH (EA).

**9.03 DUCTILE IRON RESILIENT WEDGE GATE VALVE WITH BEVELED GEARING.** Ductile iron body, non-rising stem, open left, 2" square operating nut, epoxy coated, mechanical joint, inlet and outlet connections, O-ring type packing, resilient wedge, 250 PSI working pressure, and conforming in all other ways to AWWA Standard C515 American Flow Control 2500 Resilient Wedge Gate Valve or approved equal. Valve body

to be assembled with stainless steel bolts grade 304 or better. Accessory package (glands, gaskets and bolts) shall not be included. Includes the specified valve, labor, equipment, excavation, polyethylene wrap, bedding, backfill, disinfection, pressure testing, restoration, etc. (contractor must supply mechanical joint restraints on restrained joint applications), required to install the specified valve at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. All External Dome and Packing Bolts Shall be Stainless Steel. Paid EACH (EA).

## **10. SERVICES**

**10.01 REPLACE and RECONNECT SERVICE LINE (3/4" THRU 2").** Includes the labor, equipment, excavation, bedding, backfill, and asphalt, concrete and yard restoration to install the service line at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. Lead service lines encountered by the excavation shall be replaced from the main to and including the meter vault and meter setting. All service line material will be supplied by NKWD. Paid EACH (EA).

**10.02 REPLACE SERVICE LINE AND INSTALL WATER METER SETTING (3/4" THRU 2").** Includes the labor, equipment, excavation, bedding, backfill, and asphalt, concrete and yard restoration to install the service line, new meter vault and yoke setting at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. All service line material will be supplied by NKWD. Paid EACH (EA).

**10.03 RECONNECT COPPER SERVICE (3/4" THRU 2").** Includes the labor, equipment, excavation, bedding, backfill and asphalt, concrete and yard restoration to reconnect the service line at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. Lead service lines encountered by the excavation shall be replaced from the main to and including the meter vault and meter setting. All service line material will be supplied by NKWD. Paid EACH (EA).

**10.04 RELOCATE WATER METER SETTING.** Includes the labor, equipment, excavation, bedding, backfill and asphalt, concrete and yard restoration to install a new meter vault and yoke setting to the location shown on the plans or as directed, in accordance with the specifications and standard drawings complete and ready for use. All service line material will be supplied by NKWD. Paid EACH (EA).

**10.05 INSTALL WATER METER SETTING.** Includes the labor, equipment, excavation, bedding, backfill, testing, disinfection and asphalt, concrete and yard restoration to install a new meter vault and yoke setting to the location shown on the plans or as directed, in accordance with the specifications and standard drawings complete and ready for use. All service line material will be supplied by NKWD. Paid EACH (EA).

**10.06 ADJUST EXISTING WATER VALVE BOX TO GRADE.** Includes all labor, equipment, excavation, bedding, 2'x2'x4" concrete pad, backfill, testing, disinfection, and asphalt, concrete and yard restoration to install the valve box and valve toggle extensions

(if required) and adjust the top of the box to finished grade complete and ready for use. Valve toggle extensions will be supplied by NKWD. Paid EACH (EA).

**10.07 ADJUST WATER METER TO GRADE.** Includes all labor, equipment, excavation, bedding, backfill, testing, disinfection, and asphalt, concrete and yard restoration to adjust the top of the box to finished grade complete and ready for use. Paid EACH (EA).

**10.08 REMOVE EXISTING CURB STOP/METER CROCK.** Includes the labor, equipment, excavation, backfill and asphalt, concrete or yard restoration to remove the existing curb stop or meter crock at the location shown on the plans or as directed, in accordance with the specifications and standard drawings. Paid EACH (EA).

**10.09 INSTALL TEMPORARY WATER SERVICE.** Includes the labor, equipment and materials for the installation and disinfection of temporary piping, flushing of temporary piping, removal of the existing meter and returning meter to the Owner, hooking up temporary water to meter setting, maintaining an uninterrupted water supply, repairs to any damaged or broken piping, installation of meter and removal of all piping and fittings upon completion of the work, Paid LUMP SUM (LS).

## **11. MISCELLANEOUS**

**11.01 CONCRETE ENCASEMENT.** Includes the labor, equipment, excavation, backfill, concrete, restoration, etc. to construct the concrete encasement of the water main stream crossing as shown on the plans, and in accordance with the specifications and standard drawings. Paid LINEAR FEET (LF).

**11.02 4" UNDERDRAIN.** Includes the labor, equipment, excavation, bedding, materials, backfill, and restoration, etc.-required to install the underdrain at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. Paid EACH (EA).

**11.03 PRESSURE REDUCING VALVE PIT.** Includes the labor, equipment, excavation, concrete pit construction, materials, pipe work, electrical work, backfill, restoration, etc. required to install the specified pressure reducing valve pit at the location shown on the plans in accordance with the plans, specifications and standard drawings complete and ready for use. Paid EACH (EA).

**11.04 PLUG AND BLOCK (ALL SIZES).** This item shall include the specified plug, polyethylene wrap, labor, equipment, excavation, concrete, backfill and restoration required to install the plug and blocking at the location shown on the plans or as directed in accordance with the specifications. Paid EACH (EA).

**11.05 AIR RELEASE VALVE.** (Detail 106). This item shall include labor, equipment, excavation, polyethylene wrap, bedding, backfill, disinfection, pressure testing, restoration, etc. required to install the air release valve at the location shown on the plans or as directed in accordance with the specifications. All materials will be supplied by NKWD. Paid EACH (EA).

**11.06 ANCHORING TEE AND BLOCK (ALL SIZES).** Includes the specified anchoring tee, labor, equipment, excavation, polyethylene wrap, bedding, backfill, disinfection, pressure testing, restoration, etc. required to install the specified anchoring tee at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Paid EACH (EA).

**11.07 DUCTILE IRON TEE AND BLOCK (ALL SIZES).** Includes the specified ductile iron tee, labor, equipment, excavation, polyethylene wrap, bedding, backfill, disinfection, pressure testing, restoration, etc. required to install the specified tee at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Paid EACH (EA).

**11.08 DUCTILE IRON CROSS (ALL SIZES).** Includes the specified ductile iron cross, labor, equipment, excavation, polyethylene wrap, bedding, backfill, disinfection, pressure testing, restoration, etc. required to install the specified ductile iron cross at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Paid EACH (EA).

**11.09 REDUCER (ALL SIZES).** Includes the reducer, labor, equipment, excavation, polyethylene wrap, bedding, backfill, disinfection, pressure testing, restoration, etc. required to install the specified reducer at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Paid EACH (EA).

**11.10 FLUSHING DEVICE.** (Detail 113) Includes the labor, equipment, excavation, polyethylene wrap, bedding, backfill, disinfection, pressure testing, restoration, etc. required to install the specified flushing device at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. Flushing device materials will be supplied by NKWD. Paid EACH (EA).

**11.11 TEST TAP.** Includes the labor, equipment, excavation, polyethylene wrap, bedding, backfill, disinfection, pressure testing, restoration, etc.-required to install the specified test tap at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. Test Tap materials will be supplied by NKWD. Paid EACH (EA).

**11.12 STORM SEWER CONNECTION.** Includes all labor, equipment, excavation, bedding, backfill and materials required to make the connection to the existing combination manhole as shown on the plans and in accordance with the specifications of K.T.C.and Sanitation District No. 1. Paid EACH (EA).

**11.13 REMOVE EXISTING CATCH BASIN & RECONSTRUCT NEW DOUBLE CURB BOX INLET.** Includes all labor, equipment, excavation, backfill and materials to remove an existing catch basin, dispose of existing catch basin in a proper manner in accordance will all applicable local, state, or federal regulations and installation of a Standard Double Curb Box Inlet as per the detail in the construction drawings. All work shall also be in accordance with the specifications of K.T.C. and Sanitation District No. 1. Paid EACH (EA)

**11.14 REMOVE EXISTING STORM PIPE & CONSTRUCT HDPE STORM PIPE.**

Includes all labor, equipment, excavation, bedding, backfill and materials to remove the existing storm sewer pipe and install new HDPE storm pipe as per plan. All debris materials shall be disposed of in a proper manner and shall be as directed by all applicable local, state or federal regulations. Installation of new HDPE storm pipe shall be in accordance with the Storm Sewer Pipe Bedding – Flexible Pipe (Plastic) detail on the construction drawings. All work shall also be in accordance with the specifications of K.T.C. and Sanitation District No. 1. Paid LINEAR FOOT (LF)

**11.15 SLEEVE OUT EXISTING TEE/CROSS/VALVE.** Includes all labor, equipment, excavation, specified pipe, fittings, couplings, polyethylene wrap, bedding, backfill, disinfection, pressure testing, restoration, etc. required to remove the existing tee/cross/valve and install a straight pipe at the location shown on the plans or as directed in accordance with the specifications. Paid EACH (EA).

**11.16 CORROSION TEST STATION.** Includes the labor, equipment and materials required to place test stations, and electrodes, in accordance with specifications and details. Paid EACH (EA).

**11.17 MAGNESIUM ANODES.** Includes the labor, equipment and materials required to place magnesium anodes and associated wiring, in accordance with specifications and details. Paid EACH (EA).

**11.18 END TREATMENT DETAIL (24").** (Detail on sheet C-1.0) This item is considered a temporary plug and block and flushing device for the 24" water main and shall include the specified plug, 2" tap for temporary flushing , labor, equipment, excavation, concrete, backfill and restoration required to install the end treatment at the location shown on the plans or as directed in accordance with the specifications. Paid EACH (EA).

## **12. RESTORATION**

**12.01. Pavement Removal and Replacement.** The unit prices per square yard for pavement removal and replacement shall be measured for (length x width) payment horizontally along the center line of the pipe, through manholes, and to the edge of the existing pavement; or, where the edge of the existing pavement is not clearly defined, to the edge of the pavement replacement. The unit prices bid for pavement removal and replacement shall include all costs in connection therewith, including cutting, removal, and disposal of old pavement; construction of new pavement; and all extra compaction effort required for backfill beneath pavement.

**12.02 Miscellaneous Asphaltic Concrete Paving.** Existing valve boxes shall be abandoned by removal or filling with concrete at the discretion of the District. This cost shall be incidental to any bid item associated with asphaltic concrete paving.

**12.03. Sidewalk or Driveway Removal and Replacement.** The unit prices per square yard bid for sidewalk or driveway removal and replacement shall include all costs involved in

cutting and removing sidewalk or driveway, and all labor and materials required to replace the sidewalks.

Measurement for payment for sidewalk or driveway removal and replacement shall be on a square yard basis and shall include only the area actually removed and replaced, between joints, over the pipeline trench.

All costs involved in repairing or removal and replacement of existing sidewalk or driveway outside the specified pay limits, where damaged during the construction operations, shall be considered a subsidiary obligation of Contractor and shall be borne by Contractor.

**12.04. MISCELLANEOUS CONCRETE.** Concrete for encasement or blocking of pipe and fittings not included as parts of pipelines will be measured for payment as the actual volume of concrete placed within the limits as indicated or specified.

Concrete for total encasement shall be computed using the maximum allowable trench width (or pipe OD plus 24 inches where no maximum is specified), the minimum clear depth below the pipe, and the minimum cover over the pipe, less the volume occupied by the pipe itself.

Unless otherwise authorized by Owner, all additional concrete for encasement or blocking required outside the specified pay limits will be considered a subsidiary obligation of Contractor and no direct payment shall be made therefore.

All concrete which is required in connection with manholes or structures, pavement or sidewalk replacement, and other pay items shall be included in the lump sum or unit price bid for the pay item.

The unit price bid for miscellaneous concrete shall include concrete, reinforcing steel, forms, finishing, curing, and all other work or materials required to complete the concrete work.

Existing valve boxes shall be abandoned by removal or filling with concrete at the discretion of the District. This cost shall be incidental to any bid item associated with concrete paving or other concrete work.

**12.05 ASPHALTIC CONCRETE MILLING AND PAVING.** Includes the labor, equipment and materials required to perform any necessary milling, placing of asphalt to a depth of 1.5 inches in accordance with specifications and standard drawing #103A. Paid SQUARE YARD (SY).

**12.06 ASPHALTIC CONCRETE.** Includes the labor, equipment and materials required to perform any necessary removal and replacement of asphalt to a minimum depth of 6 inches or match existing and abandoning of valve boxes in accordance with specifications and standard drawing #103A. Paid SQUARE YARD (SY).

**12.07 ASPHALTIC CONCRETE - DRIVEWAY.** Includes the labor, equipment and materials required to perform any necessary removal and replacement of asphalt to match existing depth in accordance with specifications and standard drawing #103A. Culvert repair or replacement shall be considered incidental to driveway restoration. Paid SQUARE YARD (SY).

**12.08 ASPHALTIC CONCRETE. – WINTER CHARGE** In effect when a sole asphalt plant is operating within a 50 mile radius of the project. Includes the labor, equipment and materials required to perform any necessary removal and replacement of asphalt to a minimum depth of 6 inches and abandoning of valve boxes in accordance with specifications and standard drawing #103A. Paid SQUARE YARD (SY).

**12.09 CONCRETE PAVEMENT.** Includes the labor, equipment and materials required to remove and replace a minimum of 8" KDOT class A Concrete or to match existing, whichever is greater and abandoning of valve boxes in accordance with specifications and standard drawing #103A. Paid SQUARE YARD (SY).

**12.10 CONCRETE DRIVEWAY.** Includes the labor, equipment and materials required to remove and replace the driveway concrete to match existing depth. Culvert repair or replacement shall be considered incidental to driveway restoration. Paid SQUARE YARD (SY).

**12.11 CONCRETE CURBING.** Includes the labor, equipment and materials required to place KDOT class A Concrete to match existing in accordance with specifications and standard drawings. Paid LINEAR FEET (LF).

**12.12 CONCRETE SIDEWALK.** Includes the labor, equipment and materials required to remove and replace the sidewalk concrete to match existing depth. This item also includes any requirements to install sidewalk ramps per ADA standards. Paid SQUARE YARD (SY).

**12.13 GRAVEL DRIVEWAY/PARKING AREA.** Includes the labor, equipment and materials required to replace and grade gravel driveway to match existing depth. Paid SQUARE YARD (SY).

**12.14 BEST MANAGEMENT PRACTICE.** Includes the labor, equipment and materials required to conform and comply with the best management practices to control soil erosion as shown on the plans and specifications. Paid LUMP SUM (LS).

**12.15 ASPHALTIC CONCRETE BINDER.** Includes the labor, equipment and materials required to place KDOT Class III Asphalt Surface 0.50B PG 64-22 in accordance with the Kentucky Transportation Cabinet Standard Specifications and Standard Drawings for Road and Bridge Construction, current edition. Paid SQUARE YARD (SY)

**12.16 ASPHALTIC CONCRETE BASE.** Includes the labor, equipment and materials required to place KDOT Class III Asphalt Surface 0.75B PG 64-22 in accordance with the Kentucky Transportation Cabinet Standard Specifications and Standard Drawings for Road and Bridge Construction, current edition. Paid SQUARE YARD (SY)

**12.17 REMOVE AND REINSTALL 15 INCH CMP.** Includes the labor, equipment and materials required to remove and reinstall the existing corrugated metal pipe as shown on the plans. Paid LUMP SUM (LS).

**12.18 GROUTED RIP RAP (KYTC Class II Channel Lining).** Includes the labor, equipment and materials required to install the grout the rip rap per detail located on sheet C-1.0 as shown on the plans. Paid SQUARE YARDS (SY).



**12.19 REMOVE AND REINSTALL EXISTING CHAIN LINK FENCE.** Includes the labor, equipment and materials required to remove and reinstall the existing chain link fence as shown on the plans. Paid LINEAR FEET (LF).

**12.20 REMOVE AND PROPERLY DISPOSE OF ABANDONED FORCE MAIN.** Includes the labor, equipment and materials required to remove and dispose of abandoned force main as shown on the plans. Paid LINEAR FEET (LF).

End of Section

## SECTION 01070

### ABBREVIATIONS OF TERMS AND ORGANIZATIONS

1. LIST OF ABBREVIATIONS. Reference to standards and organizations in the Specifications shall be by the following abbreviated letter designations:

AA	Aluminum Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
AFBMA	Antifriction Bearing Manufacturers Association
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
APA	American Plywood Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWG	American Wire Gage
AWPA	American Wood-Preservers' Association
AWPB	American Wood Preservers Bureau
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
CDA	Copper Development Association
CISPI	Cast Iron Soil Pipe Institute
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard (U.S. Department of Commerce)
DIPRA	Ductile Iron Pipe Research Association
EEl	Edison Electric Institute
EJCDC	Engineers' Joint Contract Documents Committee
EPA	Environmental Protection Agency
Fed Spec	Federal Specification
FHWA	Federal Highway Administration

FIA	Factory Insurance Association
FM	Factory Mutual
IEEE	Institute of Electrical and Electronics Engineers
IFI	Industrial Fasteners Institute
IRI	Industrial Risk Insurers
MIL	Military Specification
MSS	Manufacturers Standardization Society of Valve and Fitting Industry
NBS	National Bureau of Standards
NCSPA	National Corrugated Steel Pipe Association
NEC	National Electrical Code
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
NPC	National Plumbing Code
NPT	National Pipe Thread
NRMCA	National Ready Mixed Concrete Association
NSC	National Safety Council
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PS	Product Standard
SAE	Society of Automotive Engineers
SI	Système International des Unités (International System of Units)
SPFA	Steel Plate Fabricators Association
SSI	Scaffolding and Shoring Institute
SSPC	Steel Structures Painting Council
UL	Underwriters' Laboratories

End of Section

## Section 01300

### SUBMITTALS

1. **PROGRESS SCHEDULE.** After the preconstruction conference and before Work is started, Contractor shall submit to Owner for review a schedule of the proposed construction operations. Owner shall cooperate with Contractor in arrangements for continuity of service and operation of valves and other control facilities. The progress schedule shall indicate the sequence of the Work, the time of starting and completion of each part, and the time for making connections to existing piping, structures, or facilities.

2. **PROGRESS REPORTS.** A progress report shall be furnished to Owner with each Application for Payment. If the Work falls behind schedule, Contractor shall submit additional progress reports at such intervals as Owner may request.

Each progress report shall include sufficient narrative to describe current and anticipated delaying factors, their effect on the progress schedule, and proposed corrective actions. Any Work reported complete, but which is not readily apparent to Owner, must be substantiated with satisfactory evidence.

3. **SURVEY DATA.** All field books, notes, and other data developed by Contractor in performing surveys required as part of the Work shall be available to Owner for examination throughout the construction period. All such data shall be submitted to Owner with the other documentation required for final acceptance of the Work.

#### 4. **SHOP DRAWINGS AND ENGINEERING DATA.**

4.01. **General.** Shop Drawings and engineering data (submittals) covering all equipment and fabricated and building materials which will become a permanent part of the Work under this Contract shall be submitted to Owner for review, at the Owner's address given in the Agreement. Submittals shall verify compliance with the Contract Documents, and shall include drawings and descriptive information in sufficient detail to show the kind, size, arrangement, and operation of component materials and devices; the external connections, anchorages, and supports required; performance characteristics; and dimensions needed for installation and correlation with other materials and equipment. When an item consists of components from several sources, Contractor shall submit a complete initial submittal including all components.

All submittals, regardless of origin, shall be stamped with the approval of Contractor and identified with the name and number of this Contract, Contractor's name, and references to applicable specification paragraphs and Contract Drawings. Each submittal shall indicate the intended use of the item in the Work. When catalog pages are submitted, applicable items shall be clearly identified and inapplicable data crossed out. The current revision, issue number, and date shall be indicated on all drawings and other descriptive data.

Contractor shall be solely responsible for the completeness of each submission. Contractor's stamp of approval is a representation to Owner that Contractor accepts sole responsibility for determining and verifying all quantities, dimensions, field

construction criteria, materials, catalog numbers, and similar data, and that Contractor has reviewed and coordinated each submittal with the requirements of the Work and the Contract Documents.

All deviations from the Contract Documents shall be identified as deviations on each submittal and shall be tabulated in Contractor's letter of transmittal. Such submittals shall, as pertinent to the deviation, indicate essential details of all changes proposed by Contractor (including modifications to other facilities that may be a result of the deviation) and all required piping and wiring diagrams.

Five copies (or one reproducible copy) of each drawing and necessary data shall be submitted to Owner. Owner will return two marked copies (or one marked reproducible copy) to Contractor. Facsimile (fax) copies will not be acceptable. Owner will not accept submittals from anyone but Contractor. Submittals shall be consecutively numbered in direct sequence of submittal and without division by subcontracts or trades.

**4.02. Owner's Review of Submittals.** Owner's review of submittals will cover only general conformity to the Drawings and Specifications, external connections, and dimensions which affect the layout. Owner's review does not indicate a thorough review of all dimensions, quantities, and details of the material, equipment, device, or item shown. Owner's review shall not relieve Contractor of Contractor's sole responsibility for errors, omissions, or deviations in the drawings and data, nor of Contractor's sole responsibility for compliance with the Contract Documents.

Owner's submittal review period shall be 21 consecutive calendar days in length and shall commence on the first calendar day immediately following the date of arrival of the submittal or resubmittal in Owner's office. The time required to mail the submittal or resubmittal back to Contractor shall not be considered a part of the submittal review period.

When the drawings and data are returned marked "NOT ACCEPTABLE" or "RETURNED FOR CORRECTION", the corrections shall be made as noted thereon and as instructed by Owner and five corrected copies (or one corrected reproducible copy) resubmitted. Facsimile (fax) copies will not be acceptable.

When the drawings and data are returned marked "EXCEPTIONS NOTED", "NO EXCEPTIONS NOTED", or "RECORD COPY", no additional copies need be furnished unless requested by Owner at time of review.

**4.03. Resubmittal of Drawings and Data.** Contractor shall accept full responsibility for the completeness of each resubmittal. Contractor shall verify that all corrected data and additional information previously requested by Owner are provided on the resubmittal.

When corrected copies are resubmitted, Contractor shall in writing direct specific attention to all revisions and shall list separately any revisions made other than those called for by Owner on previous submissions.

Requirements specified for initial submittals shall also apply to resubmittals. Resubmittals shall bear the number of the first submittal followed by a letter (A, B, etc.) to indicate the sequence of the resubmittal.

Re-submittals shall be made within 30 days of the date of the letter returning the material to be modified or corrected, unless within 14 days Contractor submits an acceptable request for an extension of the stipulated time period, listing the reasons the resubmittal cannot be completed within that time.

Any need for more than one resubmission, or any other delay in obtaining Owner's review of submittals, will not entitle Contractor to extension of the Contract Times unless delay of the Work is directly caused by a change in the Work authorized by a Change Order or by failure of Owner to review any submittal within the submittal review period specified herein and to return the submittal to Contractor.

End of Section

Section 01400

QUALITY CONTROL

1. TESTING SERVICES. All tests to determine compliance with the Contract Documents shall be performed by an independent commercial testing firm acceptable to Owner. The testing firm's laboratory shall be staffed with experienced technicians, properly equipped and fully qualified to perform the tests in accordance with the specified standards.

Testing services provided by Owner are for the sole benefit of Owner; however, test results shall be available to Contractor. Testing necessary to satisfy Contractor's internal quality control procedures shall be the sole responsibility of Contractor.

1.01. Testing Services Furnished by Contractor. Unless otherwise specified, Contractor shall provide all testing services in connection with the following:

- Concrete materials and mix designs.
- Asphaltic concrete materials and mix designs.
- Embedment, fill and backfill materials.
- All other tests and engineering data required for Owner's review of materials and equipment proposed to be used in the Work.

Contractor shall obtain Owner's acceptance of the testing firm before having services performed, and shall pay all costs for these testing services.

1.02. Testing Services Furnished by Owner. Unless otherwise specified, Owner shall provide for tests made on the following materials and equipment:

- Concrete.
- Asphaltic concrete.
- Moisture-density and relative density tests on embedment, fill, and backfill materials.
- In-place field density tests on embedments, fills, and backfill.
- Other materials and equipment at the discretion of Owner.

Testing, including sampling, will be performed by Owner or the testing firm's laboratory personnel, in the general manner indicated in the Specifications. Owner shall determine the exact time, location, and number of tests, including samples.

Arrangements for delivery of samples and test specimens to the testing firm's laboratory will be made by Owner. The testing firm's laboratory shall perform all laboratory tests within a reasonable time consistent with the specified standards and shall furnish a written report of each test.

Contractor shall furnish all sample materials and cooperate in the testing activities, including sampling. Contractor shall interrupt the Work when necessary to allow testing, including sampling, to be performed. Contractor shall have no claim for an increase in Contract Price or Contract Times due to such interruption. When testing activities,

including sampling, are performed in the field by Owner or the testing firm's laboratory personnel, Contractor shall furnish personnel and facilities to assist in the activities.

If testing shows workmanship and/or materials does not meet established requirements, the Contractor shall be responsible for all additional testing cost to ensure compliance.

1.03. Transmittal of Test Reports. Written reports of tests and engineering data furnished by Contractor for Owner's review of materials and equipment proposed to be used in the Work shall be submitted as specified for Shop Drawings.

End of Section



Section 01500

TEMPORARY FACILITIES

1. **PRESENCE IN THE AREA.** The Contractor understands and agrees that during the performance of the Contract, it shall maintain a presence within such proximity of the Work Site which will allow it to respond to an emergency at the Work Site within one hour of receiving notice of an emergency, including emergencies occurring during non-working hours. The Contractor shall provide a list of emergency phone numbers for such purposes. If the Contractor does not have such a presence, it may satisfy this requirement by sub-contracting with a sub-contractor that does have such a presence, provided that any such sub-contractor must be approved by the Owner, in its sole discretion, prior to the project pre-construction meeting.
2. **WATER.** Water in reasonable amounts required for and in connection with the Work to be performed will be furnished at existing fire hydrants by Owner without charge to Contractor. All water used in testing and disinfection of mains will be furnished by the Owner for the first test only. Contractor shall furnish necessary pipe, hose, nozzles, and tools and shall perform all necessary labor. Contractor shall make arrangements with Owner (who will fix the time, rate, and duration of each withdrawal from the distribution system) as to the amount of water required and the time when the water will be needed. Unnecessary waste of water will not be tolerated. Special hydrant wrenches shall be used for opening and closing fire hydrants. In no case shall pipe wrenches be used for this purpose.
3. **POWER.** Contractor shall provide all power for heating, lighting, operation of Contractor's plant or equipment, or for any other use by Contractor.
4. **TELEPHONE SERVICE.** Contractor shall make all necessary arrangements and pay all installation charges for telephone lines in its offices at the Site and shall provide all telephone instruments.
5. **SANITARY FACILITIES.** Contractor shall furnish temporary sanitary facilities at the Site, as provided herein, for the needs of all construction workers and others performing work or furnishing services on the Project.

Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least one toilet will be furnished for each 20 persons. Contractor shall enforce the use of such sanitary facilities by all personnel at the Site.

6. **MAINTENANCE OF TRAFFIC.** Contractor shall conduct his work to interfere as little as possible with public travel, whether vehicular or pedestrian. Whenever it is necessary to cross, obstruct, or close roads, driveways, and walks, whether public or private, Contractor shall provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to owners of private drives before interfering with them. Such maintenance of traffic will not be required when Contractor has obtained permission from the owner and tenant of

private property, or from the authority having jurisdiction over public property involved, to obstruct traffic at the designated point.

In making open cut street crossings, Contractor shall not block more than one-half of the street at a time. Whenever possible, Contractor shall widen the shoulder on the opposite side to facilitate traffic flow. Temporary surfacing shall be provided as necessary on shoulders.

The Contractor shall wherever necessary or as required by the Owner or the authority having jurisdiction provide, erect and maintain proper lights, signs, barricades, temporary guardrail, other traffic control devices, and furnish watchmen and flagmen as may be necessary to maintain safe traffic conditions in accordance with the Manual of Uniform Traffic Control Devices.

The Contractor shall be liable for and hold the Owner free and harmless from all damages occasioned in any way by its actions or neglect or those of its agents, employees, or workmen.

Work that requires the Contractor to shut down the road on weekends or at nights is considered an incidental to the project.

The Contractor at all times shall conduct the work in such manner as to cause as little interference as possible with private business or with private and public travel on the public highway. All damage (other than that resulting from normal wear and tear) to existing roads or pavements shall be repaired to withstand traffic in a safe condition.

Where the Contractor finds it necessary to remove excavated material to some other location, care should be taken not to overload trucks, which would in turn spill material out upon highways. Any such material spilled upon highways shall be immediately cleaned up from the location and properly disposed of per applicable regulation.

Where it is necessary and is agreeable with public and private property owners, excavated materials may be temporarily piled in the streets or roadways, however, one lane of traffic must be maintained at all times.

After excavated materials have been removed, all hard surface streets or roadways shall be thoroughly cleaned and left free of dirt, gravel and dust. Streets or roadways, which do not have hard surfaces, must be restored to their original condition at the expense of the Contractor. Streets and roadways shall be kept in a safe and passable condition at all times.

**6.01. Temporary Bridges.** Contractor shall construct substantial bridges at all points where it is necessary to maintain traffic across pipeline construction. Bridges in public streets, roads, and highways shall be acceptable to the authority having jurisdiction thereover. Bridges erected in private roads and driveways shall be adequate for the service to which they will be subjected. Bridges shall be provided with substantial guardrails and with suitably protected approaches. Footbridges shall be at least 4 feet wide, provided with handrails and uprights of dressed lumber. Bridges shall be maintained in place as long as the conditions of the Work require their use for safety of the public.

When necessary for the proper prosecution of the Work in the immediate vicinity of a bridge, the bridge may be relocated or temporarily removed for such period as Owner may permit.

6.02. Detours. Where required by the authority having jurisdiction thereover that traffic be maintained over any construction work in a public street, road, or highway, and the traffic cannot be maintained on the alignment of the original roadbed or pavement, Contractor shall, at its own expense, construct and maintain a detour around the construction work. Each detour shall include a bridge across the pipe trench and all necessary barricades, guardrails, approaches, lights, signals, signs, and other devices and precautions necessary for protection of the Work and safety of the public.

7. BARRICADES AND LIGHTS. All streets, roads, highways, and other public thoroughfares, which are closed to traffic, shall be protected by effective barricades on which shall be placed acceptable warning signs. Barricades shall be located at the nearest intersecting public highway or street on each side of the blocked section.

All open trenches and other excavations shall have suitable barricades, signs, and lights to provide adequate protection to the public. Obstructions, such as material piles and equipment, shall be provided with similar warning signs and lights.

All barricades and obstructions shall be illuminated with warning lights from sunset to sunrise. Material storage and conduct of the Work on or alongside public streets and highways shall cause the minimum obstruction and inconvenience to the traveling public.

All barricades, signs, lights, and other protective devices shall be installed and maintained in conformity with applicable statutory requirements and, where within railroad and highway rights-of-way, as required by the authority having jurisdiction thereover.

8. TRAFFIC CONTROL. In addition to the requirements of the maintenance of traffic and barricades and lights paragraphs in this section, traffic control shall be as set forth herein.

During periods of inclement weather, rush-hour traffic, or during periods of unusually heavy traffic, the Owner may require the Contractor to cease operations in order to adequately handle the traffic. The Owner reserves the right to require the suspension or delay of certain operations, or the expediting of other operations, at no additional cost to the Owner, to provide a proper sequence of operations which will promote the satisfactory movement of traffic. The Owner may require additional barricades, lights, or flagmen at any time or at any place necessary for proper protection of traffic, but approval by the Owner of the Contractor's method of operation shall not relieve the Contractor of his responsibility to protect traffic.

The use and duration of using heavy steel plates to convey traffic across open excavations shall be kept to a minimum. Steel plates shall be secured in an appropriate manner to prevent them from moving. The purpose of this requirement is to minimize the sound to the residents, institutions, commercial establishments, etc. The Owner reserves the right, at no additional cost to the Owner, to require the Contractor to complete certain operations and street re-paving so steel plates are not required.

The use of heavy steel plates during should be keep to a minimum. The Contractor shall place traffic cones behind the curb or other visible location to help identify the beginning and

termination of the steel plates. Special precautions shall be taken by the Contractor if steel plates are used during inclement weather. The Contractor shall be responsible for notifying the authority having jurisdiction over the roadway maintenance (snow removal) with the locations of the steel plates prior to each inclement weather event. The Contractor shall maintain the traffic cones and steel plates.

Contractor shall take extra precautions to provide and maintain emergency access on all streets and roads and to all residential, commercial, and other properties for police and fire departments and emergency medical service throughout the construction operations.

Contractor shall maintain the use of existing walks for pedestrians at all times. Additional requirements are specified in the temporary bridge subparagraph in this section.

9. TRAFFIC CONTROL PLAN. To obtain a permit to work within public rights-of-way, Contractor may be required to prepare and submit to the appropriate agencies, a traffic control plan in conformance with the requirements of the authority having jurisdiction thereover.

10. FENCES. All existing fences affected by the Work shall be maintained by Contractor until completion of the Work. Fences which interfere with construction operations shall not be relocated or dismantled until written permission is obtained from the owner of the fence, and the period the fence may be left relocated or dismantled has been agreed upon. A copy of all written permissions shall be submitted to Owner. Where fences must be maintained across the construction easement, adequate gates shall be installed. Gates shall be kept closed and locked at all times when not in use.

On completion of the Work across any tract of land, Contractor shall restore all fences to their original or to a better condition and to their original location.

11. PROTECTION OF PUBLIC AND PRIVATE PROPERTY, DAMAGE TO EXISTING PROPERTY. Contractor shall protect, shore, brace, support, and maintain all underground pipes, conduits, drains, and other underground construction uncovered or otherwise affected by his construction operations. All pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, fences, and other surface structures affected by construction operations, together with all sod, shrubs, trees in yards, parkways, and medians shall be restored to their original or better condition, whether within or outside the easement. Unless otherwise specified, all replacements shall be made with new materials.

Sodded and landscaped areas on improved property (yards) shall be disturbed only to the extent required to permit construction. Such areas shall not be used as storage sites for construction supplies and, insofar as practicable, shall be kept free from stockpiles or excavated materials.

No trees shall be removed outside the permanent easement, except where authorized by Owner. Hand excavation shall be employed as necessary to prevent injury to trees. Trees left standing shall be adequately protected against damage from construction operations.

Contractor shall be responsible for all damage to streets, curbs/gutters, roads, sidewalks, shoulders, ditches, embankments, culverts, bridges, traffic loops and other public or private property, regardless of location or character, which may be caused by transporting

equipment, materials, or workers to or from the Work or any part or site thereof, whether by him or his Subcontractors. Contractor shall make satisfactory and acceptable arrangements with the owner of, or the agency or authority having jurisdiction over, the damaged property concerning its repair or replacement or payment of costs incurred in connection with the damage and shall furnish a written verification of all agreements.

Should the Contractor's operations damage any existing underground or aboveground utility, installation, structure, or other construction, Contractor shall immediately notify the authority owning or having jurisdiction over and control of the utility, installation, structure, or other construction, and make a report of such damage. A copy of the report shall be submitted to the Owner. The damaged item shall be repaired immediately by and at the expense of the Contractor unless otherwise specified or acceptable to the authority or owner having jurisdiction over, or to the Owner.

The utility, installation, structure, or other structures damaged by Contractor's operations shall be repaired, replaced, or otherwise restored in accordance with the local ordinances, standards, and requirements of the applicable authority or owner having jurisdiction thereover and shall be subject to acceptance by the Owner.

Special precaution shall be taken by the Contractor to avoid damage to existing overhead and underground utilities owned and operated by the Owner or other public or private utility companies.

With particular respect to existing underground utilities, all available information concerning their location has been shown on the drawings. While it is believed that the locations shown are reasonably correct, the Owner cannot guarantee the accuracy or adequacy of this information.

Before proceeding with the work, the Contractor shall confer with all public or private companies, agencies, property owners, or departments that own and operate utilities in the vicinity of the construction work. The purpose of this 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, fire protection systems, lawn irrigation systems, etc., that are shown on the plans, arrange for necessary suspensions of service, and make arrangements to locate and avoid interference with all other utilities (including house connections) that are not shown on the plans. The Owner has no objection to the Contractor arranging for said utility companies, agencies, or departments to locate and uncover their own utilities, however, insofar as the Owner is concerned, the Contractor shall bear entire responsibility for locating and avoiding or repairing damage to said existing utilities.

Where existing utilities or other underground structures are encountered, they shall not be displaced or molested unless necessary, and in such case they shall be replaced in as good or better condition than found as quickly as possible. All such utilities that are so damaged or molested shall be replaced at the Contractor's expense unless in the opinion of the Owner such damage was caused through no fault or action of the Contractor.

It is expected that the Contractor will be diligent in its efforts and use every possible means to locate existing utilities. Any claims for unavoidable damage based on improper or unknown locations will be thoroughly examined in the light of the Contractor's efforts to locate the said utilities or obstructions prior to beginning.

When construction is completed, the private property owner's facilities and grounds shall be restored to as good or better condition than found and as quickly as possible at the Contractor's expense.

All water mains and water service connections damaged by Contract's operations will be repaired by the Owner at the expense of the Contractor unless other arrangements are made. Customer irrigation piping damaged by Contractor's operations shall be repaired by and at the cost of the Contractor.

All fire hydrants and water control valves shall be kept free from obstruction and available for use at all times.

12. TREE AND PLANT PROTECTION. Tree and plant protection is of prime importance. Except where otherwise authorized, indicated, or specified, no trees or plants shall be removed. Activities near trees that are to be protected shall be kept to a minimum. Tree protection shall also include trimming, when necessary, to prevent damage by construction equipment.

Trees and plants to be removed shall be removed in such a manner as to avoid injury to surrounding trees and plants. Contractor shall be responsible for disposal of all trees and plants removed or damaged.

13. HAUL ROUTES. Contractor shall obtain and pay for all necessary permits from the applicable authority having jurisdiction thereover to allow use of public streets to transport equipment and material to and from the Site. At such time the Contractor shall request the agency having jurisdiction to establish the haul routes. A copy of the permit and designated haul routes shall be provided to the Owner prior to commencement of Work in that area.

14. PARKING. Contractor shall provide and maintain suitable parking areas for the use of all construction workers and others performing work or furnishing services in connection with the Project, as required to avoid any need for parking personal vehicles where they may interfere with public traffic, Owner's operations, or construction activities.

Contractor shall clean up all parking areas used and return them to their original state.

The location of the Contractor's parking areas shall be acceptable to Owner, and the owner and tenant of private property or to the authority having jurisdiction over public property upon which the parking area will be located.

15. RESIDENTIAL PARKING. Contractor shall provide appropriate areas for residents to park their vehicles during the construction operations adjacent to their properties, if required. This shall include making the appropriate areas available to the residents by not storing construction materials or equipment in these areas and providing signs and other notification methods acceptable to the Owner for instructing the residents on the location of the temporary parking and its intended use.

Additional requirements for notifying property owners and tenants of available temporary parking are covered in the project requirements section.

16. ACCESS ROADS. Contractor shall establish and maintain temporary access roads to various parts of the Site as required to complete the Project. Such roads shall be available for the use of all others performing work or furnishing services in connection with the Project.

17. NOISE CONTROL. Contractor shall take reasonable measures to avoid unnecessary noise. Such measures shall be appropriate for the normal ambient sound levels in the area during working hours. All construction machinery and vehicles shall be equipped with practical sound-muffling devices, and operated in a manner to cause the least noise consistent with efficient performance of the Work.

During construction activities on or adjacent to occupied buildings, and when appropriate, Contractor shall erect screens or barriers effective in reducing noise in the building and shall conduct his operations to avoid unnecessary noise which might interfere with the activities of building occupants.

18. DUST CONTROL. Contractor shall take reasonable measures to prevent unnecessary dust. Earth surfaces subject to dusting shall be kept moist with water or by application of a chemical dust suppressant. When practicable, dusty materials in piles or in transit shall be covered to prevent blowing dust.

Buildings or operating facilities, which may be affected adversely by dust, shall be adequately protected from dust. Existing or new machinery, motors, instrument panels, or similar equipment shall be protected by suitable dust screens. Proper ventilation shall be included with dust screens.

19. STORM WATER EROSION AND PREVENTION. The following is to be used as a guideline in conjunction with the plans for temporary drainage provisions, erosion control and pollution control as required by a Sanitation District #1 Permit and Kentucky Pollution Discharge Elimination System (KPDES). Reference "Kentucky Best Management Practices for Controlling Erosion, Sediment, and Pollutant Runoff from Construction Sites" and the "Northern Kentucky Sanitation District No. 1 Storm Water Permitting Guide".

19.01. GRADING PERMIT, NOTICE of INTENT and NOTICE of TERMINATION. The owner will be responsible for acquiring a Grading Permit from Sanitation District #1 and filing a Notice of Intent/Notice of Termination with the KPDES. A Grading Permit is necessary when the square footage of the pervious and impervious areas are equal to or greater than one acre.

A. Projects less than one acre:

- Best Management Practices that are shown on the plans and specifications are a minimum. Contractors are responsible for providing the minimum, and, if necessary will provide additional BMP's to satisfy the situation and the regulating authority.

B. Projects greater than one acre:

- Best Management Practices that are shown on the plans and specifications are a minimum. Contractors are responsible for providing the minimum, and, if necessary will provide additional BMP's to satisfy the situation and the regulating authority.

- Sanitation District #1 must be contacted at least 72 hours prior to any construction activity. (Andy Amen @ 859-578-6880)
- Site stabilization shall begin within 14 days where construction activity has permanently ceased.
- Site stabilization shall begin within 21 days where construction activity has temporarily ceased.
- BMP'S shall be checked a minimum of every 7 days and within 24 hours after a 0.5" rainfall. Contractor shall keep a maintenance log book that records the date, weather event, reason for inspection and signature. The maintenance log book shall be turned over to the Owner at the end of the project.

19.02. TEMPORARY DRAINAGE PROVISIONS. Contractor shall provide for the drainage of storm water and such water as may be applied or discharged on the Site in performance of the Work. Drainage facilities shall be adequate to prevent damage to the Work, the Site, and adjacent property.

Existing drainage channels and conduits shall be cleaned, enlarged, or supplemented as necessary to carry all increased runoff attributable to Contractor's operations. Dikes shall be constructed as necessary to divert increased runoff from entering adjacent property (except in natural channels), to protect Owner's facilities and the Work, and to direct water to drainage channels or conduits. Ponding shall be provided as necessary to prevent downstream flooding.

19.03. EROSION CONTROL. Contractor shall prevent erosion of soil on the Site and adjacent property resulting from it's construction activities. Effective measures shall be initiated prior to the commencement of clearing, grading, excavation, or other operation that will disturb the natural protection.

Work shall be scheduled to expose areas subject to erosion for the shortest possible time, and natural vegetation shall be preserved to the greatest extent practicable. Temporary storage and construction buildings shall be located, and construction traffic routed, to minimize erosion. Temporary fast-growing vegetation or other suitable ground cover shall be provided as necessary to control runoff.

20. POLLUTION CONTROL. Contractor shall prevent the pollution of drains and watercourses by sanitary wastes, sediment, debris, and other substances resulting from construction activities. No sanitary wastes will be permitted to enter any drain or watercourse other than sanitary sewers. No sediment, debris, or other substance will be permitted to enter sanitary sewers, and reasonable measures shall be taken to prevent such materials from entering any drain or watercourse.

21. CUSTOMER NOTIFICATION. The Contractor after approval by the Owner's representative shall notify all affected Owner customers a minimum of 48 hours prior to interrupting water service. Notification shall be made by the Contractor using the Northern Kentucky Water District "Interruption of Service Notice". All Owner customers shall be notified prior to having their water turned-off to have ample time to draw water for use until service is restored. Under no circumstance shall a customer of the Owner be without water service overnight. If water service



or existing water system cannot be interrupted during normal daytime hours due to water needs or high demands, the contractor may be required to conduct the work at night or on the weekend. This work is considered an incidental to the project.

It is the Contractor's responsibility to post "No Parking" signs twenty-four (24) hours in advance of starting work in designated parking zones. Said signs shall be removed upon completion of work. Signs shall not be left posted over weekends or holidays.

22. UNSAFE CONDITIONS. The Owner reserves the right to take whatever action necessary to correct an unsafe condition created by the Contractor at the Contractor's expense.

23. SECURITY. CONTRACTOR shall be responsible for protection of the Site, and all the Work, materials, equipment, and existing facilities thereon, against vandals and other unauthorized persons.

No Claim shall be made against OWNER by reason of any act of an employee or trespasser, and CONTRACTOR shall make good all damage to OWNER's property resulting from CONTRACTOR's failure to provide security measures as specified. Security measures shall be at least equal to those usually provided by OWNER to protect OWNER's existing facilities during normal operation, but shall also include such additional security fencing, barricades, lighting, and other measures as required to protect the Site.

24. STREAM CROSSINGS. The following is reprint of the requirements and conditions for blue line stream crossings which shall be followed:

**SECTION 401 WATER QUALITY CERTIFICATION  
CONDITIONS FOR NATIONWIDE PERMIT NO. 12  
WITHIN THE COMMONWEALTH OF KENTUCKY**

**General Certification -Nationwide Permit #12 - Utility Line Backfill and Bedding**

This General Certification is issued March 19, 2007, in conformity with the requirements of Section 401 of the Clean Water Act of 1977, as amended (33USC 1314), as well as Kentucky Statute KRS 224.16-070.

The Commonwealth of Kentucky hereby certifies under Section 401 of the Clean Water Act (CWA) that it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 5, established pursuant to Sections 301, 302, 304, 306 and 307 of the CWA, will not be violated for the activity covered under 33 CFR Part 330 Appendix A(B) (12), namely utility line backfill and bedding provided that the following conditions are met:

1. This general Water Quality Certification is limited to the crossing of streams by utility lines. The length of a single utility crossing shall not exceed twice the width of the stream. This document does not authorize the installation

of utility lines in a linear manner within the stream channel or below the top of the stream bank.

2. The provisions of 401 KAR 5:005 Section 8 are hereby incorporated into this General Water Quality Certification. Namely, "Sewer lines shall be located at least 50 feet away from a stream which appears as a blue line on a USGS 7 ½ minute topographic map except where the sewer alignment crosses the stream. The distance shall be measured from the top of the stream bank. The cabinet may allow construction within the 50' buffer if adequate methods are used to prevent soil from entering the stream.

Gravity sewer lines and force mains that cross streams shall be constructed by methods that maintain normal stream flow and allow for a dry excavation. Water pumped from the excavation shall be contained and allowed to settle prior to re-entering the stream. Excavation equipment and vehicles shall operate outside of the flowing portion of the stream. Spoil material from the sewer line excavation shall not be allowed to enter the flowing portion of the stream." The provisions of this condition shall apply to all types of utility line stream crossings.

3. Removal of riparian vegetation in the utility line right-of-way shall be limited to that necessary for equipment access. Effective erosion and sedimentation control measures must be employed at all times during the project to prevent degradation of waters of the Commonwealth. Site regarding and reseeded will be accomplished within 14 days after disturbance.
4. Utility line construction projects through jurisdictional wetlands shall not result in conversion of the area to non-wetland status.
5. This General Certification shall not apply to those waters of the Commonwealth identified as Outstanding Resource Waters, Exceptional Waters or Cold Water Aquatic Habitat Waters, as designated by the Division of Water. An individual Water Quality Certification will be required for projects in these waters.

Non-compliance with the conditions of this general certification or violation of Kentucky state water quality standards may result in civil penalties.

This General Certification is issued March 19, 2007, (expires 5 years from this date) in conformity with the requirements of Section 401 of the Clean Water Act of 1977, as amended (33USC 1314), as well as Kentucky Statute KRS 224.16-070.

**For additional information contact: Kentucky Division of Water, Water Quality Branch, 14 Reilly Road, Frankfort, Ky 40601 Phone (502)564-3410 Fax (502)564-4245**

### **NATIONWIDE PERMIT CONDITIONS**

**GENERAL CONDITIONS:** The Following general conditions must be followed in order for any authorization by a NWP to be valid:

**1. Navigation.** No activity may cause more than a minimal adverse effect on navigation.

**2. Proper maintenance.** Any structure of fill authorized shall be properly maintained, including maintenance to ensure public safety.

**3. Erosion and siltation controls.** Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date.

**4. Aquatic life movements.** No activity may substantially disrupt the movement of those species of aquatic life indigenous to the water body, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water.

**5. Equipment.** Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.

**6. Regional and case-by-case conditions.** The activity must comply with any regional conditions which may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state or tribe in its section 401 water quality certification.

**7. Wild and Scenic rivers.** No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designed by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status; unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely effect the Wild and Scenic River designation, or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service.)

**8. Tribal rights.** No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

**9. Water quality certification.** In certain states, an individual Section 401 water quality certification must be obtained or waived (see CFR 330.4(c)).

**10. Endangered Species.**

a. No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or critical habitat might be affected or is in the vicinity of the project, and shall not begin work on the activity until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized.

b. Authorization of an activity by a nationwide permit does not authorize the take of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with incidental take provisions, etc.) from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, both lethal and non-lethal takes of protected species are in violation of the Endangered Species Act. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. Fish and Wildlife Service and National Marine Fisheries Service or their world web pages at <http://www.fws.gov/~r9eendspp/html> and [http://kingfish.spp.mnfs.gov/tmccintyr/prot\\_res.html#ES](http://kingfish.spp.mnfs.gov/tmccintyr/prot_res.html#ES) and Recovery, respectively.

**11. Historic properties.** No activity which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the DE has complied with the provisions of 33 CFR Part 325, Appendix C. The prospective permittee must notify the District Engineer if the authorized activity may affect historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see 33 CFR 330.4(g)).

**12. Compliance certification.** Every permittee who has received a Nationwide permit verification from the Corps will submit a signed certification regarding the completed work and any required mitigation. The certification will be forwarded by the Corps with the authorization letter and will include: a.) A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions; b.) A statement that any required mitigation was completed in accordance with the permit conditions; c.) The signature of the permittee certifying the completion of the work and mitigation.

**13. Multiple use of Nationwide permits.** In any case where any NWP number 12 through 40 is combined with any other NWP number 12 through 40, as part of a single and complete project, the permittee must notify the District Engineer in accordance with paragraphs a, b, and c on the Notification General Condition number 13. Any NWP number 1 through 11 may be combined with any other NWP without notification to the Corps, unless notification is otherwise required by the terms of the NWPs. As provided at 33 CFR 330.6 © two or more different NWPs can be combined to authorize a single and complete project. However, the same NWP cannot be used more than once for a single and complete project.

#### **SECTION 404 ONLY CONDITIONS:**

In addition to the General Conditions, the following conditions apply only to activities that involve the discharge of dredged or fill material into waters of the U.S., and must be followed in order for authorization by the NWPs to be valid:

**1. Water supply intakes.** No discharge of dredged or fill material may occur in the proximity of a public water supply intake except where the discharge is for repair of the public water supply intake structures or adjacent bank stabilization.

**2. Shellfish production.** No discharge or dredged or fill material may occur in areas of concentrated shellfish production shellfish production, unless the discharge is directly related to a shellfish harvesting activity authorized by NWP 4.

**3. Suitable material.** No discharge of dredged or fill material may consist of unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.,) and material discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

**4. Mitigation.** Discharges of dredged or fill material into waters of the United States must be minimized or avoided to the maximum extent practicable at the project site (i.e., on-site), unless the District Engineer approves a compensation plan that the District Engineer determines is more beneficial to the environment than on-site minimization or avoidance measures.

**5. Spawning areas.** Discharge in spawning areas during spawning seasons must be avoided to the maximum extent practicable.

**6. Obstruction of high flows.** To the maximum extent practicable, discharges must not permanently restrict or impede the passage of normal or expected high flows or cause the relocation of the water (unless the primary purpose of the fill is to impound waters).

**7. Adverse effects from impoundments.** If the discharge creates an impoundment of water, adverse effects on the aquatic system caused by the accelerated passage of water and /or the restriction of its flow shall be minimized to the maximum extent practicable.

**8. Waterfowl breeding areas.** Discharges into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

**9. Removal of temporary fills.** Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

#### **TERMS FOR NATIONWIDE PERMIT NO. 12**

*Utility Line Discharges.* Discharges of dredged or fill material associated with excavation, backfill or bedding for utility lines, including outfall and intake structures, provided there is no change in pre-construction contours. A "utility line" is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquefiable, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone and telegraph messages, and rapid and television communication. The term "utility line" does not include activities which drain water of the United States, such as drainage tile, however, it does apply to pipes conveying drainage from another area. This NWP authorizes mechanized landclearing necessary for the installation of utility lines,

including overhead utility lines, provided the cleared area is kept to the minimum necessary and pre-construction contours are maintained. However, access roads, temporary or permanent, or foundations associated with overhead utility lines are not authorized by this NWP. Material resulting from trench excavation may be temporarily sidecast (up to three months) into waters of the United States, provided that the material is not placed in such a manner that it is dispersed by currents or other forces. The DE may extend the period of temporary side-casting not to exceed a total of 180 days, where appropriate. The area of waters of the United States that is disturbed must be limited to the minimum necessary to construct the utility line. In wetlands, the top 6" to 12" of the trench should generally be backfilled with topsoil from the trench. Excess material must be removed to upland areas immediately upon completion of construction. Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line. (See 33 CFR Part 322).

Notification: The permittee must notify the district engineer in accordance with the "Notification" general condition, if any of the following criteria are met:

- a. Mechanized land clearing in a forested wetland;
- b. A Section 10 permit is required for the utility line;
- c. The utility line in waters of the United States exceeds 500 feet; or,
- d. The utility line is placed within a jurisdictional area (i.e., a water of the United States), and it runs parallel to a streambed that is within that jurisdictional area. (Sections 10 and 404)

End of Section

## Section 01505

### TEMPORARY SERVICES

1. **TEMPORARY SERVICE PLAN.** The Contractor shall furnish the District a detailed plan for installation and connection of temporary pipes necessary to maintain continuous water service to the District's customers while water mains are out-of-service. This plan shall be submitted to the District a minimum of two weeks prior to beginning any construction of this project. This plan must show, in detail, all 2-inch and larger service connections, size and material specifications of temporary pipes to be used, location of feed for temporary pipes, and the approximate location of the temporary pipes with respect to the roadways and sidewalks. This plan will be reviewed by the District as well as the local fire departments to insure adequate supply for domestic services and fire protection. Any alterations required by the District to the submitted plan to conform to the requirements of these specifications will be accomplished as a part of the lump sum proposal.

Customers shall be supplied by a temporary water system for a maximum of 30 calendar days, unless agreed otherwise by the District.

2. **TEMPORARY WATER MAIN BREAK.** In the event that the temporary water main fails, the Contractor shall respond to the water main break within 1 hour from the time the Owner notifies the Contractor verbally or in writing. Failure to comply may result in Owner correcting damaged work.

3. **WATER MAIN FLUSHING CONNECTIONS.** On any water main that becomes temporarily dead-ended as a result of this work, the contractor shall furnish a flushing connection at the dead-end. It is suggested that a jumper hose be installed in the inlet side of the last existing service before the dead end. Fire hydrants may be used for this purpose if available. This cost is incidental to the project cost.

4. **SIZE OF TEMPORARY PIPES.** Contractor's temporary pipes shall be sufficient to maintain continuous water supply to all domestic and fire services during the cleaning and lining operation. Water mains, domestic services, and fire services that are to be temporarily served must be connected with temporary pipe at least equal in size to the existing water main or service line, up to six-inch. Water mains, domestic services, and fire services greater than six-inch shall be supplied by six-inch temporary pipe.

5. **INSTALLATION OF TEMPORARY PIPES.** The Contractor shall furnish, install, and maintain all temporary pipe and other appurtenances for customers during the water main cleaning and lining operations. The Contractor shall perform all connecting and disconnecting of the temporary pipe to customers' services.

All temporary service pipes crossing streets, driveways, and/or wheelchair ramps must be buried or use ramps to prevent a traffic/pedestrian hazard. Temporary pipe that is buried shall be covered with a rubber ramp or bituminous asphalt cold patch, compacted by a roller or a mechanical compaction device, provided by the Contractor. When rubber ramps are used the Contractor shall be responsible for the maintenance of the temporary ramping method and repairing any damages.

Plastic temporary piping will be allowed if properly placed so as to prevent its damage by traffic. All temporary sidewalk crossings must be painted with orange fluorescent paint with a flashing light barricade maintained by the Contractor.

Temporary piping longer than 750 linear feet must have a supply at each end, unless additional length is approved by the District. Temporary piping must have a main shut-off valve at least every 500 ft. All piping will be looped together when possible.

6. CONNECTION IN METER BOX. On all service lines 2-inch or less in diameter requiring temporary service connections, the meter will be removed and temporary water may be connected into a tee built with water meter end fittings that can be placed within the meter setter and tightened to prevent leaking. An alternate connection method may be used if approved by the District. Refer to the District's standard drawings for a typical meter setting detail.

All existing services are to be connected to the temporary piping in the meter box whether or not an occupied structure exists at the service location. The District will make available to the Contractor a list of services within the scope of this project showing size and approximate location.

All temporary connections at meter boxes must utilize a vault lid with a cutout and securely placed on the meter box. These lids will be furnished to the Contractor at the Districts' Warehouse. All service connection hoses must be cut to fit the service with no more than 5-foot excess length over the direct distance from the service to the temporary main.

All meters that are removed shall be tagged with the customers address and returned to the Districts' Warehouse.

7. CONNECTION AT FIRE HYDRANTS. All temporary bypass piping attached to fire hydrants shall be connected in such a manner that in an emergency the fire hydrant can be used for fire fighting purposes. Such connections to fire hydrants will require a temporary hydrant outlet compatible with District threads (2 ½" outlet = Old Cincinnati thread (3.095 x 6), 4 ½" outlet = NST) for each fire hydrant outlet used.

8. BURIED CONNECTIONS. When necessary the Contractor shall make below ground taps for temporary pipe connections where fire hydrants cannot be used or are not available.

9. PROTECTION OF SERVICE LINES. During the time the service line between the water main and the meter box is out-of-service, the Contractor shall protect the service line from contamination and remove any debris or blockages resulting from the Work.

10. TEMPORARY PIPE MATERIAL. All temporary pipe material shall have been approved for potable water use by the Kentucky Natural Resources and Environmental Protection Cabinet (NREP). The pipe, hoses and other materials, which are to be furnished by the Contractor for use as temporary service pipe shall be clean, water-tight and fully adequate to withstand existing pressures and all other conditions of use and shall be approved by the District.

Plastic temporary piping that is approved by NSF Standard 61 and NREP and is rated for a minimum 150 psi working pressure will be allowed if properly placed so as to prevent its damage by traffic.



11. DISINFECTION OF TEMPORARY PIPE. Contractor must disinfect all temporary pipe after the pipe is in place and before connections are made to customer meters. Care shall be exercised throughout the installation of all temporary pipe and service fittings to avoid contamination of any mains or house services or contamination of the temporary pipe. Each section of temporary pipe must be disinfected as specified in the District's Disinfection of Water Mains and Temporary Services section prior to being placed into service. All temporary service pipe must be flushed before being hooked to meters.

12. OPERATION OF TEMPORARY PIPES. The Contractor shall maintain the temporary water pipe in safe and operative condition at all times. The Owner shall be responsible for measuring and recording the chlorine level of the water in the temporary pipes during the time the pipe is in service. Residual chlorine concentration shall be measured at least twice per week at intervals of not greater than 750 feet along the temporary pipe. If measured concentration at a sample location is less than 0.5 mg/l, the Contractor shall flush the temporary pipe with water from the District's water system until the residual chlorine concentration level is within +/-10% of the chlorine concentration in the District's water supply or to a level that is acceptable to the Owner.

13. FINAL RECONNECTION OF SERVICE. When Contractor is preparing to make the final reconnection to the customer's service line, Contractor shall acquire new meters from the District. Contractor shall completely fill out all information on a data card attached to each meter. These cards shall be returned to the District's inspector.

14. REMOVAL OF TEMPORARY PIPE. Upon restoring to service water mains the Contractor shall remove any corresponding section of temporary pipes and shall leave the streets, sidewalks and adjacent property in a neat and orderly condition and in every respect equal to if not better than their original condition.

15. PAYMENT. Payment for all work covered under this section and all costs in connection therewith shall be included and paid as a lump sum in the cost proposal.

End of Section

Section 01600

TECHNICAL PROVISIONS

1. **WATER LINES**

A. **General**

The Contractor shall furnish all labor, materials, and equipment to install the water lines and appurtenances as shown on the plans and specifications. Construction shall be in accordance with the District's Standard Specifications & Drawings for the Installation of Water Mains. The Contractor is responsible for obtaining a current copy of the Standards from the District which may be obtained from the website at [www.nkywater.org](http://www.nkywater.org) or by contacting Denise Manning at (859) 426-2718.

The Contractor shall be responsible for videotaping the entire project prior to the start of construction. The video shall show driveway crossings, drainage ditches, problem areas, lay of the land, etc. One copy shall be forwarded to the District. Pictures of specific areas are recommended.

All private residents shall be notified no less than 48 hours and all businesses, industrial and commercial customers shall be notified no less than 1 week prior to the interruption of service. All shutdowns shall be coordinated with the affected residents, with priority given to any special needs customers such as hospitals, schools, and customers with special medical needs.

The water lines shall be Class 50 or 52 Ductile Iron Pipe, C900 or C909 P.V.C. Pipe as specified on the Work Order.

The District will secure right-of-way permits as needed.

Unless otherwise specified all pipe fittings, valves, fire hydrants and accessories shall be rated for a minimum of 250 psi working pressure and material as specified herein or shown on the proposal. The pipe and accessories shall be new and unused. The interior of the pipe shall be thoroughly cleaned of foreign matter before being lowered into the trench and shall be kept clean during laying operations by plugging. The full length of each section of pipe shall rest upon the pipe bed with recessed excavation to accommodate bells and joints. Any pipe that has the grade or joint disturbed after laying, shall be taken up and re-laid.

Trench backfill shall be rough graded with ditch lines established and maintained within 500 feet for rural areas and 250 feet for urban areas for actual installation of main unless otherwise directed by the District. Individual roadways shall be completed (final grade established, preparation of the seed bed, and all concrete and asphalt restoration completed) prior to the start of additional roadways unless otherwise approved by the District. Temporary roadway and driveway access shall be maintained during construction.

Pipe shall not be laid in water or when trench or weather conditions are unsuitable for the work, except by permission from the District. When work is not in progress, open ends of pipe and fittings shall be plugged with a watertight plug. Any section of pipe found to be defective before and after laying shall be replaced with sound pipe without additional expense to the District. Fittings at bends in the pipe shall be firmly wedged with concrete block as indicated on the plans against the vertical face of the trench to prevent the fittings from being blown off the lines when under pressure.

**SEWER MAIN SEPARATION.** A 10' minimum lateral separation between water mains and sewers (defined as any sanitary/combined sewer, septic tank or subsoil treatment system) and sewer manholes, measured from the outside diameter to outside diameter, must be maintained. When a 10' separation is not practical then a variance may be obtained from DOW to maintain an 18" vertical and 18" lateral separation. No variances will be permitted for force mains.

**SEWER MAIN CROSSING.** Waterlines crossing under or over sewers lines (defined as any sanitary/combined sewer, septic tank or subsoil treatment system) must maintain a minimum vertical clearance of 18" and one full length of pipe shall be located so both joints are as far from the sewer as possible. Special Structural support for the water and sewer pipes may be required.

**SEWER LATERALS.** Sewer laterals (sewer lines that run between the sewer main and the house or other structure) are owned and maintained by the property owner. Since the sewer lateral is privately owned, locating these lines is very difficult. The Contractor is responsible for locating sewer laterals and shall use care when working near them. The Contractor shall be responsible for any and all damage to a sewer lateral in the area of their work. In the event of a sewer lateral is damaged, the contractor shall immediately notify Sanitation District #1 and follow all of their procedures for repair and inspection of the repair.

**ORGANIC CONTAMINATION.** Mains installed within 200 feet of petroleum tanks and other areas of organic contamination must be ductile iron pipe.

**B. Hauling and Storage**

The Contractor shall notify the District when pipe will be received on the job so that proper arrangements may be made for inspecting the unloading and stringing, as well as inspecting and examining the pipe materials.

The Contractor shall be required to deliver all equipment and other materials and place same as and where required for installation. Care must be exercised in the handling of all materials and equipment. The Contractor will be held responsible for all breakage or damage to same caused by his workman, agents, or appliances for handling and moving. Pipes and other castings shall in no case be thrown or dropped from cars, trucks, or wagons to the ground, but same shall be lowered gently and not allowed to roll against or strike other castings and unyielding objects violently. Pipe and other castings may be unloaded, yarded, and distributed at places that will not interfere with other building operations as the Contractor may elect.

Valves, castings, and other materials shall be yarded or housed in same convenient location by the Contractor. The cost of all hauling, handling, and storage shall be included in the bid prices for this project. The District takes no risk or responsibility for fire, flood, theft, or damage until after final acceptance of work.

## 2. WATER MAIN PIPE

### A. Ductile Iron Pipe. Ductile iron pipe shall meet the requirements of ANSI A21.51 (AWWA C151)

1. Material. The chemical constituents shall meet the physical property recommendations of ASTM A536 to ensure that the iron is suitable for satisfactory drilling and cutting.
2. Minimum Thickness. Unless otherwise shown on the plans, the minimum thickness of the barrel of the pipe shall be Class 50. All pipe shall be clearly marked as to class by the manufacturer.
3. Coating and Lining. The pipe shall be coated outside with a bituminous coating in accordance with ANSI A 21.51 (AWWA C151) and lined inside with cement mortar and seal coated in accordance with ANSI A21.4 (AWWA- C104).
4. Fittings & Glands. Fittings and glands shall be ductile iron as specified in Section 3A, "Ductile Iron Fittings".
5. Polyethylene Encasement. Ductile Iron Pipe shall be encased with Polyethylene film conforming to ANSI A21.5 (AWWA C105)
6. Tracing Wire. All pipe shall be installed with a 12 gauge solid copper (P.V.C coated) tracing wire taped to the top of the pipe every 5'. Maximum tracing wire length shall be 500' without terminating in a curb stop box. Water main installations that stop short of the permanent fire hydrant tee, the tracing wire shall be terminated in a curb stop box. Splices in the tracing wire shall be kept to minimum and approved by the District. If splices are required, they shall be made with copper split bolt (IlSCO #IK-8 or approved equal) and taped with electrical tape. Should the new pipe be fitted to an existing pipe without a tracing wire, the tracing wire shall be terminated in a curb stop box at the point where the transition is made. Curb stop boxes shall not be located in pavement.

### B. Polyvinyl Chloride Pipe (P.V.C.). P.V.C. Pipe shall meet the requirements of AWWA C900 and as specified in the Work Order.

1. Material. P.V.C. pipe shall be made from class 12454-A or class 1245-B virgin compounds as defined in ASTM D1784. All compounds shall qualify for a rating of 4000 psi for water at 73.4 degree F. per the requirements of PPI TR3.
2. Minimum Pressure Class. Unless otherwise shown, the minimum pressure class of 150 psi, D.R. 18 shall be used. All pipe shall be clearly marked as to class by the manufacturer.

3. **Beveled Spigot.** Beveled spigot ends must have a minimum bevel of 8 degrees to a maximum bevel of 15 degrees. The vertical face of the spigot end may not exceed 75% of pipe wall thickness and the horizontal length of the bevel shall not exceed 1.25 inches. Field beveled spigot end shall be made per manufacturers recommendation and as approved by the District. The degree of bevel shall be approved for the type of pipe being installed.
4. **P.V.C. Tracing Wire.** All P.V.C. pipe shall be installed with a 12 gauge solid copper (P.V.C coated) tracing wire taped to the top of the pipe every 5'. **Maximum** tracing wire length shall be 500' without terminating in a curb stop box. Water main installations that stop short of the permanent fire hydrant tee, the tracing wire shall be terminated in a curb stop box. Splices in the tracing wire shall be kept to minimum and approved by the District. If splices are required, they shall be made with copper split bolt (Ilsco #IK-8 or approved equal) and taped with electrical tape. Curb stop boxes shall not be located in pavement.
5. Transition between D.I.P. and P.V.C. pipe shall be made with some type of ductile iron fitting.
6. **P.V.C. Pipe Shipping, Handling & Storage.** The front end of all pipe delivered by truck shall be covered for protection against exhaust fumes. P.V.C. pipe shall be protected from exposure to sunlight according to manufacturer's recommendations. Pipe will not be accepted for installation if discoloration is evident due to sunlight or other exposure. Pipe shall be stored in such a manner to prevent beaming the pipe.
7. **Fittings & Glands.** Fittings and glands shall be ductile iron as specified in Section 3A, "Ductile Iron Fittings". Ductile Iron Fittings shall be encased with Polyethylene film conforming to ANSI A21.5 (AWWA C105)

**C. Pipe Joints**

1. **Push on and Mechanical.** Push-on and mechanical joints including accessories shall conform to ANSI A21.11 (AWWA-C111). Bolts shall be high strength COR-10 tee head with hex nuts. The maximum deflection at push-on joints and/or mechanical joints shall be 5 degrees or as recommended by the Manufacturer. Spigot bell and joints shall conform to current AWWA Standards.
2. **Flanged.** Flanged joints shall meet the requirements of ANSI A21.15 (AWWA C115) or ANSI B16.1
  - a. ***Gaskets*** - All flanged joints shall be furnished with 1/16 inch thick full face red rubber.
  - b. ***Bolts*** - Bolts shall have American Standard heavy unfinished hexagonal head and nut dimensions all a specified in ANSI B18.2. For bolts of 1-3/4 inches in diameter and larger, bolt studs with a nut on each end are recommended. Material for bolts and nuts shall conform to ASTM A307, Grade B.

3. **Internal Restrained.** If an internal restrained joint system is required on the plans, all pipes, bends, tees, etc. shall be restrained push-on joint pipe and fittings utilizing ductile iron components. Restrained joint pipe shall be ductile iron manufactured in accordance with the requirements of ANSI/AWWA C151/A21.51. Push-on joints for pipe shall be in accordance with ANSI/AWWA C111/A21.11 "Rubber-Gasket Joints for Ductile-Iron Pipe and Fittings." Pipe thickness shall be designed in accordance with ANSI/AWWA C150/A21.50 "Thickness Design of Ductile-Iron Pressure Pipe," and shall be based on laying conditions and internal pressures as stated in the project plans and specifications. All restrained joint pipe and fittings shall be boltless, flexible and capable of deflection after installation. Restrained joint pipe and fittings shall be U.S. Pipe's TR FLEX restrained joint system, American's Flex-Ring or pre-approved equal. Restraint of field cut pipe shall be provided with U.S. Pipe's TR FLEX GRIPPER® Ring, TR FLEX Pipe field weldments or pre-approved equal. Method of restraining and laying schedule shall be approved by the District prior to the start of the project. Manufacturer installation instructions shall be followed. Restrained joints shall be capable of withstanding a maximum joint pressure of 250 psi. unless otherwise noted.

**Mechanical joints with retainer gland and Field Lok® gaskets are not acceptable unless otherwise specified (note: exception for valves).**

4. **Restrained.** If a restrained joint system is required on the plans, all pipes, bends, tees, etc. shall be restrained with an approved system.
- a. The Field Lok®, Field Lok 350®, Fast-Grip®, or approved equal pipe gaskets shall develop a wedging action between pairs of high-strength stainless steel elements spaced around the gasket and shall meet the material requirements of ANSI/AWWA C111/A21.11. Restrained joints shall be capable of withstanding a maximum joint pressure of 250 psi. unless otherwise noted.
  - b. The Megalug Series 1100®, MJ Field Lok® or approved equal restraint devices shall consist of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of ANSI/AWWA C110/A21.10. Gland body, wedges and wedge actuating components shall be cast from 65-45-12 ductile iron. The restraining system shall be rated in accordance with the performance requirements of ANSI/AWWA C111/A21.11 Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings. Restrained joints shall be capable of withstanding a maximum joint pressure of 250 psi. unless otherwise noted.
5. **Bonded Joints.** Ductile Iron Joints and pipe fittings joints shall have approved type bonded joints. All joints shall be electrically bonded to provide electrical continuity across all joints of pipe: all fittings and specials, except where "insulated" flange joints are required or ordered.
- a. On pipe sizes up to and including 16-inch in diameter, one (1) "set" of bonding connectors shall be installed at the top of each pipe/fitting. On pipe sizes 24-inch and larger, two (2) "sets" of bonding connectors shall be installed, one (1) set each at twelve (12) inches clockwise and counterclockwise from the top of each

pipe/fitting joint.

### 3. FITTINGS

A. **Ductile Iron Fittings.** Ductile Iron Compact Fittings and accessories shall conform to AWWA C153 and Full Body Fittings - and accessories to AWWA C110. Bolts and nuts shall be high strength, corrosion resistant alloy, such as "Cor-Ten" or approved equal.

1. **Working Pressures.** All fittings and accessories shall be Ductile Iron, rated for a minimum of 250 psi working pressure or as specified herein. The fittings and accessories shall be new and unused. (NOTE: Certain areas of the District's service area require materials used, to be of a higher working pressure than 200 psi.)

2. **Coating and Lining.** The fittings shall be coated outside with a bituminous coating in accordance with ANSI A21.10 (AWWA C110) and lined inside with cement mortar and seal coated in accordance with ANSI A21.4 (AWWA C104).

3. **Fittings and Glands.** All pipe fittings shall be mechanical joint fittings unless specified elsewhere. Mechanical joints shall conform to AWWA C111.

4. **Polyethylene Encasement.** Ductile Iron Fittings shall be encased with polyethylene film conforming to ANSI A21.5 (AWWA C105)

#### B. Joints

1. **Mechanical.** Mechanical joints including accessories shall conform to ANSI A21.11 (AWWA C111). Glands shall be ductile iron. Bolts shall be high strength COR-10 tee head with hex nuts.

### 4. POLYETHYLENE WRAP

All ductile iron pipe, fittings, valves, and fire hydrant leads shall be polyethylene wrapped, installed according to the current edition of AWWA C105. Ductile iron fittings, valves, and fire hydrant leads used in the installation of P.V.C. pipe shall be included.

A. **Material.** Polyethylene wrap shall be 8-mil thickness low-density film or 4-mil thickness high-density cross-laminated polyethylene tube per AWWA C105 and shall be blue in color.

B. **Color.** Polyethylene wrap shall be blue in color

C. **Installation.** The contractor shall cut the roll in tubes 2 feet longer than a standard length of pipe. Each tube shall be slipped over the length of pipe, centering to allow a one foot overlap on each adjacent pipe section. After the lap is made, slack in the tubing shall be taken up for a snug fit and the overlay shall be secured with polyethylene tape.

Pipe shall not be wrapped and stored on site for any period of time, but wrapped and

immediately placed in the trench, fittings shall be wrapped prior to installing blocking or pads. (see Standard Drawing #104) Polyvinyl chloride pipe requires no wrap. Odd shaped appurtenances such as valves, tees, fittings, and other ferrous metal pipeline appurtenances shall be wrapped by using a flat sheet of polyethylene. Wrapping shall be done by placing the sheet under the appliances and bringing the edges together, folding twice, and taping down.

## 5. FIRE HYDRANTS

- A. **Description.** The Contractor shall provide all labor, materials, tools, and equipment required to furnish and install in good workmanlike manner all fire hydrants complete and ready for service where shown on the plans or where directed by the District and as specified herein.
- B. **Fire Hydrants.** Fire hydrants shall conform to AWWA C502. Hydrants shall conform to the Standards of the Northern Kentucky Water District and as shown on the plans. All fire hydrants shall have auxiliary valves for isolating water flow to the hydrant. All fire hydrants and auxiliary valves shall be positively locked to the water main by restrained joints, hydrant adapters, or other approved method. Hydrants shall be designed to 200 psi working pressure and shall be shop tested to 300 psi hydrostatic pressure with the main valve both open and closed. The barrel shall have a breakable safety section and/or base bolts just above the ground line.

Hydrants shall have a main valve opening of 5 1/4 inches, a 6 inch mechanical joint inlet to be suitable for setting in a trench 3' 6" deep minimum, and shall be the traffic style hydrant so that the main valve remains closed when the barrel is broken off. Hydrants shall have a dry top and shall be self draining, when the main valve is closed. Self draining hydrants shall drain to dry wells provided exclusively for that purpose. Hydrant drains shall not be connected to storm or sanitary sewers. Hydrants located generally in the Covington System and other areas determined by the District (flood zones) shall have all drain holes plugged prior to installation. Hydrants shall be rotatable in a minimum of eight (8) position in 360 degrees. All hydrants shall have two (2)- two and one half (2 1/2) inch hose nozzles and one (1) steamer or pumper connection threaded to conform to Northern Kentucky Water District Standards: steamer nozzle shall be National Standard Thread and 2 1/2" outlets shall be Northern Kentucky Water District Standard Thread (Old Cincinnati Thread). The operating nut and the nuts of the nozzle caps shall be square in shape, measuring one (1) inch from side to side. Hydrant body shall be painted yellow for areas designed for 150 psi working pressure and red for areas in excess of 150 psi.

All hydrants shall be right hand open, clockwise, except in certain areas of Campbell Co. as specified in Standard Drawings and shall have a direction arrow of operation cast into the dome of the hydrant. Installation per Standard Drawing #109.

- C. **Installation.** The installation of fire hydrants shall be in conformance with "Mains Installation" section, paragraph "Setting Hydrants".



- D. **Polyethylene Encasement.** Fire hydrant tee, anchoring pipe and part of the fire hydrant shoe shall be encased with Polyethylene film conforming to ANSI A21.5 (AWWA C105). (See Standard Drawing #109)

6. **VALVES**

- A. **Description.** The Contractor shall provide all labor, materials, tools, and equipment required to furnish and install in good workmanlike manner all valves and accessories complete and ready for service where shown on the plans or where directed by the District and as specified herein.
- B. **Gate Valves.** Gate valves shall conform to AWWA C509 or C515 and shall be ductile body, resilient wedge, non-rising stem with rubber "O" ring packing seals. All external dome and packing bolts shall be stainless steel. The valves shall open by turning counter-clockwise. All valves shall have openings through the body of the same circular area as that of the pipe to which they are attached. Valves shall have mechanical joint ends unless otherwise shown on the plans or directed by the District. All valves shall be designed for a working pressure of 250 pounds per square inch (PSI) unless otherwise noted on the plans or in the "Supplemental Specifications". An extension stem shall be furnished if required, to bring the operating nut within 3-1/2 feet of finished grade. Extension stems shall be securely fastened to the valve stem. The Contractor shall make all valves tight under their working pressures after they have been placed and before the main is placed in operation.
- C. **Tapping Sleeves and Valves.** Tapping sleeves and valves shall be designed for a working pressure of 250 psi. The tapping sleeve together with the tapping valve shall be tested at 250 psi for visible leakage and pressure drop before the main is tapped. Tapping sleeve and valve used in high pressure areas shall be tested at 350 psi.
1. **Tapping Sleeves.** Tapping sleeves shall be two piece with mechanical joint type ends, and be so designed as to assure uniform gasket pressure and permit centering of the sleeve on the pipe.
  2. **Tapping Valves.** Tapping valves shall have a flange on one end for bolting to the tapping sleeve and a mechanical joint type end connection on the outlet with slotted standard flange or other adapters for connection to the tapping machine. All external dome, flange and packing bolts shall be stainless steel. The valves shall open by turning counterclockwise. Tapping valves shall conform to AWWA C509.
- D. **Valve Boxes.** All valves shall be provided with valve boxes. Valve boxes shall be of standard, adjustable, heavy duty cast iron extension type, two piece, 5 1/4 inch shaft, screw type, and of such length as necessary to extend from valve to finished grade, Tyler #562-S, Tyler #564-S or approved equal. Valve box cover shall be stamped "Water". Tops shall be set at final established grade.
- E. **Butterfly Valves.** Unless otherwise specified valves 16 inches and larger shall be butterfly valves rated at 250 psi working pressure and conform to the applicable portions

of AWWA Standard C504, latest edition.

1. **Body.** The valves shall be AWWA Class 250B designed for tight shut-off against a differential pressure of 250 psi. Valve bodies shall be constructed of ductile iron. Two trunnions for shaft bearing shall be integral with the valve body. The valves and appurtenances shall be suitable for buried service.
  2. **Ends.** Valves shall have mechanical joint ends and shall be furnished with high strength COR-10 tee head with hex nuts, ductile iron glands, and rubber gaskets for each mechanical joint end.
  3. **Discs.** Valve discs of cast steel, fabricated steel, or cast bronze are not acceptable.
  4. **Seats.** Seats bonded on the discs are not acceptable.
  5. **Shaft Seals.** If stuffing boxes are utilized for shaft seals they shall be constructed of cast iron, ASTM A126. Gland assemblies shall be of cast bronze, ASTM B132. The packing gland shall be housed in a solid walled cast iron, ASTM A48, Class 40 one piece structure or equal.
  6. **Operators.** The valve operating mechanism shall be for counterclockwise opening. There shall be no external moving parts on valve or operator except the operator input shaft. Input shaft is to be operated by a 2 inch square operating nut. Maximum required input force on the operator shaft to open and close the valve shall be 40 pounds. The total number of turns applied to the operating nut required to completely open the valve from a completely closed position shall not be less than twice the normal valve diameter. An extension stem shall be furnished to bring the operating nut within 3 1/2 feet of the finished grade. Extension stems shall be securely fastened to the valve stem.
- F. **Air Release and Vacuum Valves.** Air release valves shall be constructed at high points in the water line as indicated on the plans. These valves shall permit the air in the pipeline to escape as the pipeline fills and allows the air to re-enter as the line empties. The air relief vent of automatic air release valves, where practical, may be extended to a distance of at least 1 foot above the grade and installed with a screened, downward facing elbow. Manually operated air release valves shall include a camlock-type coupling and waste valve. These valves shall be APCO Air Release Valves Model #200-A or approved equal, 250 psi working pressure. 8" and smaller water mains, tap size and piping shall be 3/4", 12" water main - 1", & 16" and larger water main - 2". Temporary taps of suitable size may be required at certain points on the water main for the release of air for filling and/or flushing purposes. Temporary taps will be removed and plugged after use. Refer to Standard Drawing #106 for reference. Materials for air release valves will be supplied by the District.

## 7. **STEEL CASING PIPE**

Casing pipe shall be steel pipe with a minimum yield strength of 35,000 psi with a minimum wall thickness as listed below:

(NKWD)

01600  
Page 9 of 25

9/30/13

Nominal Diameter Casing Pipe	Normal Wall Thickness	Nominal Diameter Casing Pipe	Normal Wall Thickness
Under 14'	0.251"	26"	0.438"
14" & 16"	0.282"	28" & 30"	0.469"
18"	0.313"	32"	0.501"
20"	0.344"	34" & 36"	0.532"
22"	0.375"	38", 40", & 42"	0.563"
24"	0.407"	48"	0.626"

The inside diameter of the casing pipe shall be at least four (4) inches greater than the outside diameter of the carrier pipe joints. Steel casing sections shall be connected by welding, conforming to AWWA C206.

Adequate manufactured pipe spacers shall be installed to ensure that the carrier pipe is adequately supported in the center of the casing pipe throughout its length, particularly at the ends. There shall not be any metallic contact between the casing and carrier pipe. Manufactured pipe spacers shall be installed per manufacturer's installation requirements. Casings shall have both ends sealed up in such a way as to prevent the entrance of foreign material. See Standard Drawing #114 for installation details.

**8. PIPE, VALVE, HYDRANT PRESSURE REGULATOR PIT AND METER SETTING INSTALLATION**

- A. **Pipe Laying.** Pipe shall be laid with bell ends facing in the direction of laying, unless otherwise directed by the District. After placing a length of pipe in the trench the spigot end shall be centered in the bell and the pipe forced home. All pipe shall be laid with ends abutting and true to line and grade. Deflection of pipe joints in excess of the manufacturer's recommendations will not be permitted. A watertight pipe plug or bulkhead shall be provided and used to prevent the entrance of foreign material whenever pipe laying operations are not in progress.
  
- B. **Pipe Cutting.** The cutting of pipe for installing valves, fittings, or hydrants shall be done in a neat and workmanlike manner without damage to the pipe or lining. The end shall be smooth and at right angles to the axis of the pipe. Flame cutting of metal pipe by means of an oxyacetylene torch shall not be permitted. All pipe cutting shall be at the Contractor's expense.
  
- C. **Push-On Joints.** The surfaces with which the rubber gasket comes in contact shall be thoroughly cleaned just prior to assembly. The gasket shall then be inserted into the groove in the bell. Before starting joint assembly, a liberal coating of special lubricant shall be applied to the spigot end. (Special lubricant shall be suitable for use in potable water) With the spigot end centered in the bell, the spigot end is pushed home. Insertion of spigot into PCV type pipe bell should be inserted until the reference mark is flush with

the end of the bell. Over insertion of the pipe is not recommended per the manufacturer.

- D. **Mechanical Joints.** Mechanical joints for pipe require that the spigot be centrally located in the bell. The surfaces with which the rubber gasket comes in contact shall be thoroughly cleaned just prior to assembly. The clean surfaces shall be brushed with a special lubricant just prior to slipping the gasket over the spigot end and into the bell. (Special lubricant shall be suitable for use in potable water) The lubricant shall also be brushed over the gasket prior to installation to remove the loose dirt and lubricate the gasket as it is forced into its retaining space. P.V.C. pipe spigot ends shall be field cut smooth and at right angles to the axis of the pipe for installation in mechanical joint fittings. Bolt torque shall be per the manufacturer's recommendations.
- E. **Setting Valves.** Valves shall be set on a firm solid concrete block foundation so that no load will be transferred to the connecting pipe. Valves in water mains shall, where possible, be located on the street property lines extended, unless otherwise shown on the plans. A valve box shall be provided for every valve. The valve box shall not transmit shock or stress to the valve and shall be centered and plumb over the operating nut of the valve. The box cover shall be set flush with the surface of the finished pavement unless otherwise shown. All valves boxes with the exception of isolating valves for fire hydrants that are located in non-paved areas shall have a minimum of 2' by 2' by 4" concrete pad as shown in Standard Drawing No. 105, unless a smaller pad is approved by the District.
- F. **Setting Hydrants.** Hydrants shall be located as shown on the plans or as directed by the District. The location shall provide complete accessibility and minimize the possibility of damage from vehicles or injury to pedestrians. All hydrants shall stand plumb with the pumper nozzle facing the curb. Hydrant shall be set to the established grade, with the traffic flange within 4" above final grade in accordance to Standard Drawing No. 109. Each hydrant shall be controlled by an independent gate valve with valve box. All valves used for hydrant control shall be anchored to the branch tee.
- G. **Thrust Blocking.** All bends over five (5) degrees, plugs, caps, and tees shall be securely blocked against movement with concrete thrust blocks placed against undisturbed earth in accordance with Standard Drawing No. 104. All thrust blocks shall be inspected and approved by the District prior to backfilling. Water mains shall have concrete thrust block at all pipe intersections and changes of direction to resist forces acting on the pipeline. All concrete thrust blocks shall be poured in such a manner that the bolts can be replaced without disturbing the blocking.

All caps or plugs used in mains to undergo hydrostatic test shall be properly installed and blocked in advance of testing mains. All caps or plug installations shall be approved by the District representative before the main is subjected to the pressure test.

1. **Concrete Blocking.** Concrete blocking shall be K.D.O.T. Class A concrete as specified in Section "Concrete". Blocking shall be placed between undisturbed ground and the fitting to be anchored. The area of bearing on the fitting and on the ground in each instance shall be that shown herein. The blocking shall, unless otherwise shown, be

so placed that the pipe and fitting joints will be accessible for repair.

2. Tie Rods. If shown or specified, movement shall be prevented by attaching suitable metal rods, clamps or restrained fittings. Steel tie rods or clamps, where permitted, shall be of adequate strength to prevent movement. Steel tie rods or clamps shall be painted with three coats of approved bituminous paint or coal tar enamel. A minimum of 3/4" welded eyebolts @ a 90 degree bend and 3/4" threaded rods may only be used with the approval of the District for temporary restraint only. Duc-Lucs are prohibited for use.
3. Restrained Fittings. Restrained fittings, where permitted, shall be subject to the approval of the District.

#### H. Meter Setting Installation

The Contractor shall furnish all labor, equipment, excavation, backfill, testing, disinfection, and restoration to install the pipe at the locations shown on the plans or as directed, in accordance with the District's Standard Specifications & Drawings, complete and ready for use. No additional payment will be made for rock excavation or for bedding required in rock excavation. It will be the Contractors responsibility to remove and reset the service at his own expense if he fails to notify and receive the approval from the District. Contractors work shall be warranted for a period of one year of the date of activation of each service (meter set date).

1. Inspection & Notification. The Contractor shall notify all affected District customers prior to interrupting water service. The Contractor shall make 48 hours notification. Routine service inspection and final inspections will be made by the District upon request by the Contractor and in a timely manner. The Contractor shall provide the District 24 hours notification for inspection by the District. It is the Contractors responsibility to post "No Parking" signs and safety devices.
2. Materials. The District shall furnish to the Contractor the materials necessary to install the meter setting and water service lines. This shall include: Lid & ring, meter vault, piping, yoke bar, double yoke bar, angle valve, yoke ell, couplings, corporation, tapping saddle, extension ring.

The Contractor shall be responsible for pickup of materials at the District's designated location. The Contractor will be responsible to the District for materials lost, stolen, or damaged while in his possession. The Contractor shall return all unused materials, which includes scrap copper and fittings to the District. Salvaged materials are the property of the District and shall be returned to the District. The materials necessary to do restoration will not be provided under this contract item but shall be obtained from a pre-approved source.

3. Installation of Service Lines. The Contractor shall be familiar with copper piping, fittings and connections, and have available equipment to work with said materials. No sweat type fittings shall be permitted. Service line shall be installed as shown on the plans or as directed by the District. The Contractor shall excavate whatever material

encountered. The service lines shall be installed using boring and jacking or open cut (as specified on the plans) at the depth required to clear existing and proposed sewers, but in no case shall the line be installed with less than 36 inches cover from final grade. The trench width shall be as excavated to a maximum of 2 feet. The line shall be laid on firm soil. In rock, sufficient extra depth shall be excavated and refilled with acceptable compacted soil or bedding sand to provide a cushion for the elimination of the possibility of crushing or perforating the pipe. Connections shall be made using normal practices for water line installation and in accordance with the standards in the plans or contained herein.

- a. *Water Service Taps* – The Contractor shall maintain a minimum of 36" cover over any tap. Tapping Saddles shall not be used with ductile iron or cast iron pipe. The corporation installed into the main shall have no more than 4 threads showing between the top of the water and the bottom of the corporation unless a tapping saddle is used.
- b. *Service Lines* - The Contractor shall maintain a constant cover of 36" over any water line. Methods of pushing or jacking under the existing street must avoid bending or kinking the pipe. No open cuts of the pavement will be permitted unless pre-approved by the District. All copper shall be cut using a copper-tubing cutter. All connections shall be flared connections. No oil base or other contaminating materials will be used in lubricants, caulking and sealers. The Contractor shall be responsible for making all joints watertight.
- c. *Meter Vaults* - All meter vaults shall be located inside existing right-of-ways or water main easements of record or as directed by the District. Typically the meter vault shall sit 5' behind the back edge of curb or edge of pavement. The Contractor shall contact the customer and determine a suitable location of the setting within the above guidelines. It is the Contractor's responsibility to notify the District's Inspector if these conditions cannot be met. The District's Inspector will inspect any questionable meter setting location prior to the Contractor installing.

Meter vaults shall be set to allow the meter cover to be level with the back edge of the existing curb or the back edge of paving along roadways without curbs. It is the Contractor's responsibility to ensure that the meter vault does not settle due to poor compaction or any other reason within the Contractor's control. The Contractor at no additional expense to the District shall adjust any meter vault that sinks below grade due to poor workmanship by the Contractor to grade.

## 9. TRENCH BACKFILL

All trench backfill shall be free from cinders, refuse, organic material, boulders, rocks or other material which in the opinion of the District is unsuitable. No backfill shall be made with frozen material. Lime sand shall not be used for any backfill.

- A. Backfill in Non-Pavement Areas. Trench backfill in areas not directly beneath or near pavements and driveways shall be as specified in this section unless the local authority

(NKWD)

having jurisdiction or the District stipulates additional requirements.

1. **Trench Bottom Preparation.** The pipe shall be bedded on sand to achieve full pipe barrel support. In any event not less than 3" of sand bedding shall be used.
  2. **Backfill to 12" Over Pipe Barrel.** All trench excavations shall be backfilled immediately after pipe is laid with the exception of thrust blocks. Compacted sand or bankrun material shall be used to backfill the trench from the bottom of the pipe barrel to the 12" over the pipe barrel. Backfill material shall be free from cinders, refuse, organic material, boulders, top soil, frozen material, material with a high void content, rocks 1 1/2" or larger measured in any direction, sharp stones and crushed rocks larger than 3/4", or other materials which in the opinion of the District is unsuitable. No flushing of backfill shall be permitted to achieve compaction. Clay bulkheads shall be installed as specified in Section B-5 of Trench Backfill.
  3. **Remaining Trench Backfill.** From 12" above the pipe barrel to the surface, excavated trench material may be used as backfill material or as required by local or county authorities. No material shall be used for backfill that contains frozen earth, vegetable or organic material, debris, rocks 8" or larger measured in any direction, or earth with an exceptionally high void content.
  4. **Compaction.** All backfill shall be placed in uniform loose layers, not to exceed 12" layers, and each layer shall be compacted to a density not less than 95 percent of the standard Proctor maximum dry density (ASTM D698) unless additional requirements are required by the local authority having jurisdiction. The backfill shall be compacted in such a manner and with appropriate equipment so that there is no pipe damage, pipe misalignment or damage to joints. No flushing of backfill shall be permitted to achieve compaction.
- B. **Backfill Beneath Driveways.** Trench backfill beneath and within five (5) feet of driveways shall be as specified in this section.
1. **Trench Bottom Preparation.** The pipe shall be bedded on sand to achieve full pipe barrel support. In any event not less than 3" of sand bedding shall be used.
  2. **Backfill to 12" Over Pipe Barrel.** All trench excavations shall be backfilled immediately after pipe is laid with the exception of thrust blocks. Compacted sand or bankrun material shall be used to backfill the trench from the bottom of the pipe barrel to the 12" over the pipe barrel. Backfill material shall be free from cinders, refuse, organic material, boulders, top soil, frozen material, material with a high void content, rocks 1 1/2" or larger measured in any direction, sharp stones and crushed rocks larger than 3/4", or other materials which in the opinion of the District is unsuitable. No flushing of backfill shall be permitted to achieve compaction. Clay bulkheads shall be installed as specified in Section B-5 of Trench Backfill.
  3. **Granular Backfill.** When backfilling under pavements, driveways, or as directed by the District, granular material as specified shall be used in place of the excavated material.

The granular backfill shall be placed from 12 inches from the top of pipe to 6 inches below pavement subgrade level in uniform 6 inch loose layers and each layer shall be compacted to a density not less than 95 percent of the standard Proctor maximum dry density (ASTM D698). The backfill shall be compacted in such a manner and with appropriate equipment so that there is no pipe damage, pipe misalignment or damage to joints. No flushing of backfill shall be permitted to achieve compaction.

4. Trench Backfill to Subgrade. The top 6 inches of the trench backfill, immediately below pavement subgrade level, shall be crushed limestone or dense grade aggregate compacted in the same manner and to the same density at the granular backfill.
  5. Remaining Trench Backfill to Final Grade. From subgrade to final grade, asphalt, concrete or other paving/surface shall be placed to match the existing pavement/surface conditions.
  6. Bulkheads. When a granular bedding is provided in rock or when granular backfill is required, the Contractor shall place bulkheads of clay soil across the trench at 100 foot intervals to resist the movement of groundwater through the granular material. Such bulkheads shall be carefully compacted and shall extend approximately 3 feet in a direction parallel to the pipe and shall extend from the bottom of the trench to a point 4" below final grade level.
  7. Surface Conditions. The trench surface shall be periodically attended to during the course of the contract. The trench surface shall be maintained in a safe condition and shall not interfere with natural drainage.
- C. Backfill Beneath Pavement. Trench backfill beneath roadway pavements, or as directed by the District shall include flowable fill as specified in this section.
1. Backfill to 12 Inches Over pipe Barrel. The pipe shall be bedded on sand so that the pipe barrel has full and continuous support. All trench excavations shall be backfilled immediately after pipe is laid. Compacted sand or bankrun shall be used to backfill the trench from the bottom of the pipe barrel to 12 inches above the top of the pipe barrel. The sand or bankrun shall be placed in uniform 6 inch loose layers and each layer compacted to a density not less than 95 percent of the standard Proctor maximum dry density (ASTM D698) in such a manner and with appropriate equipment so that there is no pipe damage, pipe misalignment or damage to joints so as to eliminate the possibility of settlement, pipe misalignment, or damage to joints. The sand or bankrun shall be free from cinders, refuse, organic material, boulders, rocks, or other material which in the opinion of the District is unsuitable. No backfill shall be made with frozen material.
  2. Trench Backfill to Subgrade. From 12 inches above the pipe barrel to subgrade, "**Low Strength Mortar Backfill Material**" (Flowable Fill, K-Crete) shall be used as backfill material. The Low Strength Mortar Mix shall meet the current Ky. Dept. of Highways's "Standard Specifications for Road & Bridge Construction". The Low Strength Mortar Mix shall have sufficient drying time (per manufacturer's recommendation) before the final layer of backfill is applied.



3. **Remaining Trench Backfill to Final Grade.** From subgrade to final grade, asphalt, concrete or other paving/surface shall be placed to match the existing pavement/surface conditions. All joints shall be properly seal with an approved material.

4. **Testing of Trench Backfill.** Testing of backfill shall be at the request of the District and to the specifications of the District and at the cost of the Contractor.

## 10. **TEMPORARY STREET & ROADWAY RESTORATION**

A. **Traffic-Bound Base Course.** For all trenches where replacing streets and/or driveways is required, the Contractor shall maintain at his own expense a traffic- bound course of a minimum of 6" traffic-bound gravel and 4" of temporary hot asphalt or cold patch asphalt when hot mix is not available in a safe and passable condition until the trenches are ready for final resurfacing. The traffic-bound base course shall be compacted to a density not less than 95 percent of the standard Proctor maximum dry density (ASTM D698).

B. **Maintenance of Temporary Street Restoration** Temporary street restoration areas shall be maintained in a safe condition at all times. There shall be no loose materials, depressions, drop-offs or any other deficiencies in the temporary pavement. If said deficiencies exist they shall be immediately corrected by the Contractor.

## 11. **FINAL RESTORATION OF STREET & ROADWAYS**

A. **Scope.** This section covers the restoration of concrete and asphaltic concrete pavement, driveways, sidewalks and other surface construction removed or damaged during the progress of the work.

B. **General.** Except as otherwise specified, indicated on the drawings, or covered with other surface treatments, all pavement, driveways, curbs/gutters, and sidewalks which are removed or damaged during the progress of the work shall be restored to its original or better condition by the Contractor. All restoration work shall be subject to acceptance by the property owner, agency having jurisdiction thereof, and the District. Unless otherwise specified, all material used for restoration work shall be new.

At least five days in advance of pavement and curbs/gutter replacement, the Contractor shall notify the District and the authority having jurisdiction thereof of the proposed work. All street work shall be subject to acceptance by the authority having jurisdiction thereof.

Crushed limestone, bituminous materials or other materials used in the resurfacing of streets, shall meet the current requirements of the Standard Specifications of the Kentucky Department of Highways.

Sub-grades shall be thoroughly compacted to at least 95 percent of maximum density at optimum moisture content as determined by ASTM D698. In addition, the stability of sub-

grades shall be such that when materials for construction are deposited on the sub-grade no rutting or displacement of the subgrade by material hauling vehicles will occur.

**Governing Standards.** Except as otherwise specified or indicated, materials, equipment, details, and construction methods shall comply with the applicable provisions of the local, county and state ordinances and regulations. Requirements for surface restoration and materials specified herein are the minimum requirements for compliance with the Contract Documents. If requirements of the authority having jurisdiction over surface restoration are greater than those presented herein, Contractor shall comply with those requirements at no additional cost to the District.

**Weather Limitations.** Minimum temperature under which asphaltic concrete pavements may be constructed shall be as stipulated in the governing standards.

If weather conditions do not permit replacement of permanent surfacing, a temporary cold mix asphaltic concrete surfacing shall be provided and maintained in a smooth and driveable condition. Cold mix material shall be replaced with the specified hot mix asphaltic concrete when weather conditions permit. No materials shall be placed when the underlying surface is muddy, frozen, or has frost or water thereon.

Equipment and facilities for measuring, mixing, heating, transporting, spreading, compacting, and other operations shall be in accordance with the applicable requirements of the governing standards. Improved or modernized equipment which will produce results equal in quality to those which would result from the specified equipment will be considered for use. All equipment and facilities shall be acceptable to the District.

- C. **Materials.** The sources of materials shall be submitted for review by the District. Except as modified herein, materials shall conform to the requirements of the Kentucky Department of Transportation standards.

Contractor shall submit to District for approval documentation certifying materials to be used for surface restoration are in compliance with the requirements herein.

- D. **Asphaltic Concrete Pavement.** Except as modified herein, existing asphaltic concrete pavement which is removed or damaged during the progress of the work shall be replaced with new pavement to match, as closely as possible, the adjacent existing pavement.

Asphaltic concrete pavements shall be constructed as specified, and in accordance with the Kentucky Department of Transportation standards.

Finished surfaces shall match existing surfaces as appropriate.

Bituminous mixtures shall be spread and finished by hand methods only where machine methods are impractical as determined by the District. Hand placed mixtures shall not be cast or otherwise manipulated in such manner that segregation occurs.

Each lift of the base course shall be uniformly compacted to a density of not less than 94

percent as determined by ASTM D2950. The surface course shall be uniformly compacted to a density of not less than 96 percent as determined by ASTM D2950.

Where asphaltic concrete pavement is to be replaced, the subgrade shall be prepared as herein before specified and this subgrade shall comprise the base course upon which the concrete sub-slab and/or bituminous pavement shall be laid.

Where no concrete sub-slab is required, the subgrade or base shall be thoroughly cleaned and broomed and a prime coat of medium tar (RC-3) shall be uniformly applied at a rate of 0.20 to 0.25 gallons per square yard. Where Portland cement concrete sub-slab is required the prime shall be applied at the rate of approximately .05 gallons per square yard. The prime shall be applied by a pressure distributor or other approved pressure spray method.

When the prime coat has become tacky but not dry and hard, a bituminous surfacing consisting of class "I" asphaltic concrete shall be placed, spread, finished and compacted in accordance with the current Standard Specifications of the Kentucky Department of Highways. Compacted thickness of asphaltic concrete pavement shall be as directed or as shown on the plans. All asphaltic concrete joints shall be properly seal with an approved material in accordance with the current Standard Specifications of the Kentucky Department of Highways (hot-poured elastic joint sealer).

- E. **Concrete Pavement.** Existing concrete pavements which are removed or damaged during the progress of the work shall be replaced to match, as closely as possible, the adjacent existing concrete pavement. Concrete, materials, and workmanship shall conform to the applicable requirements of the concrete section.

Where concrete pavement is to be replaced or is required under bituminous pavement replacement, it shall conform to the existing pavement and/or the District's instructions, (not less than 6' (six inches) thick) and accomplished with K.D.O.T. Class "A" concrete. Concrete curbs shall conform to existing concrete curbs. All joints shall be properly sealed with an approved material.

If concrete is removed to within 2 feet or less of an existing construction joint, the additional pavement to the joint shall be removed and replaced with new concrete.

- F. **Aggregate Base Course.** Aggregate base course shall be used as a base, where required by the governing regulations. The base course shall be constructed in accordance with the governing standards. Mixing of the base course shall be by the central plant method or the road mix method.
- G. **Protection.** The Contractor shall protect all adjacent concrete and masonry so that no damage will occur as the result of subsequent construction operations. All damage or discoloration shall be repaired to the satisfaction of the District.

Special care shall be taken to prevent bituminous materials from spraying or splashing. Adjacent construction shall be protected by covering with suitable fabric or paper.

- H. **Miscellaneous Repair Work.** All existing items and construction, whether or not indicated by the drawings but which are removed or damaged as a result of construction operations under this contract, whether within or outside of public right-of-way, shall be repaired or replaced unless otherwise required by the drawings.

Repair or replacement shall be with material similar to those existing and shall, in each case, restore the item to its original or better condition as acceptable to the District and the District thereof.

- I. **Untreated Surface.** Where the existing surface is untreated gravel or stone, the Contractor shall replace the surfacing that is disturbed or removed with crushed limestone to at least the thickness of the existing pavement. The crushed limestone shall be placed and compacted in the same manner as traffic-bound base course. Prior to the final acceptance, the Contractor shall fill all depressions with compacted crushed limestone, and shall thoroughly compact and grade to match existing surface.

## 12. **CLEAN UP**

After a section of main is tested and accepted, the ground surface shall be cleaned of all surplus material including stone, broken pipe, construction material, and all other debris, to the satisfaction of the District.

## 13. **STORAGE AND DISPOSAL OF EXCAVATED MATERIAL**

Where the Contractor finds it necessary to remove excavated material to some other location, care should be taken not to overload trucks, which would in turn spill material out upon highways. Any such material spilled upon highways shall be immediately cleaned up from the location and disposed of.

Where it is necessary and is agreeable with public and private property owners, excavated materials may be temporarily piled in the streets or roadways, however, one lane of traffic must be maintained at all times. By no means will the Contractor be permitted to store excavated materials in streets or roadways over night.

All excavated material and all construction materials used in prosecution of the work shall be deposited so as not to endanger the Work, create unnecessary annoyance to the public, or interfere with natural drainage courses. During the progress of the work, all material piles shall be kept trimmed up and maintained in a neat, workmanlike manner.

After excavated materials have been removed, all hard surface streets or roadways shall be thoroughly cleaned and left free of dirt and dust. Streets or roadways which do not have hard surfaces must be restored to their original condition at the expense of the Contractor.

Disposal of excess excavated material from trench excavations or site restoration shall be disposed from the site at the Contractor's expense. Broken concrete and other debris resulting from pavement or sidewalk removal, excavated rock in excess of the amount permitted to be installed in trench backfill, debris encountered in excavation work, and

other similar waste materials shall be disposed from the site at the Contractor's expense. The Contractor shall be responsible for procurement of its own dump sites, and maintaining that site at its own expense.

Confirm and comply with all applicable environmental, labor, health and safety, and all other Laws and Regulations related to demolition, removal, hauling, disposal and all other handling of unsalvageable equipment, supplies, waste, debris and other material.

#### 14. TRENCH MAINTENANCE

The Contractor shall be responsible for the condition of the trenches for a period of two years from the date of the "Certificate of Substantial Completion" issuance.

#### 15. RESTORATION, GRADING AND SEEDING

The Contractor shall provide all labor, materials, tools, and equipment required to grade, fertilize, seed, and mulch in good, workmanlike manner the areas where shown on the plans or where directed by the District and as specified herein.

##### A. Materials

1. Topsoil. Topsoil shall not contain more than 40% clay in that portion passing a No.10 sieve and shall contain not less than 5% or more than 20% organic matter as determined by loss on ignition of samples oven dried to constant weight at 212 degrees Fahrenheit.

2. Fertilizer. Fertilizer shall be lawn or turf grade 12-12-12.

##### 3. Seed

a. *Urban Areas* - All areas to be seeded which are considered to be urban in character, and any area in front of a residence, business or commercial, shall be seeded with the following mixture: (% are by weight)  
40% Fine Lawn Turf-Type Fescue  
40% Creeping Red Fescue (*Festuca rubra*)  
20% Annual Ryegrass (*Lolium multiflorum*)

b. *Right-of-way and Easements* - All areas in right-of way or in easements adjacent to right-of-away other than urban areas, shall be seeded with the following mixture: (% are by weight)  
30% Fine Lawn Turf-Type Fescue  
50% Kentucky 31 Fescue (*Festuca arundinaces* Var. Ky.31.)  
20% Annual Ryegrass (*Lolium multiflorum*)

c. *All Other Areas* - All other areas shall be seeded with the following mixture: (% are by weight)  
90% Perennial Ryegrass (*Lolium perenne*)  
10% Alsike Clover (*Trifolium hybridum*)

4. **Mulch**. Mulch shall be straw reasonably free of weed seed and any foreign materials which may affect plant growth. Other materials may be used if approved by the District.
5. **Asphalt Emulsion**. Emulsion shall be nontoxic to plants and shall conform to AASHTO M140 or AASHTO M208.

**B. Installation**

**1. Preparation of Seed Bed**

- a. ***Topsoil*** - If suitable topsoil is available as part of the excavated material it shall be removed, stored and used to backfill the top 4 inches of the excavation. All grass, weeds, roots, sticks, stones, and other debris are to be removed and the topsoil carefully brought to the finish grade by **hand raking**.
  - b. ***Non-topsoil*** - If there is no suitable topsoil available on any part of the work or if there is a deficiency of suitable topsoil, the trench backfill, except in urban areas shall be used as a seed bed. After the backfill has been given a reasonable time to settle, it shall be graded off to the finish grade and harrowed to a depth of 3 inches. All grass, weeds, roots, sticks, stones, and other debris are to be removed and the soil carefully brought to the finish grade by **hand raking**.
  - c. ***Urban Areas*** - If there is no topsoil available on any part of the work or is there is a deficiency of suitable topsoil, the Contractor shall furnish 4 inches of topsoil to be used as a seed bed in all urban areas and any area in front of a residence.
2. **Fertilizing**. Fertilizing shall be uniformly applied to all areas to be seeded at the rate of 1 pound per 100 square feet in topsoil or 2 pounds per 100 square feet in non-topsoil. The fertilizer shall be thoroughly disked, harrowed or raked into the soil to a depth of not less than 2 inches. Immediately before sowing the seed, the Contractor shall rework the surface until it is a fine, pulverized, smooth seed bed, varying not more than 1 inch in 10 feet.
  3. **Seeding**. Immediately after the preparation and fertilization of the seed bed the District shall inspect and approve the site prior to seeding. The seed shall be thoroughly mixed and then evenly sown over the prepared areas at the rate of 3 pounds per 1000 square feet for urban, right-of-way and easement areas and a rate of 2 pounds per 1000 square feet for all other areas. Seed shall be sown dry or hydraulically. After sowing, the area shall be raked, dragged, or otherwise treated to cover the seed to a depth of approximately 1/4 inch.
  4. **Mulching**. Within 48 hours after any given area is seeded, mulching material shall be evenly placed over all seeded areas at the rate of approximately 2 tons per acre, when seeding is performed between the dates of March 15 and October 15, and at the

approximate rate of 3 tons per acre when seeding is performed between the dates of October 15 and March 15 of the succeeding year.

- a. **Emulsion** - Mulching materials shall be kept in place with asphalt emulsion applied at a minimum rate of 60 gallons per ton of mulch or by methods as approved or may be otherwise required to prevent displacement of material. Mulching which is displaced shall be replaced at once but only after the seeding or other work which preceded the mulching and which work was damaged as a result of displacement of mulching material has been acceptably repaired.

5. **Maintenance.** All seeded areas shall be carefully maintained and tended by the Contractor, watering as necessary to secure a good turf. Settled areas shall be filled, graded, and re-seeded. Seeded areas shall be free of weeds and other debris. The Contractor shall be responsible for the condition of the seeded areas for a period of 1 year from the date of "Final Certificate" issuance.

- C. **Payment.** Seeding is not a pay item and all cost related thereto shall be included in the unit price of the applicable bid item.

## 16. **DISINFECTION AND LEAKAGE TEST**

- A. **Scope.** This section covers the disinfection of the new water mains, fittings, temporary services and associated appurtenances. The Contractor shall provide all labor, materials, tools, equipment, and incidentals required to test the mains for watertightness and disinfect the mains as directed by the District and as specified herein. Gauges for the test shall be furnished by the Contractor.
- B. **Test Section.** After the main has been installed and backfilled all newly installed pipe or any valved section thereof shall be considered a test section.
- C. **Witness.** All tests performed for each test section shall be witnessed and approved by the District before acceptance. In the event the Contractor performs any test without witness by the District, the Contractor will be required to test the section again in conformance with this specification at no cost to the District.
- D. **General.** All disinfection work shall conform to the requirements of the latest revision of ANSI/AWWA C651 and the requirements of the Kentucky Division of Water. If any State requirements conflict with the provisions of this section, the State requirements shall govern.

Water required for flushing and disinfection work will be provided as stipulated in the temporary facilities.

When it is necessary to interrupt service to water customers, each customer affected shall be notified in advance of the proposed service interruption and its probable duration in accordance with the project requirements.

- E. **Disinfection Procedure.** During construction or after the installation of the pipe and fittings is complete, an approved disinfection method, according to governing standards, shall be used. The disinfection solution shall be allowed to stand in the main and associated appurtenances for a period of at least twenty-four (24) hours.

During disinfection, all valves, hydrants, and service line connections shall be operated to ensure that all appurtenances are disinfected. Valves shall be manipulated in such a manner that the strong disinfection solution in the main from flowing back into the supply line. Check valves shall be used if required.

All non-disinfected fittings used for tie-ins or repairs shall be cleaned and swabbed with a liquid sodium hypochlorite disinfecting solution prior to installation.

- F. **Final Flushing.** Upon completion of chlorination but before sampling and bacteriological testing, Contractor shall remove all heavily chlorinated water from the main and temporary services by flushing with potable water at the maximum velocity which can be developed under the direction and control of the District.

The Contractor shall properly neutralize and dispose of the chlorinated water and flushing water in accordance with all applicable regulations. Contractor shall obtain all special waste disposal permits necessary.

- G. **Disposal of Heavily Chlorinated Water.** Disposal of chlorinated water will be in accordance with 401 KAR5:031. Coliform samples must be taken at connection points to existing mains, 1 mile intervals along new mains, and at all dead ends. Contractor shall apply a de-chlorinating agent to the water to be wasted to neutralize thoroughly the chlorine residual remaining in the water. (See the following table for neutralizing chemicals.) Federal, state, and local regulatory agencies should be contacted to determine special provisions for disposal of heavily chlorinated water.

Chlorine residual of water being disposed of shall be de-chlorinated by treating with one of the chemicals listed in the following table:

**Pounds of Chemicals Required to De-chlorinate Various Residual Chlorine Concentrations in 100,000 Gallons of Water\***

Residual Chlorine Concentration <i>mg/L</i>	Sulfur Dioxide (SO <sub>2</sub> )	Sodium Bisulfate (NaHSO <sub>3</sub> )	Sodium Sulfite (Na <sub>2</sub> SO <sub>3</sub> )	Sodium Thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> @5H <sub>2</sub> O)
1	0.8	1.2	1.4	1.2
2	1.7	2.5	2.9	2.4
10	8.3	12.5	14.6	12.0
50	41.7	62.6	73.0	60.0



\* Except for residual chlorine concentration, all amounts are in pounds.

The Contractor shall provide all necessary materials, equipment and labor for applying the de-chlorinating chemical in a manner such that proper mixing and contact time of the chemical and the heavily chlorinated water is obtained for complete removal of chlorine being flushed. The Contractor shall periodically test the flush water to verify that the chlorine residual is zero.

- H. **Chlorine Residual Tests.** Upon completion of final flushing, the District will perform chlorine residual tests to ensure the chlorine residual in the main and temporary services is not higher than that generally prevailing in the remainder of the water distribution system and is acceptable to the District.
- I. **Bacteriological Tests.** Sampling and testing of water in the main and temporary services will be performed by the District after final flushing. A standard plate count will be made by the District for each sample.
- J. **Redisinfection.** Should the bacteriological tests indicate the presence of coliform organisms at any sampling point, the main and temporary services shall be re-flushed, re-sampled, and re-tested. If check samples show the presence of coliform organisms, the main and temporary services shall be re-chlorinated at no additional cost to the District until results acceptable to the District are obtained.

Re-disinfection shall be completed by the continuous feed or by the slug method. Unless otherwise permitted, the chlorination agent shall be injected into the main and temporary services at the supply end through a corporation cock installed in the top of the pipe. All materials, equipment and labor necessary for the re-disinfection shall be supplied by Contractor at no additional cost to the District.

- K. **Hydrostatic Testing.** Hydrostatic Testing will be in accordance with AWWA C600. The water main being tested shall have all air expelled by additional flushing or installation of taps on high points in the line. The pressure of the water main shall be gradually increased to obtain a minimum pressure of 100 psi over the design pressure (250 psi minimum) at the lowest elevation point of the water main or as directed by the District. The test will be for a two (2) hour duration and will not vary by more than 5 psi. All tests performed for each test section shall be witnessed and approved by a representative of the District, in the event any test is performed without a representative of the District, the Contractor shall be required to test the section again. Leakage is defined as the amount of water used to maintain the test pressure.

## 17. **APPLICABLE SPECIFICATIONS & STANDARDS**

The following current specifications and standards form a part of these Specifications:

- A. **American Water Works Association (AWWA) Standards**
- B. **Northern Kentucky Water District Standard Specifications & Drawing for the Installation of Water Mains** current edition located at [www.nkywater.org](http://www.nkywater.org)

- C. **"Manual of Accident Prevention in Construction"** published by the **Associated General contractors of America**
- D. **Kentucky Occupational Safety and Health Administration's "Kentucky Occupational Safety and Health Standards for General Industry"** current edition.
- E. **American National Standards Institute (ANSI)**
- F. **American Society for Testing & Materials (ASTM)**
- G. **Kentucky Division of Water Quality**
- H. **"Recommended Standards for Water Works"** current edition

## Section 2660

### Cathodic Protection

#### Index

#### Part 1 - General

- 1.1 Summary of Work
- 1.2 Related Sections
- 1.3 References
- 1.4 Submittals
- 1.5 Measurement and Payment

#### Part 2 - Products

- 2.1 Approved Material Suppliers
- 2.2 Warranty on Contractor-Provided Materials
- 2.3 Electrical Continuity Bond Cables
- 2.4 Corrosion Monitoring Test Stations
- 2.5 Electrical Isolation Devices and Petrolatum Tape Overwrap
- 2.6 Galvanic Anodes
- 2.7 Wire, Cable, and Splices
- 2.8 Exothermic Welds and Connection Devices

#### Part 3 - Execution

- 3.1 Regulatory Requirements
- 3.2 Description of Work
- 3.3 Installation of Electrical Continuity Bond Cables
- 3.4 Installation of Corrosion Monitoring Test Stations
- 3.5 Installation of Electrical Isolation Devices and Petrolatum Tape Overwrap
- 3.6 Installation of Galvanic Anodes
- 3.7 Installation of Wire, Cable, and Splices
- 3.8 Installation of Exothermic Welds and Connection Devices
- 3.9 Field Quality Control
- 3.10 Post-Installation Testing of Cathodic Protection Systems

\*\*\*\*\*

#### **Part 1 - General**

##### **1.1 Summary of Work**

- A. Cathodic protection for 24-inch-diameter ductile iron pipe and smaller appurtenances with field-applied polyethylene encasement using sacrificial anode system.
- B. Cathodic protection for 24-inch-diameter factory-applied coated and wrapped steel pipe and smaller appurtenances using sacrificial anode system.
- C. Provide labor, equipment, supervision, and the materials necessary to install the cathodic protection system for the 24-inch water transmission main and smaller appurtenances.

##### **1.2 Related Sections**

- A. Section 01600 – Technical Provisions.

### 1.3 References

- A. American Society for Testing and Materials (ASTM) – Applicable testing methods and materials.
- B. National Association of Corrosion Engineers (NACE) International Standard Practice SP0169 (latest edition) – Control of External Corrosion on Underground or Submerged Metallic Piping Systems.
- C. National Association of Corrosion Engineers (NACE) International Standard RP0274 (2004) – High Voltage Electrical Inspection of Pipeline Coatings.
- D. National Electrical Code (NEC), latest edition.
- E. National Electrical Manufacturers Association (NEMA) – Standards and Specifications.
- F. Underwriters Laboratories, Inc. (UL) – Standards for safety.

### 1.4 Submittals

- A. Product Data
  - 1. Submit manufacturer's specifications, recommendations, and installation instructions for each of the following products specified in this Section:
    - a. Electrical Continuity Bond Cables
    - b. Corrosion Monitoring Test Stations
    - c. Electrical Isolation Devices and Petrolatum Tape Overwrap
    - d. Galvanic Anodes
    - e. Wire, Cable, and Splices
    - f. Exothermic Welds and Connection Devices
  - 2. Manufacturer's product submittals shall be incorporated into a single document to demonstrate that the items have been properly coordinated and will function properly as a unit.
  - 3. A notation shall be made on each shop drawing submitted as to the item's specific use either by a particular type number referenced in the Contract Documents, or by a description of the item's specific location.

### 1.5 Measurement and Payment

- A. Include cost to furnish all materials, equipment and labor necessary to install the cathodic protection system described in this Section in the unit price bid for "Provide and Install Cathodic Protection System" on the Proposal.

## Part 2- Products

### 2.1 Warranty on Contractor-Provided Materials

- A. All Contractor-provided materials shall be guaranteed for a period of two years.
- B. The two-year period shall commence at the time of the final installation of all components by the Contractor and after the system has been tested and properly adjusted for operation by the Owner's Corrosion Engineer.

### 2.2 Electrical Continuity Bond Cables

- A. Electrical Continuity Bond Cables
  - 1. High molecular weight polyethylene insulated stranded copper cable shall be used for continuity bond cables installed across pipe joints of mechanically-coupled pipe. Insulation shall conform to ASTM D1248 – Specification for Plastic Molding and Extrusion Materials, Type 1, Class C, Grade 5.
  - 2. Pipe joint continuity bond cables shall be sized as follows:
    - a. Wire Gauge: No. 2
    - b. No. of Strands: 7

- c. Outer Jacket: 0.110" thickness
- d. Length: 18"
- e. Number of Bonds: 2 across each pipe joint

### 2.3 Corrosion Monitoring Test Stations

#### A. Non-Metallic Post-Type Test Stations

1. Monitoring stations shall be a non-metallic post-type station mounted on a non-metallic conduit post. Test station shall be furnished with a covered terminal board equipped with terminal posts to permit ready access and testing and shall be constructed as follows:
  - a. Terminal Board: Polycarbonate plastic.
  - b. Binding/Terminal Posts: Nickel-plated marine brass (6 minimum).
  - c. Conduit Post: UV stabilized polyethylene.
2. Subject to meeting the requirements of this specification, acceptable manufacturer's products which may be incorporated into the work include the following or an approved equal:
  - a. Tinker & Razor Company, Model T-3.
  - b. Cott Manufacturing, Model Big Fink.

#### B. Flush-Mounted Test Station Enclosures

1. Test station shall be contained in a heavy-duty, non-metallic, flush-to-grade utility enclosure constructed as follows:
  - a. The body shall be reinforced/ribbed plastic able to withstand occasional non-deliberate vehicular traffic.
  - b. A polymer concrete cover and surround ring shall cover the body of the enclosure and shall be capable of withstanding a minimum of 20,000 pounds without failure in accordance with the requirements for the ANSI/SCTE 77, TIER 15 applications.
  - c. Cover shall have a minimum of 2 hold-down bolts and shall be labeled "CP TEST" in minimum 1" high letters.
2. Subject to meeting the requirements of this specification, acceptable manufacturer's products which may be incorporated into the work include the following or an approved equal:
  - a. Pencil Plastics, Inc. Model DT-1118PC.

#### C. Prepackaged Cu-CuSO<sub>4</sub> Reference Electrodes

1. Description: Cu-CuSO<sub>4</sub> electrodes shall be used for soil environments to provide a stable electrical benchmark from which to measure the cathodic protection system's effectiveness. Electrodes shall be constructed as follows:
  - a. Element: Copper rod encapsulated in a proprietary backfill electrolyte containing high purity copper sulfate crystals and a chloride ion trap to prevent contamination of the electrolyte.
  - b. Service life of the reference electrode shall be no less than 20 years.
  - c. Lead Wire: No. 14 RHH-RHW (yellow) stranded copper wire. Lead wire shall be sufficiently long to reach its termination point without splicing.
2. Subject to meeting the requirements of this specification, acceptable manufacturer's products which may be incorporated into the work include the following or an approved equal:
  - a. Borin Manufacturing, Inc. Model SRE-007-CUY.
  - b. GMC Electrical, Inc. Model CU-1-UGPC.

#### D. Calibrated Shunts

1. Description: Color-coded calibrated shunts shall be used to connect the cathodic protection system's anode header cable and structure return connection circuits.
  - a. Yellow: 0.01 ohm rated at 8 amps maximum capacity.

2. Subject to meeting the requirements of this specification, acceptable manufacturer's products which may be incorporated into the work include the following or an approved equal:
  - a. Tinker & Razor Company, Model Test Station Shunt.
  - b. Cott Manufacturing, Model Cott Shunt.

## **2.2 Electrical Isolation Devices and Petrolatum Tape Overwrap**

### **A. Pipe Isolation Couplings**

1. Electrically isolating pipe couplings shall be constructed as follows:
  - a. Follower rings shall meet requirements of AISI C1012 carbon steel or ASME SA36 ductile iron.
  - b. Middle ring shall meet requirements of ASTM A513, ASTM A635, or ASME SA675 GR60.
  - c. Bolts and nuts shall be AWWA C111/ANSI A21.11.
  - d. Gaskets shall be Nitrile (Grade 27 Buna-S) compounded to resist aliphatic hydrocarbons within a temperature range of -20 °F and 180 °F.
  - e. Coating shall be fusion-bonded epoxy.
  - f. Supplemental electrically-isolating pipe-restraint such as Star National Products Style 443 Anchor Restraining System or an approved equal shall be installed as necessary to prevent joint separation at pipe isolation couplings.
2. Subject to meeting the requirements of this specification, acceptable manufacturer's products which may be incorporated into the work include the following or an approved equal:
  - a. Dresser Industries, Style 39 Pipe Isolation Coupling.
  - b. Smith-Blair, Model 416 Pipe Isolation Coupling.
  - c. Romac Industries, Style IC-400 Pipe Isolation Coupling.

### **B. Electrically Isolating Corporation Stops**

1. Electrically isolating corporation stops shall be constructed as follows:
  - a. All brass construction conforming to AWWA Standard C800 (ASTM B-62 and ASTM B-584).
  - b. Solid one-piece tee-head and stem with EPDM O-ring in stem.
  - c. Molded EPDM seat to support fluorocarbon-coated brass ball.
  - d. Threaded nylon insulator factory inserted between the body assembly and flared copper/nut service line.
  - e. Entire assembly threads secured with adhesive to prevent unintentional disassembly and to render unit leak resistant rated at 300 psi working pressure.
2. Subject to meeting the requirements of this specification, acceptable manufacturer's products which may be incorporated into the work include the following or an approved equal:
  - a. Ford Meter Box Company, Model Service Insulator Corporation Stops.
  - b. Mueller Company, Model Insulated Water Service Products.

### **C. Flange Isolation Kit Assemblies**

1. Isolation flanges shall be constructed as follows:
  - a. Gasket: Full faced G-10 Epoxy Glass w/Nitrile O-Ring.
  - b. Sleeves (Less than 24"): Full-length 1/32" thick spiral wound Mylar.
  - c. Sleeves (Equal to or Greater than 24"): Full-length 1/32" thick G-10 Epoxy Glass.
  - d. Isolation Washers: Double 1/8" thick G-10 Epoxy Glass.
  - e. Backup Washers: Double 1/8" thick Type 304 stainless steel.
  - f. Temp. Range: minus 65 °F to 250 °F.

2. Subject to meeting the requirements of this specification, acceptable manufacturer's products which may be incorporated into the work include the following or an approved equal:
  - a. Pipeline Seal and Insulator, Inc. Model Line-Backer.
  - b. Advance Products and Systems, Inc. Model Trojan.
- D. Petrolatum Tape-Wrap Encapsulation of Buried Electrical Isolation Devices
  1. All buried electrical isolation devices shall be encapsulated in a three-part cold-applied petrolatum tape coating consisting of a primer, profiling mastic, and a low-temperature petrolatum tape.
    - a. Primer:
      - (1) Solids Content: 100%
      - (2) Specific Gravity: 1.08
      - (3) Specific Volume: 26 cubic inches/pound
      - (4) Flash Point: > 356 °F
      - (5) Coverage: 10-22 square feet/pound
    - b. Profiling Mastic:
      - (1) Solids Content: 100%
      - (2) Specific Gravity: 0.605
      - (3) Specific Volume: 46 cubic inches/pound
      - (4) Flash Point: 356 °F
      - (5) Coverage: Varies by application
    - c. Low-Temperature Petrolatum Tape:
      - (1) Thickness: 46 mils
      - (2) Maximum Service Temperature: 122 °F
      - (3) Roll Width: 2" to 12"
      - (4) Roll Length: 33'
      - (5) Coverage with 55% Overlap: 87 square feet of tape per 100 square feet of pipe
  2. Subject to meeting the requirements of this specification, acceptable manufacturer's products which may be incorporated into the work include the following or an approved equal:
    - a. Denso North America, Inc. Denso Paste S105/Profiling Mastic/LT Tape.
    - b. Central Plastics, Inc. Model STAC Coating System.
    - c. The Tapecoat Company, Model Envirocoat System.

### **2.3 Galvanic Anodes**

#### **A. Sacrificial Anodes and Accessories**

##### **1. Magnesium Anodes**

- a. Description: Magnesium anodes shall be capable of delivering a minimum efficiency of 500 amp-hours per pound of magnesium and shall have the following metallurgical analysis and physical properties:
- b. Ingot Weight:
  - (1) Phase 3: 20 pounds.
  - (2) Phase 4: 48 pounds.
  - (3) Phase 5: 48 pounds.
- c. Metallurgy:
  - (1) Aluminum: 0.01% (max.)
  - (2) Manganese: 0.50% - 1.3%
  - (3) Copper: 0.02% (max.)
  - (4) Nickel: 0.001% (max.)
  - (5) Iron: 0.03% (max.)

- (6) Other (each): 0.05% (max.)
- (7) Other (total): 0.30% (max.)
- (8) Magnesium: Balance
- 2. Packaged Magnesium Anode Backfill
  - a. Magnesium anodes shall be packaged within a cotton sack in a special chemical backfill .having the following proportions:
    - (1) Ground Hydrated Gypsum:75%
    - (2) Powdered Bentonite: 20%
    - (3) Anhydrous Sodium Sulfate: 5%
  - b. Backfill shall have a grain size such that 100% is capable of passing a 20-mesh screen and a 100-mesh screen shall retain 50 %.
  - c. Backfill shall completely surround the anode ingot without voids.
  - d. Package Dimensions:
    - (1) Phase 3: 5.5" diameter by 66" long (nominal).
    - (2) Phase 4: 8" diameter by 38" long (nominal).
    - (3) Phase 5: 8" diameter by 38" long (nominal).
  - e. Package Weight:
    - (1) Phase 3: 72 pounds (nominal).
    - (2) Phase 4: 98 pounds (nominal).
    - (3) Phase 5: 98 pounds (nominal).
  - f. Anode Lead Wire
    - (1) The standard lead wire for a magnesium anode shall be a minimum 10' length of No. 12 AWG solid copper wire with Type TW (red) thermoplastic insulation
  - g. Lead Wire Connection to Anode Core
    - (1) Magnesium anodes shall be cast with a minimum 20 gauge galvanized steel core.
    - (2) One end of the anode shall be recessed to expose the core for silver-soldering the lead wire.
    - (3) The silver-soldered lead wire connection and anode recess shall be filled with an electrical potting compound before packaging.

#### **2.4 Wire, Cable, and Splices**

- A. Anode Header Cable and Structure Return Connection (Direct Burial)
  - 1. High molecular weight polyethylene insulated stranded copper cable shall be used for all underground portions of the cathodic protection system's anode header cable and structure return connection circuits. Insulation shall conform to ASTM D1248 – Specification for Plastic Molding and Extrusion Materials, Type 1, Class C, Grade 5.
  - 2. The DC cables shall be sized as follows:
    - a. No. of Strands: 7
    - b. Outer Jacket: 0.110" thickness
    - c. Anode Header Cable: No. 8 AWG
    - d. Structure Return Connection: No. 8 AWG
- B. Test Wires for Cathodic Protection System Monitoring
  - 1. Oil and gas resistant insulated/jacketed stranded copper wire shall be used for structure connections as part of the system's monitoring circuits. Insulation shall conform to ASTM Standard UL-83 for Thermoplastic Insulated Wires.
  - 2. The test wires shall be sized as follows:
    - a. No. of Strands: 19
    - b. Primary Insulation: 0.015" thick thermoplastic



- c. Outer Jacket: 0.004" thick nylon
- C. Compression Crimp Splice Connectors
  - 1. All underground spliced connections used within the DC cathodic protection circuit shall be made through the use of copper compression crimp connectors.
    - a. The proper size connectors shall be used in accordance with the manufacturer's recommendations.
    - b. Connectors shall be crimped with a hand tool capable of delivering a minimum of 12 tons of compressive force.
- D. Splice Encapsulation
  - 1. All aboveground spliced connections used within the DC cathodic protection circuit shall be sealed with rubber and plastic tape contained within a waterproof coating.

## 2.5 Exothermic Welds and Connection Devices

- A. All connections used within the DC cathodic protection system circuit shall be by exothermic welds. The proper size welders, metal charges, and wire sleeves shall be used in accordance with the manufacturer's recommendations.
  - 1. Subject to meeting the requirements of this specification, acceptable manufacturer's products which may be incorporated into the work include the following or an approved equal:
    - a. Continental Industries, Model Therm-O-Weld.
- B. Coating of Wire and Cable Connections to Structures
  - 1. A pre-fabricated plastic sheet with an igloo-shaped dome and entry tunnel filled with an oil- and gas-resistant elastomeric rubber and a primer-less elastomeric tape for bonding directly to the structure.
  - 2. Subject to meeting the requirements of this specification, acceptable manufacturer's products which may be incorporated into the work include the following or an approved equal:
    - a. Continental Industries, Model Therm-O-Cap PC.
    - b. Chase Specialty Coatings/Tapecoat-Royston Division, Model Handy Cap IP.

## Part 3- Execution

### 3.1 Regulatory Requirements

- A. Conform to applicable federal, state, and local regulations for safe installation of the system.

### 3.2 Description of Work

- A. General: Refer to additional notes on the Plans and details included hereinafter during execution of Work under this Section.
- B. Examination: Examine the areas and conditions under which cathodic protection materials are to be installed, and notify Engineer in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected.
- C. Drawings: Install all cathodic protection components and equipment according to the following CP Installation Detail Drawings included hereinafter in this Section.
  - 1. Drawing No. 13110 - 1: Pipe Continuity Bonding for Ductile Iron/Welded Steel Pipe.
  - 2. Drawing No. 13110 - 2: Insulated Rubber and Tape Splice for Sacrificial Anode Connections
  - 3. Drawing No. 13110 - 3.A: Potential Test Station (PTS).

4. Drawing No. 13110 - 3.B: PTS Terminal Board Installation Details.
5. Drawing No. 13110 - 4.A: Casing Test Station (CTS).
6. Drawing No. 13110 - 4.B: CTS Terminal Board Installation Details.
7. Drawing No. 13110 - 5.Ao: Foreign Crossing (Over) Test Station (FTS).
8. Drawing No. 13110 - 5.Au: Foreign Crossing (Under) Test Station (FTS).
9. Drawing No. 13110 - 5.B: FTS Terminal Board Installation Details.
10. Drawing No. 13110 - 6.A: Isolator Test Station (ITS).
11. Drawing No. 13110 - 6.B: ITS Terminal Board Installation Details.
12. Drawing No. 13110 - 7.A: Anode Test Station (ATS).
13. Drawing No. 13110 - 7.B: ATS Terminal Board Installation Details.
14. Drawing No. 13110 - 8f: Flush-Type Test Station for Terminal Board Wire & Cable.
15. Drawing No. 13110 - 8p: Post-Type Test Station for Terminal Board Wire & Cable.
16. Drawing No. 13110 - 9: Electrical Isolation Devices for Metallic Casing Sleeves
17. Drawing No. 13110 - 10: Flange Isolation Kit (FIK).
18. Drawing No. 13110 - 11: Isolation Corporation Stop (ICS).
19. Drawing No. 13110 - 12: Pipe Isolation Coupling (PIC).

### **3.3 Installation of Electrical Continuity Bond Cables**

#### **A. General:**

1. Inspect each cable to ensure a continuous electrical conductor with no cuts or tears in the cable insulation.
2. Do not install continuity bonds across points of connection to existing structures or across electrical isolation devices.

#### **B. Method:**

1. Attach cable to water main by the exothermic welding process.
2. Perform exothermic welding of bond cables in accordance with the manufacturer's instructions.
3. Cover all exothermic welds with a pre-fabricated igloo-shaped domed plastic elastomeric rubber cover as described in this Section.

#### **C. Post-Installation Inspection:**

1. Inspect electrical continuity bond cables by visually examining each exothermic weld connection for strength and suitable coating prior to backfilling.
2. If, in the opinion of the Engineer, the exothermic weld is deficient, the Contractor shall remove and replace the weld at no expense to the Owner.

#### **D. Backfilling of Bond Cables:**

1. Perform backfilling that will prevent damage to the bond cables and connections to the water main.
2. If construction activity damages a bond cable, the Contractor shall remove and replace the bond cable at no expense to the Owner.

### **3.4 Installation of Corrosion Monitoring Test Stations**

#### **A. Reference Electrode:**

1. Keep permanent reference electrodes dry and protect from freezing before installation.
2. Remove plastic or paper shipping bags from around the reference electrode prior to installation.
3. Place reference electrode in native soil within 36 inches of the water main.

#### **B. Test Wires:**

1. Provide test station lead wires that are continuous with no cuts or tears in the insulation covering the conductor.
  2. Attach test leads to the water main by the exothermic welding process.
  3. Connect all test station wires to one side of the terminal board using the test station manufacturer's standard binding posts at the locations shown on the Plans.
  4. Install wire shunts and shorting bars to the opposite side of terminal board from the incoming wires.
- C. Terminal Board within Flush-Mounted Enclosure:
1. Install test station terminal board within color-coded cap and mount vertically to white PVC pipe.
  2. Set the PVC pipe within enclosure and support with a minimum 6" gravel base to support and drain the inside of the enclosure.
  3. Extend bottom of PVC pipe to a minimum of 24" below bottom of enclosure with the top of the test station cap no more than 2" from the underside of the enclosure lid.
  4. Thoroughly backfill and compact the area immediately surrounding the enclosure to prevent settling.
  5. Set the top of the enclosure flush to no more than one quarter-inch lower than the final pavement to prevent the enclosure from being struck by snowplow blades.
- D. Terminal Board atop Post-Mounted Test Station:
1. Install test station terminal board within color-coded cap and mount vertically to white PE pipe.
  2. Set the PE pipe with the top of the cap at between 36" and 42" above finished grade.
  3. Install anchor rod through bottom of PE pipe and extend bottom of pipe to a minimum of 36" below finished grade.
  4. Thoroughly backfill and compact the area immediately surrounding the test station to prevent settling or tipping.
- E. Post-Installation Backfilling:
1. Protect test leads during the backfilling operation to avoid damage to the wire insulation and integrity of the conductor.
  2. Protect permanent reference electrode during backfilling to avoid damage to the electrode and its lead wire.
  3. If, in the opinion of the Engineer, the installation of the test station wires or the reference electrode is deficient, the Contractor shall remove and replace these components at no expense to the Owner.
  4. Install corrosion-monitoring test stations at the locations shown on the Installation Schedule provided hereinafter in this Section or as directed by the Engineer.

### **3.5 Installation of Electrical Isolation Devices and Petrolatum Tape Overwrap**

- A. Electrically Isolating Pipe Couplings: Follow manufacturer's written instructions for the specific device to be installed.
- B. Electrically Isolating Corporation Stop Procedure: Follow manufacturer's written instructions for the specific device to be installed.
- C. Flange Isolation Kit Procedure:
  1. Inspect the gasket kit and verify that the material is as specified and that the material is not damaged.
  2. Clean the bolting materials. Apply lubricant or anti-seizing compound to all threads required for alignment with nuts and nut facings.

3. Align flange faces so that they are parallel and concentric with each other and within 0.010 inch without external loading or springing.
  4. Line up bolt holes by driving two tapered drift pins in opposite directions to each other into two diametrically opposite bolt holes.
  5. Insert insulating sleeves into bolt holes. Sleeves must slide in easily; if not, flanges must be realigned. Do not force sleeves into bolt holes.
  6. Assemble studs / bolts as follows:
    - a. Run one nut on each stud so that two full threads are showing beyond the nut.
    - b. Slide steel backup washer onto stud and insert into bolt hole. If flange requires two-sided insulation, add an insulating washer after the steel washer.
    - c. From the opposite end of the stud, place an insulating washer, steel backup washer, and a nut; tighten by hand.
  7. Torque the first two studs at diametrically opposite locations to a maximum of 30 percent of the final torque value in a star pattern.
  8. Repeat star-torquing pattern at each bolt by increasing torque to 50-60 percent of final value.
  9. Continue torquing all studs in a star pattern using the specified torque setting (100 percent) until there is no further rotation of the nuts.
- D. Acceptance:
1. Immediately after an electrical isolation device has been installed in accordance with the manufacturer's specifications, an electrical isolation test will be conducted by the Engineer using a radio frequency isolating test meter.
  2. If, in the opinion of the Engineer, the installation of the flange isolation kit is deficient, the Contractor shall remove and replace these components at the Contractor's expense.
- E. Sealing Buried Isolation Devices:
1. After any buried isolation device has been tested and found to be 100 percent effective, the entire isolator shall be encapsulated in a three-part non-toxic, petrolatum tape wrap before burial.

### **3.6 Installation of Galvanic Anodes**

**A. General:**

1. Install the required number of anodes at the locations shown on the Installation Schedule provided hereinafter in this Section or as directed by the Engineer.
2. Install additional anodes at the locations determined by Owner after pipe installation is completed and Owner has conducted field-electrical tests on pipeline.

**B. Method:**

1. Remove plastic or paper shipping bags from around prepackaged anodes prior to installation.
2. Install in the manner and at the dimensions from the water main as shown on the CP Installation Details. Field modifications shall be made only with the approval of the Engineer.
3. Handle galvanic anodes in such a manner to avoid damaging anode materials and wire connections.
4. Attach anode lead wire to insulated header cable or route directly to test station as required. Splices are not permitted within the lead wire of an anode except to repair damaged lead wires.
5. Install prepackaged anodes with compacted backfill material, such that no voids exist between the anode material and the backfill.

6. In very dry or coarse soils, pour 5 gallons of water over the anode after backfilling and tamping have been completed to a point about 6 inches above the anode. After the water has been absorbed by the earth, backfilling shall be completed to the ground surface level.

### **3.7 Installation of Wire, Cable, and Splices**

- A. Install underground wires, cables, and connections at a minimum 24 inches below final grade with a minimum separation of 6 inches from other underground structures.
- B. Crimp Connectors:
  1. All spliced connections will be made by the use of copper compression crimp connectors.
  2. Contractor must furnish a hand tool capable of generating a minimum of 12 tons of compressive force to install crimp connectors. Use only tools compatible with Burndy copper compression taps.
- C. Seal splices against water penetration as follows:
  1. Clean and then wrap with a minimum of two half-lapped layers of rubber electrical tape.
  2. Apply two half-lapped layers of plastic electrical tape.
  3. Cover with a fast-drying electrical sealant.

### **3.8 Installation of Exothermic Welds and Connection Devices**

- A. All exothermic welding shall be performed in accordance with the manufacturer's recommendations for welding equipment, weld metal charge size, and applicability to the metallurgy of the structure.
- B. Do not use exothermic weld equipment if the graphite mold is wet. Follow manufacturer's MSDS for storage and handling.
  1. Structure Surface Preparation
    - a. All metal shall be free of dust, dirt, grease, oil and other foreign matter by either power or hand wire brushing to expose bright shiny metal free of any coating, soil residue, or oxidation.
    - b. Grinding or filing shall remove sharp edges or burrs.
  2. Installation of Elastomeric Cover over Exothermic Welds
    - a. After cooling, remove all slag from the exothermic weld connection.
    - b. Clean the pipe surface which is to be covered by removing all moisture, dirt, grease and other contaminants.
    - c. Remove the release paper from the back of the mastic pad. Avoid touching the exposed elastomeric tape.
    - d. Apply the mastic pad to the structure by firmly pressing on all edges making sure that the tunnel area of the plastic dome completely covers the lead wire entering the exposed copper of the connection.
    - e. Push the dome of the plastic weld cap firmly over the exothermic weld area and the wire entering the weld cap.

### **3.9 Field Quality Control**

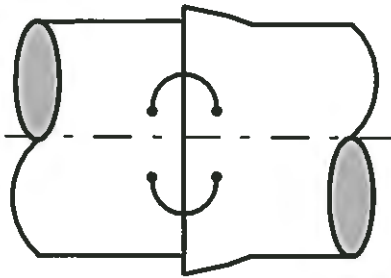
- A. Contractor's Quality Control System
  1. The Contractor shall implement a quality control system to ensure the cathodic protection system components conform to the applicable plans and specifications established by the Contract Documents.
  2. The quality control system shall ensure that standards for materials, workmanship, construction, and functional performance are adhered to throughout the course of the Work.

3. The Contractor's superintendent shall be used to monitor the Contractor's quality control system.

### **3.10 Post-Installation Testing of Cathodic Protection Systems**

- A. General: Owner will provide services of a NACE-certified Cathodic Protection Specialist for periodic field inspections and final commissioning services of cathodic protection systems installed for all pipe materials in accordance with the following NACE International reference standard and test method:
  1. NACE International Standard Practice SP0169 (2002).
  2. NACE International Standard Test Method TM0497 (2002).
- B. Energizing: Assist Owner and Owner's Cathodic Protection Specialist during initial energizing of the cathodic protection systems.

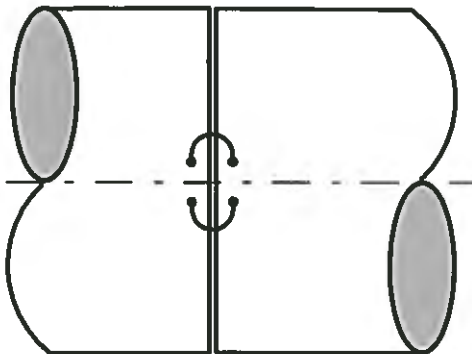
**\*\* END OF SECTION \*\***



### Ductile Iron Pipe Bonding

Size: #2 AWG 7-strand copper  
 Insulation: HMWPE  
 Cable Length: 18" (min.)  
 Number per Pipe Joint: 2  
 Location: At top of pipe  
 Surface Prep: Remove asphalt coating on pipe  
 Method: Exothermic weld  
 Weld Coating: Mastic Cap

### Push-on Ductile Iron Pipe



### Coated Steel Pipe Bonding

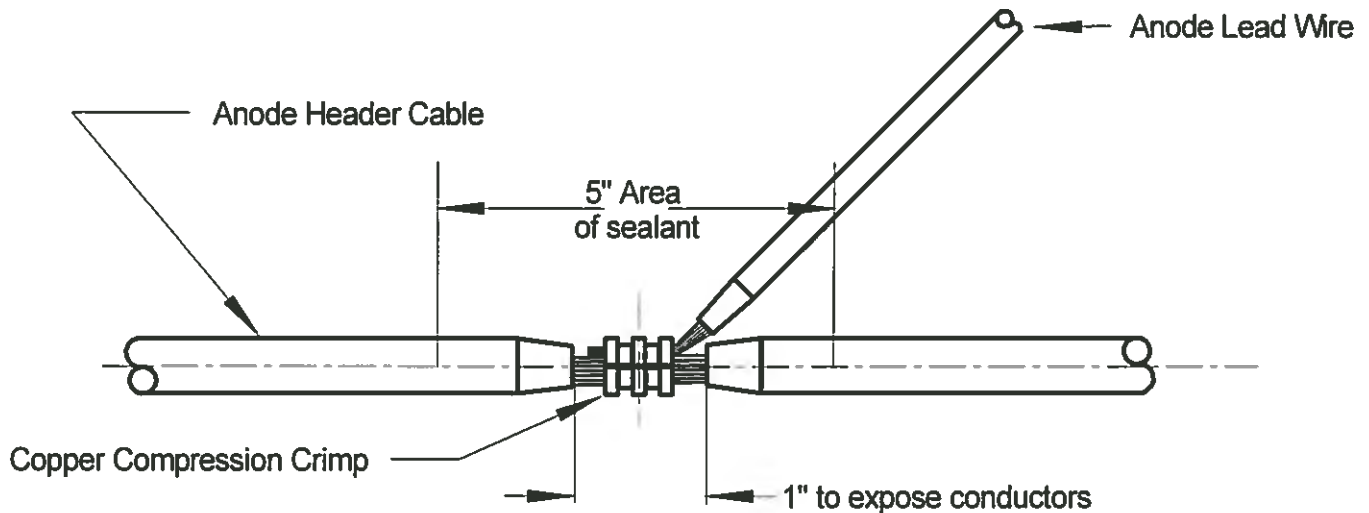
Size: #2 AWG 7-strand copper  
 Insulation: HMWPE  
 Cable Length: 18" (min.)  
 Number per Pipe Joint: 2  
 Location: To top of pipe  
 Surface Prep: Remove 2" sq. of tape wrapping  
 Method: Exothermic weld  
 Weld Coating: Mastic Cap

### Steel Pipe w/Rolled Groove Rubber Gasket Joint

Pipe Continuity Bonding for  
 Ductile Iron Pipe/Welded Steel Pipe  
 Ripple Creek P.S. - Main St. Tank  
 Campbell County, Kentucky



Scale: None  
 Drawing #: 13110-1  
 Date: 2010-Aug-28  
 Rev. 0



### Crimp Splice Procedure

Remove approximately 1" of cable insulation to expose clean copper conductors. Join the conductors by inserting them equidistance into the compression connection sleeve. Crimp conductors firmly in place using a crimping tool that requires a complete crimp before the tool can be removed. A minimum of 2 equally-spaced crimp indents is required. Test the crimped connection by pulling on the cables.

### Splice Sealing Procedure

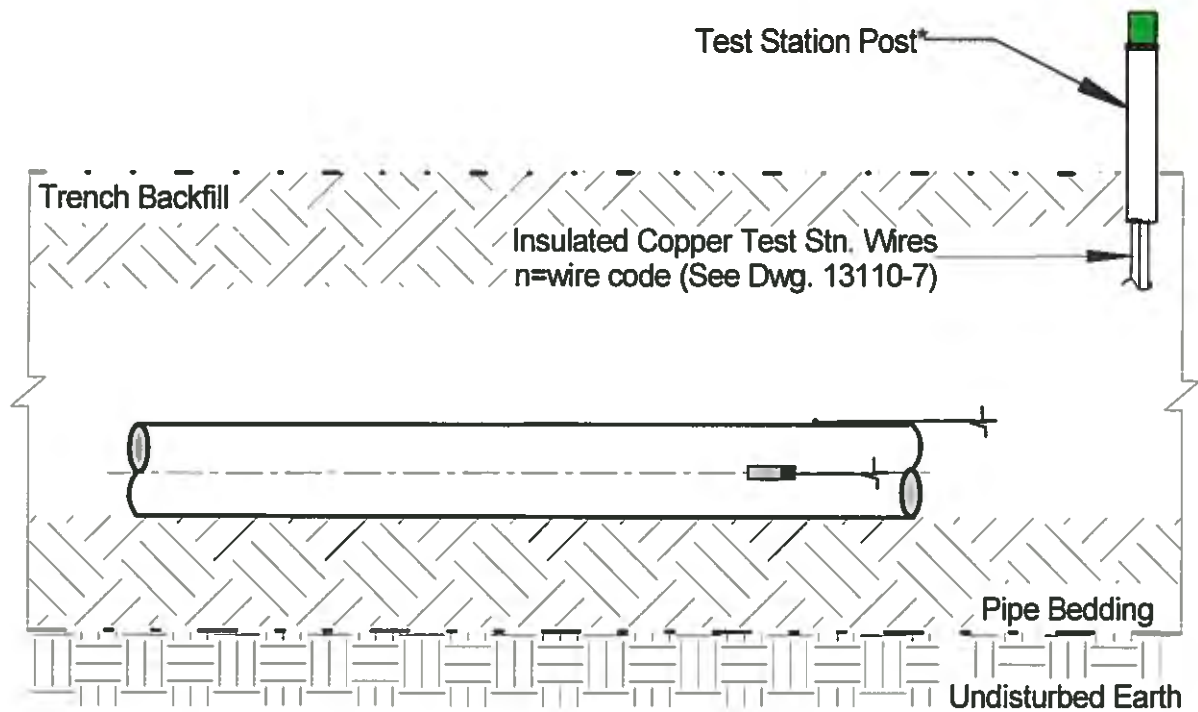
Roughen the cable insulation 2" beyond the end of the exposed conductors. Ensure that the entire surface over which the tape will be applied is clean using a lint-free cloth. Do not use solvents. Apply a high-voltage rubber tape one-half lapped over all bare conductors. This tape should be tensioned as recommended by the manufacturer. Half-lap the tape to produce a uniform buildup to 1-1/2 times cable diameter over the body of the splice with ends tapered a distance of approximately 1 inch over the original jacket. Cover rubber tape with two layers of vinyl pressure-sensitive tape one-half lapped. Cover the entire tape wrap with a fast-drying electrical sealant such as 3M Scotchkote Brand electrical coating.

Insulated Rubber & Tape Splice for  
Sacrificial Anode Cable Connections  
Ripple Creek P.S. - Main St. Tank  
Campbell County, Kentucky

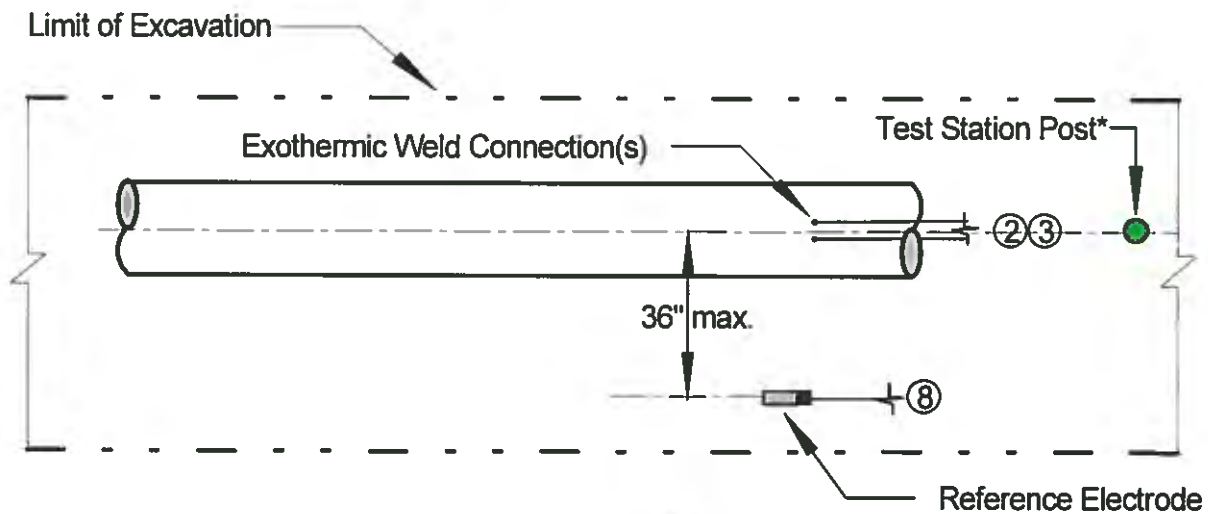
Northern Kentucky  
**Water District**

Scale: None  
Drawing #: 13110-2  
Date: 2010-Aug-28  
Rev. 0





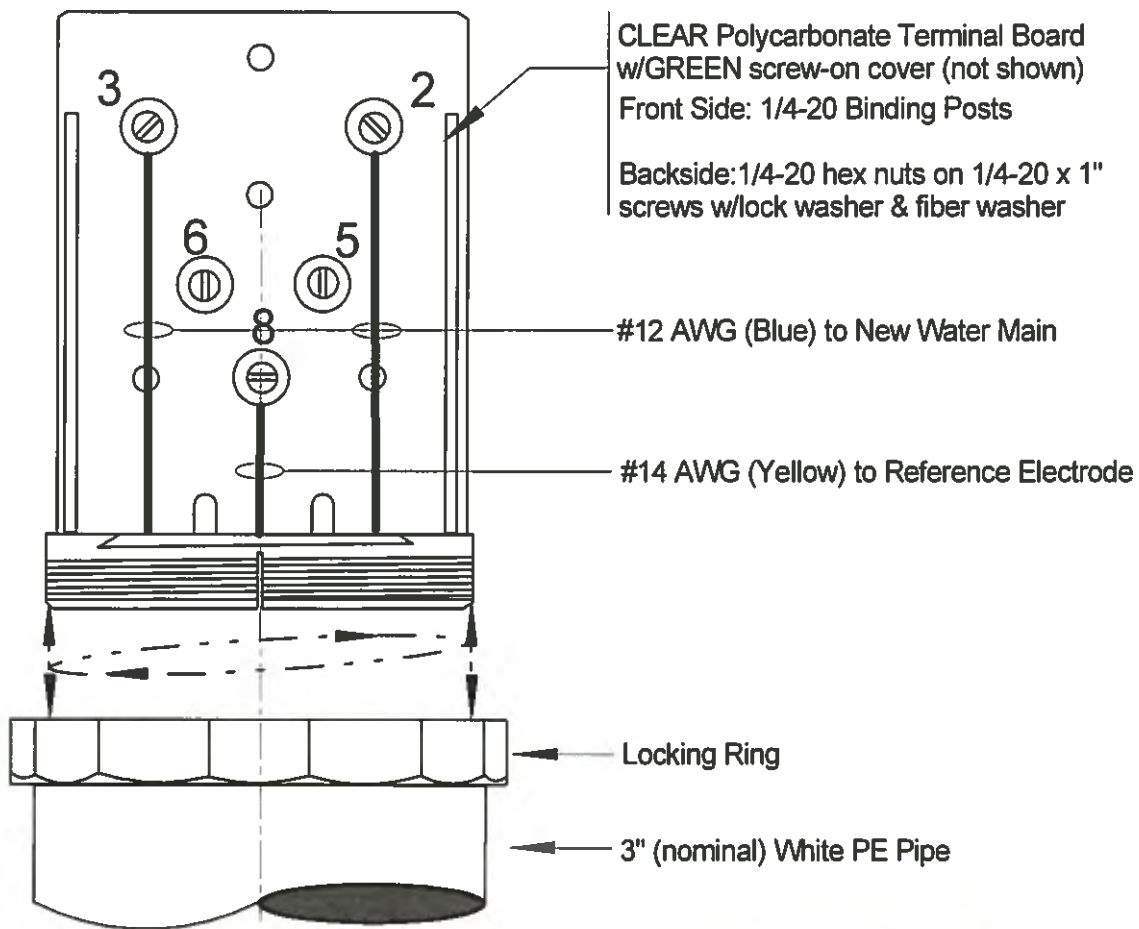
Elevation



Plan View

\* Install post-type test station within flush enclosure where specified

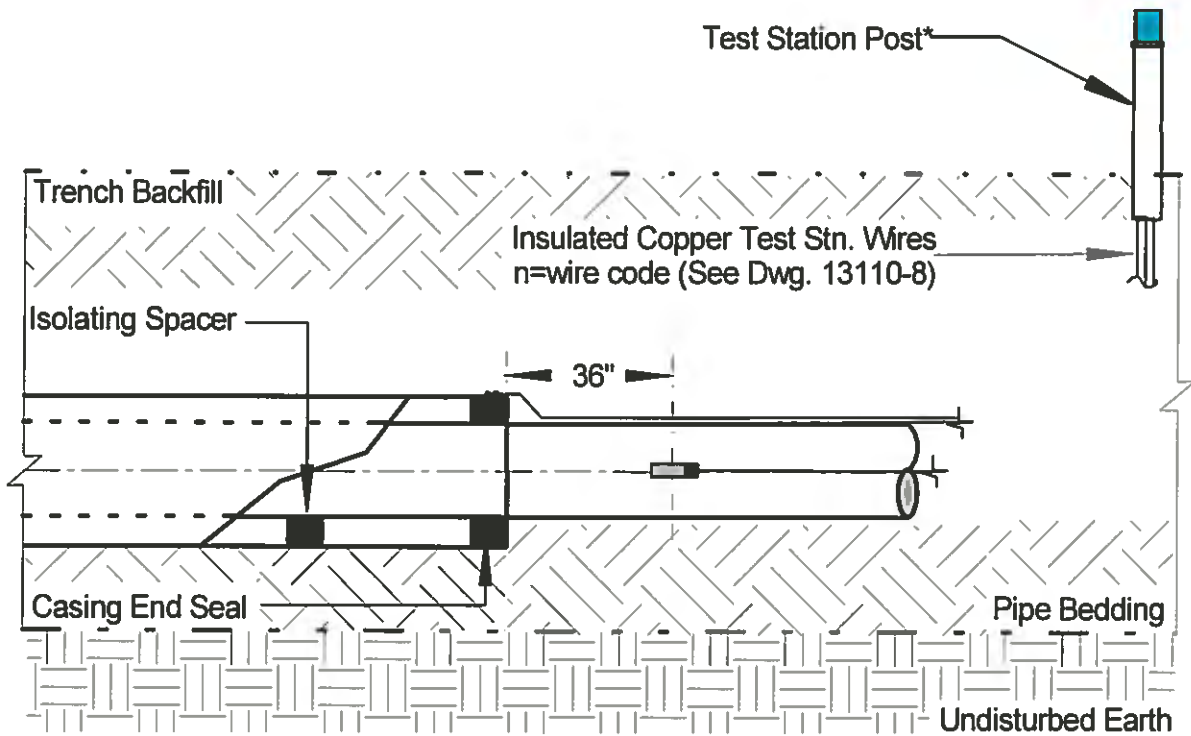
<p>Potential Test Station (Drawing Code "PTS") Ripple Creek P.S. - Main St. Tank Campbell County, Kentucky</p>	<p>Northern Kentucky <b>Water District</b></p>	<p>Scale: None Drawing #: 13110-3.A Date: 2010-Aug-28 Rev. 0</p>
--	--	--



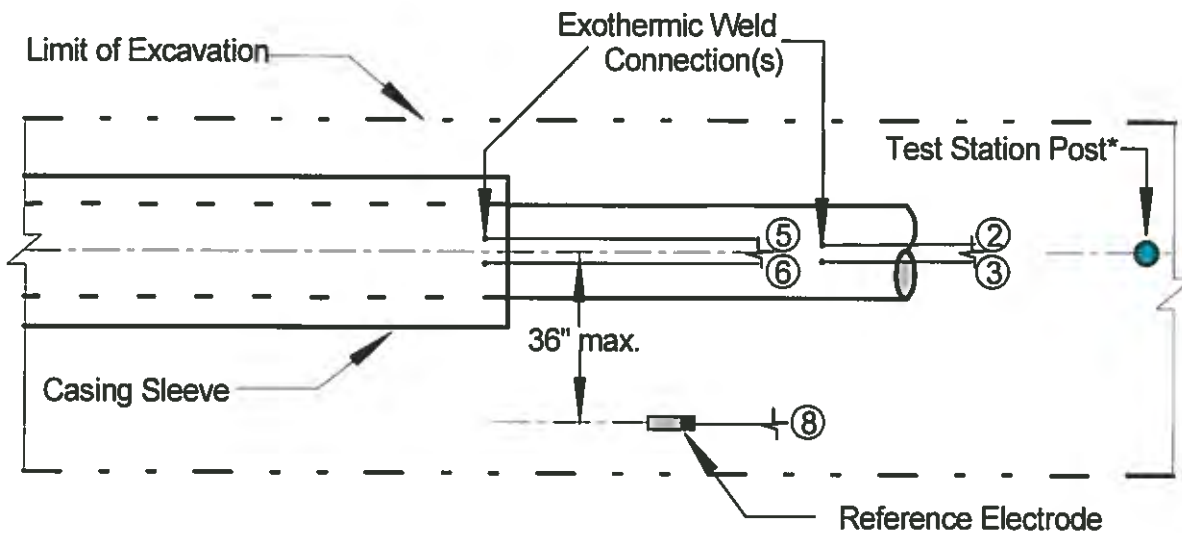
PTS Terminal Board Installation Details  
Structure Connections & Color Codes  
Ripple Creek P.S. - Main St. Tank  
Campbell County, Kentucky

Northern Kentucky  
**Water District**

Scale: None  
Drawing #: 13110-3.B  
Date: 2010-Aug-28  
Rev. 0



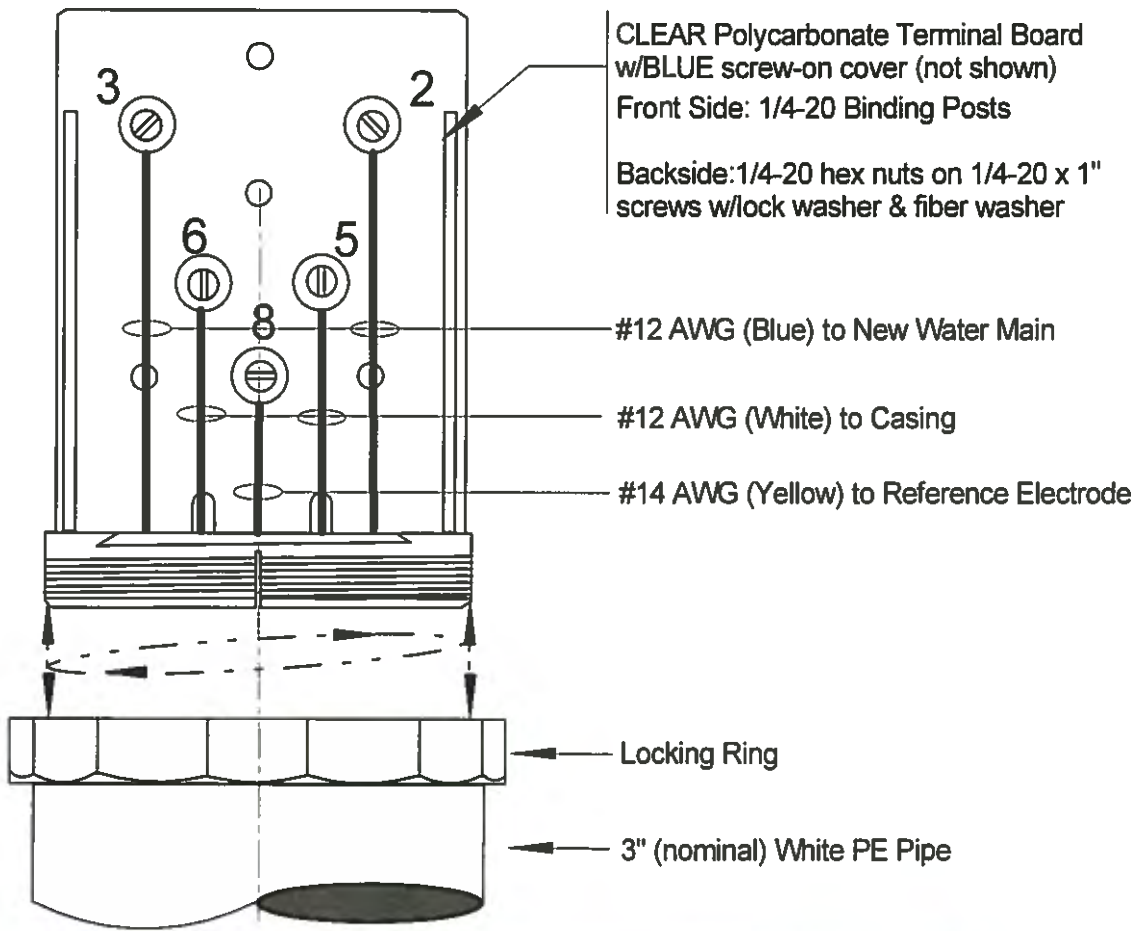
Elevation



Plan View

\* Install post-type test station within flush enclosure where specified

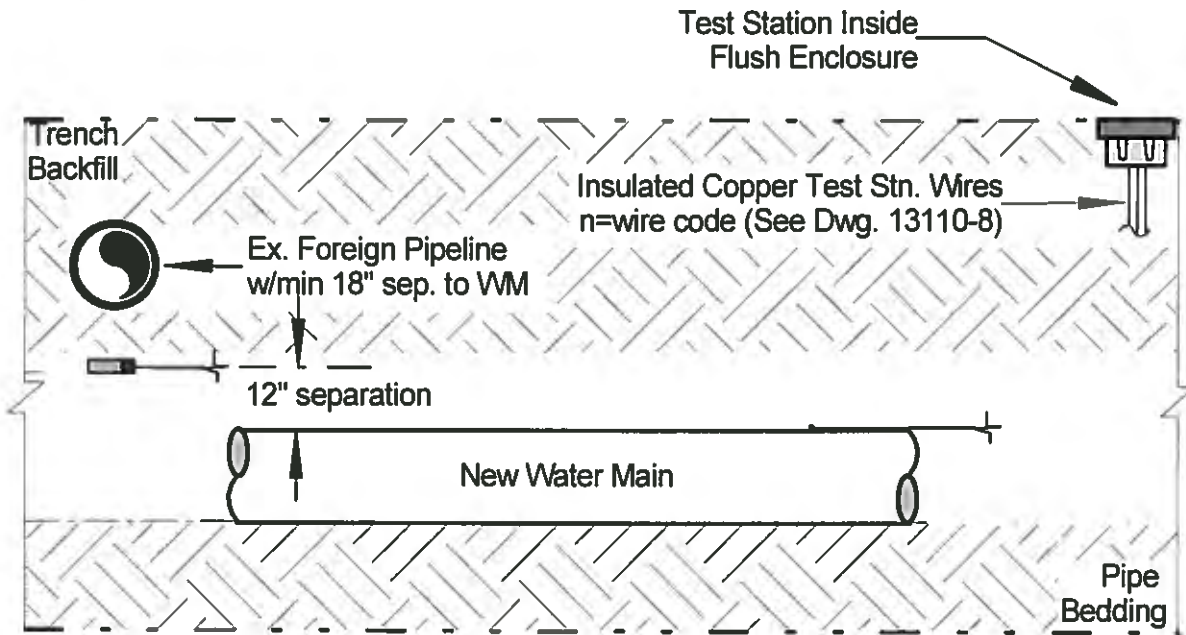
<p>Casing Test Station          (Drawing Code "CTS")          Ripple Creek P.S. - Main St. Tank          Campbell County, Kentucky</p>		<p>Scale: None          Drawing #: 13110-4.A          Date: 2010-Aug-28          Rev. 0</p>
--	--	---



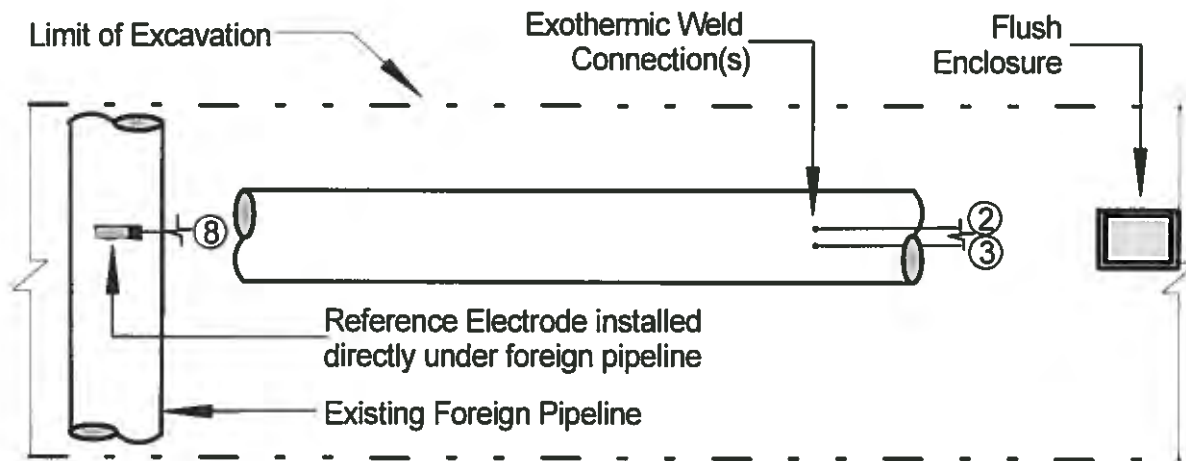
CTS Terminal Board Installation Details  
Structure Connections & Color Codes  
Ripple Creek P.S. - Main St. Tank  
Campbell County, Kentucky



Scale: None  
Drawing #: 13110-4.B  
Date: 2010-Aug-28  
Rev. 0



Elevation

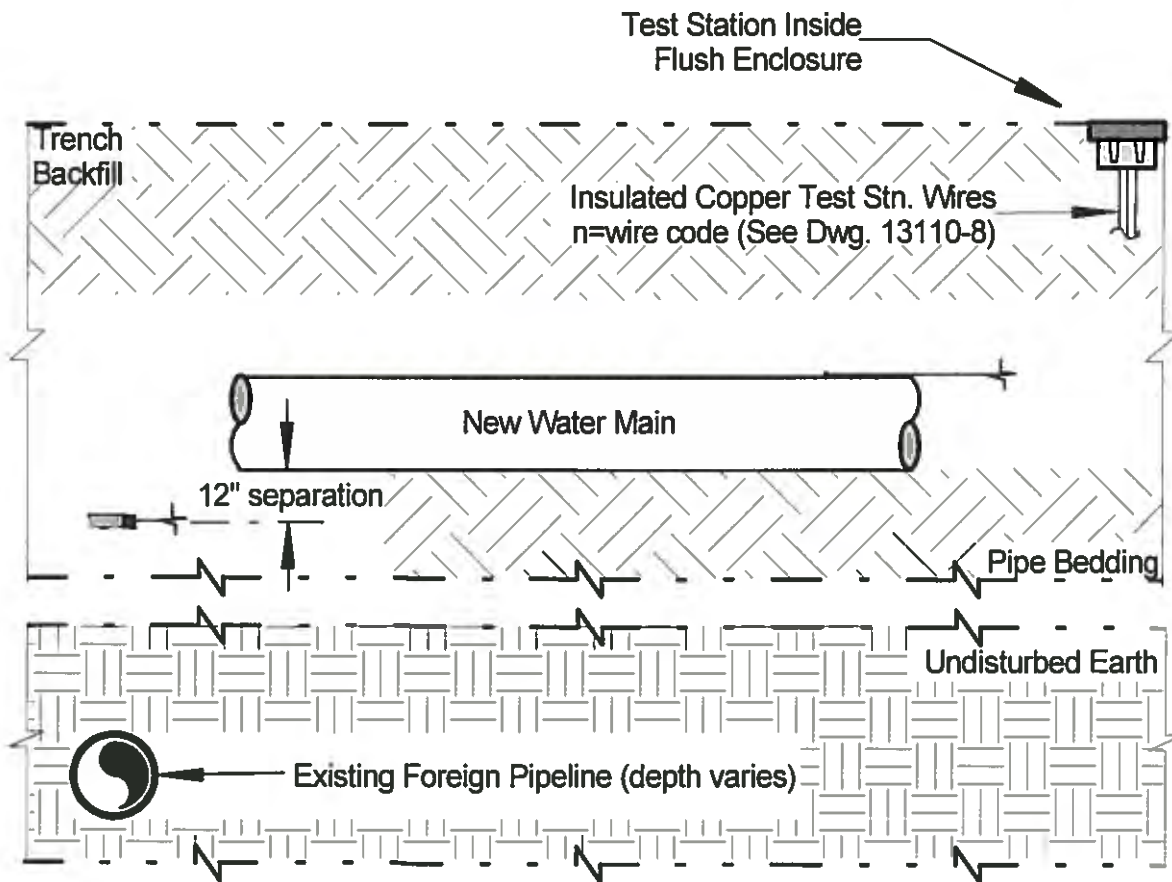


Plan View

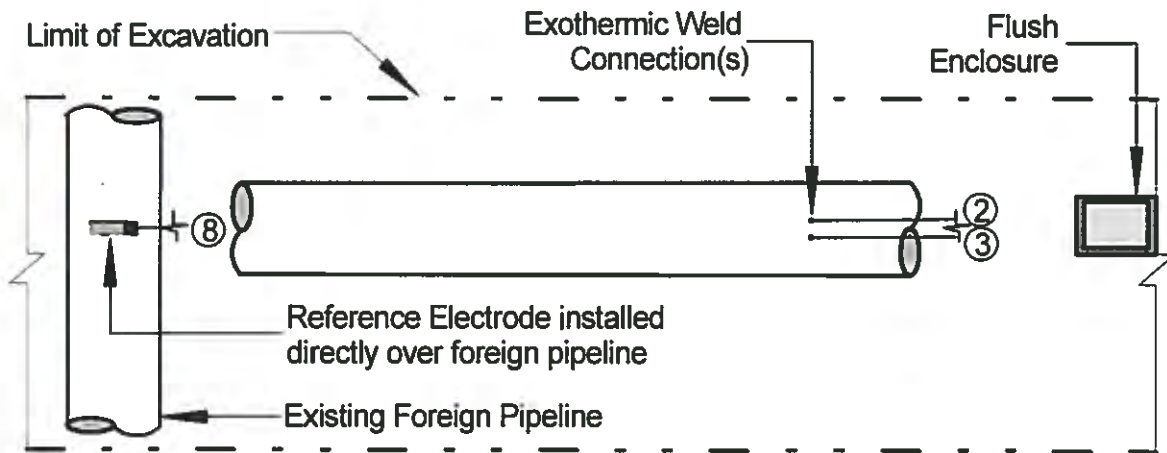
Foreign Crossing (Over) Test Station  
 (Drawing Code "FTS")  
 Ripple Creek P.S. - Main St. Tank  
 Campbell County, Kentucky



Scale: None  
 Drawing #: 13110-5.Ao  
 Date: 2010-Aug-28  
 Rev. 0



Elevation

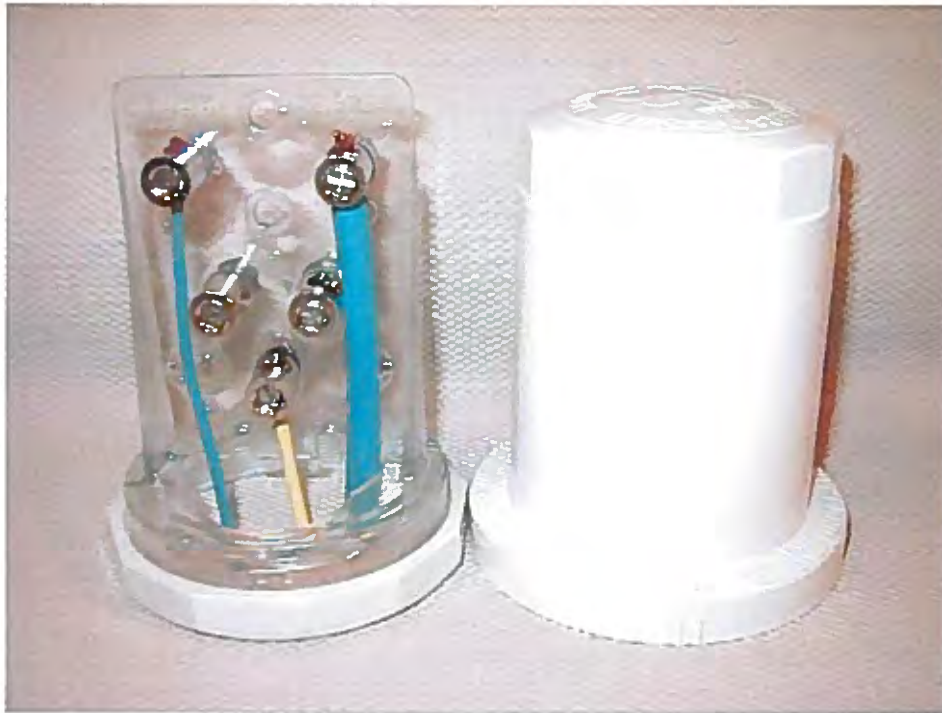
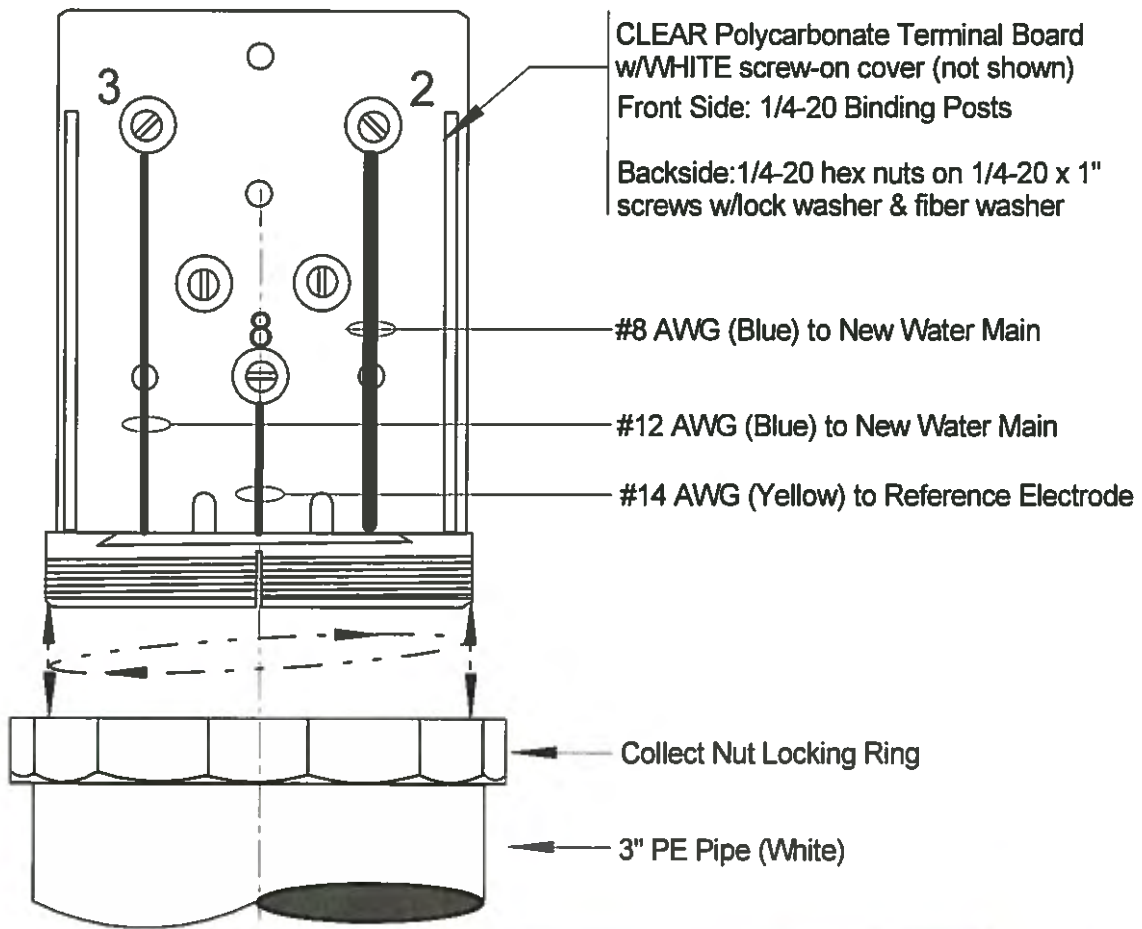


Plan View

Foreign Crossing (Under) Test Station  
 (Drawing Code "FTS")  
 Ripple Creek P.S. - Main St. Tank  
 Campbell County, Kentucky



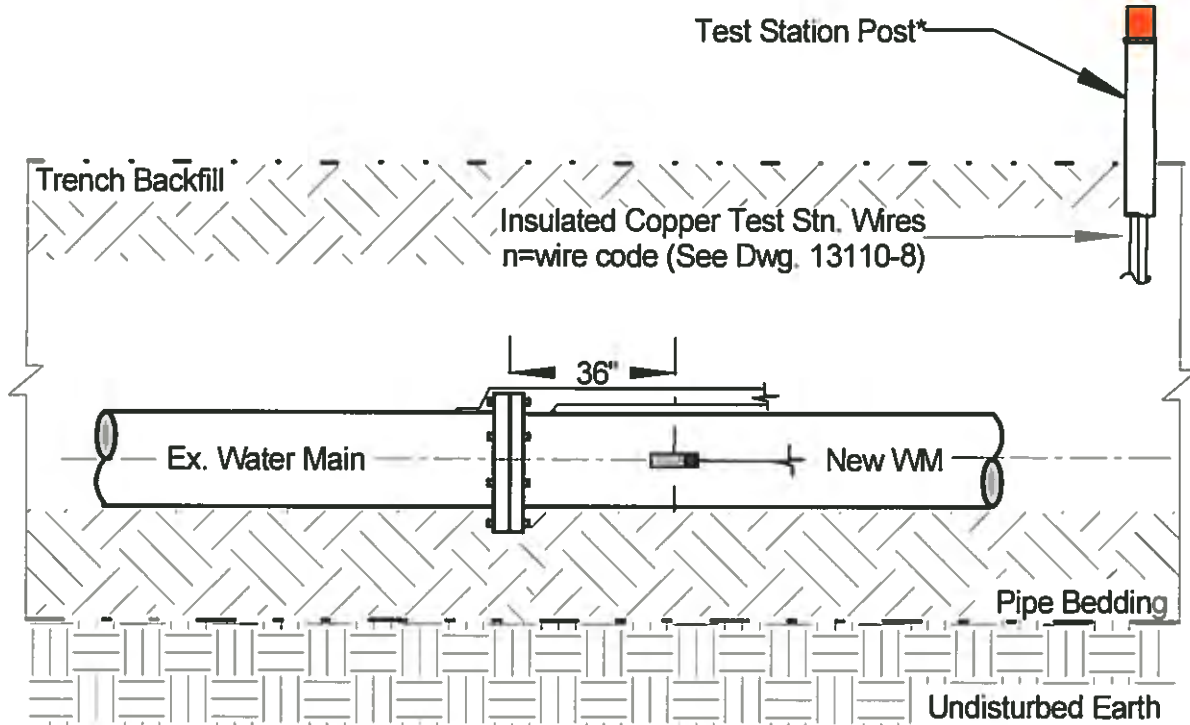
Scale: None  
 Drawing #: 13110-5.Au  
 Date: 2010-Aug-28  
 Rev. 0



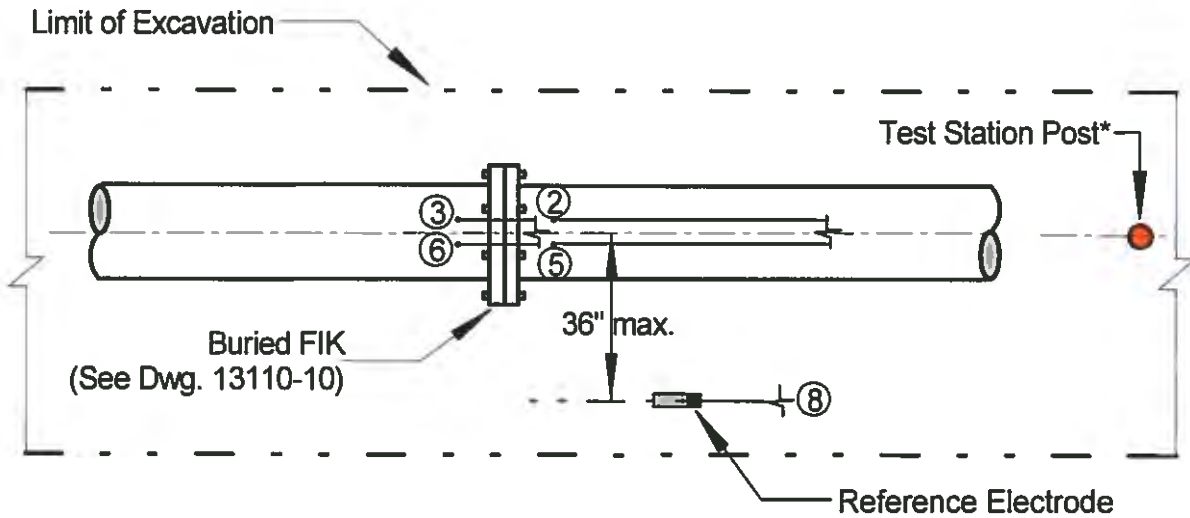
FTS Terminal Board Installation Details  
Structure Connections & Color Codes  
Ripple Creek P.S. - Main St. Tank  
Campbell County, Kentucky

Northern Kentucky  
**Water District**

Scale: None  
Drawing #: 13110-5.B  
Date: 2010-Aug-28  
Rev. 0



Elevation

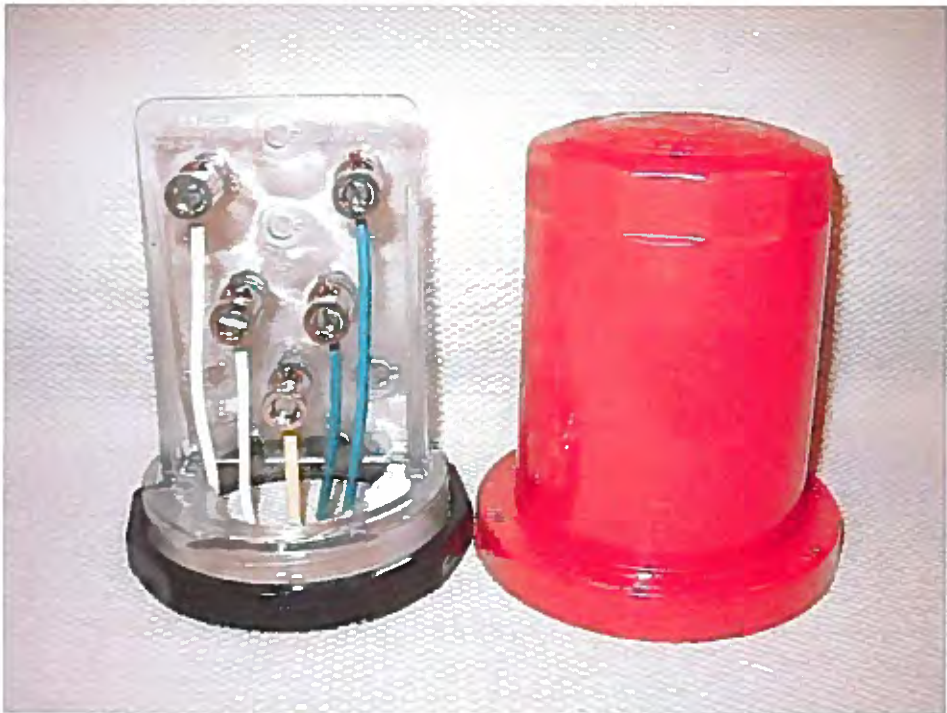
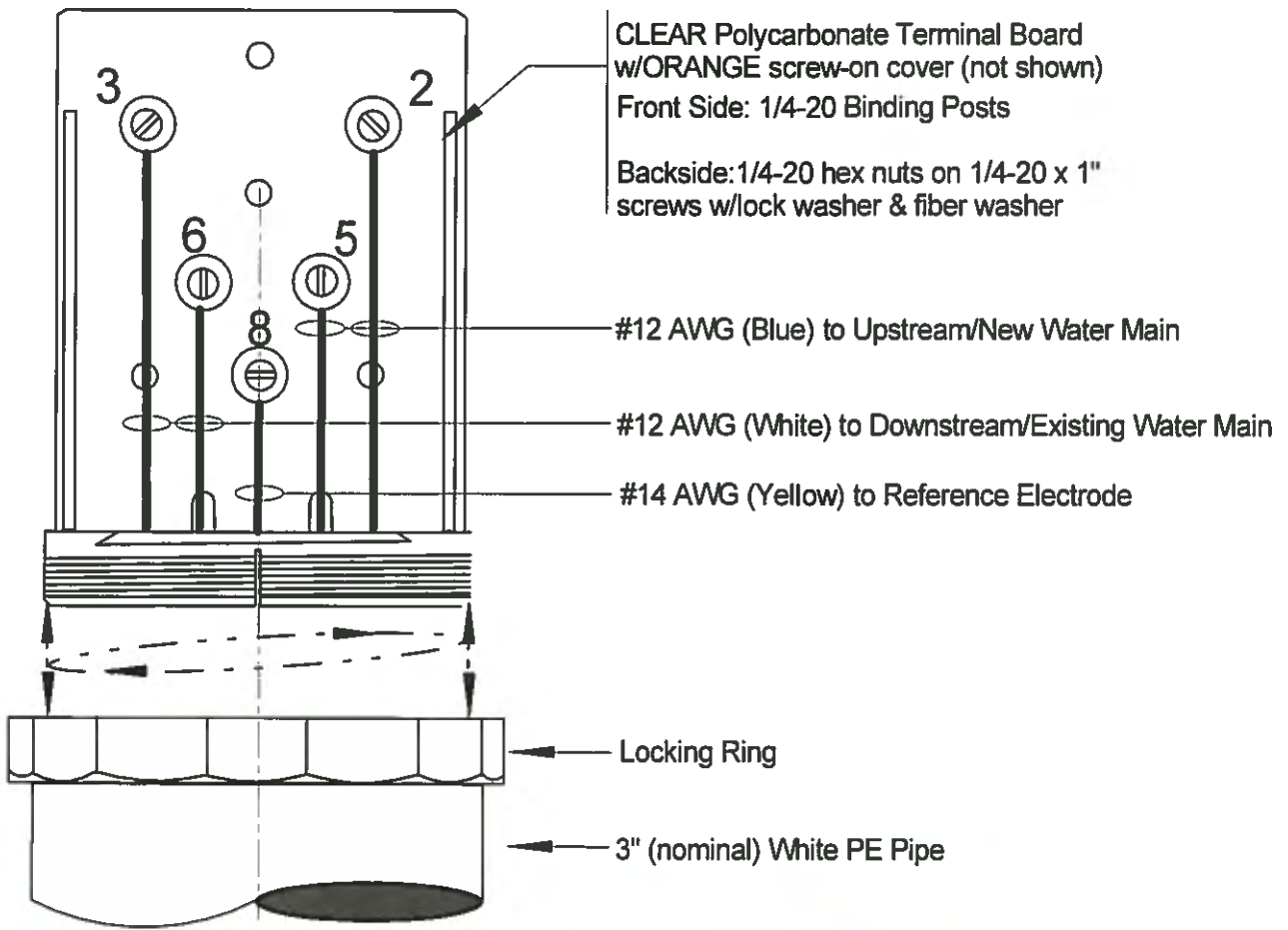


Plan View

\* Install post-type test station within flush enclosure where specified

Isolator Test Station (w/o Tapping Tee) (Drawing Code "ITS") Ripple Creek P.S. - Main St. Tank Campbell County, Kentucky		Scale: None Drawing #: 13110-G.A Date: 2010-Aug-28 Rev. 0
---	--	--

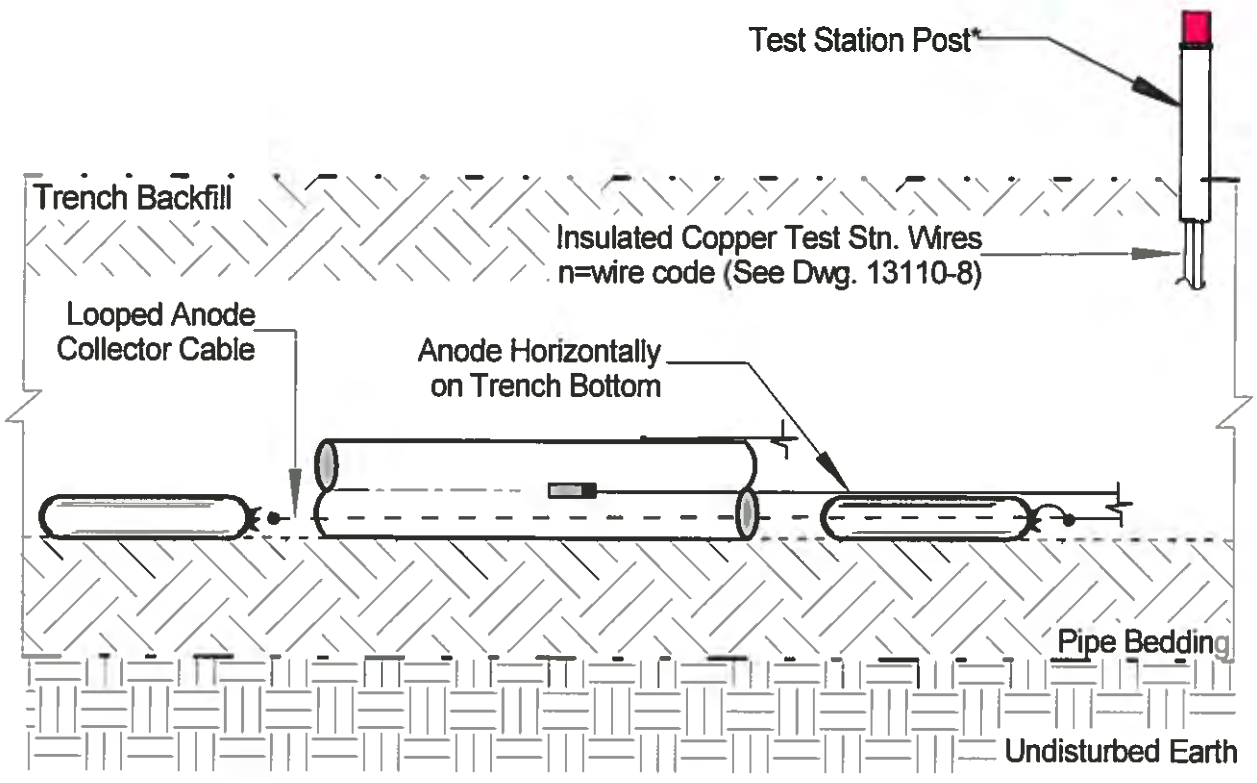




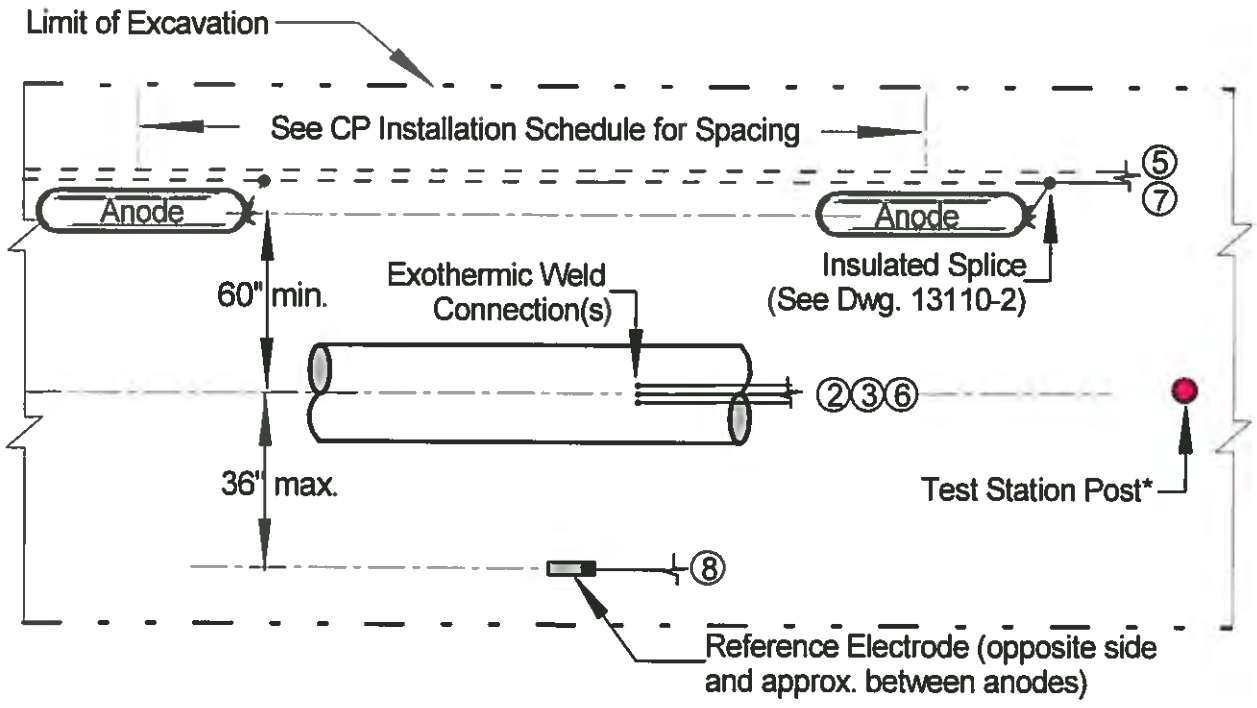
ITS Terminal Board Installation Details  
 Structure Connections & Color Codes  
 Ripple Creek P.S. - Main St. Tank  
 Campbell County, Kentucky



Scale: None  
 Drawing #: 13110-6.B  
 Date: 2010-Aug-28  
 Rev. 0



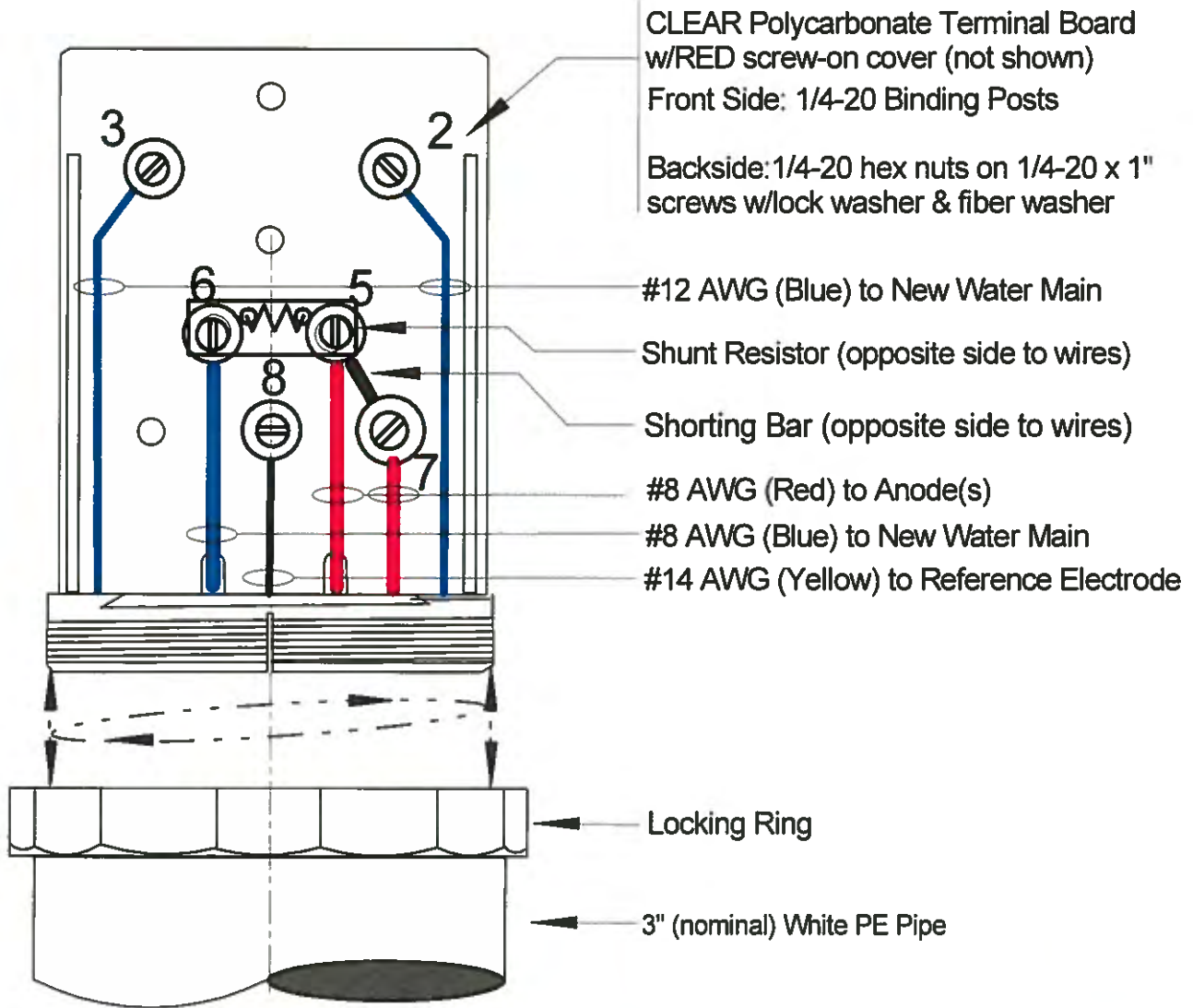
## Elevation



## Plan View

\* Install post-type test station within flush enclosure where specified

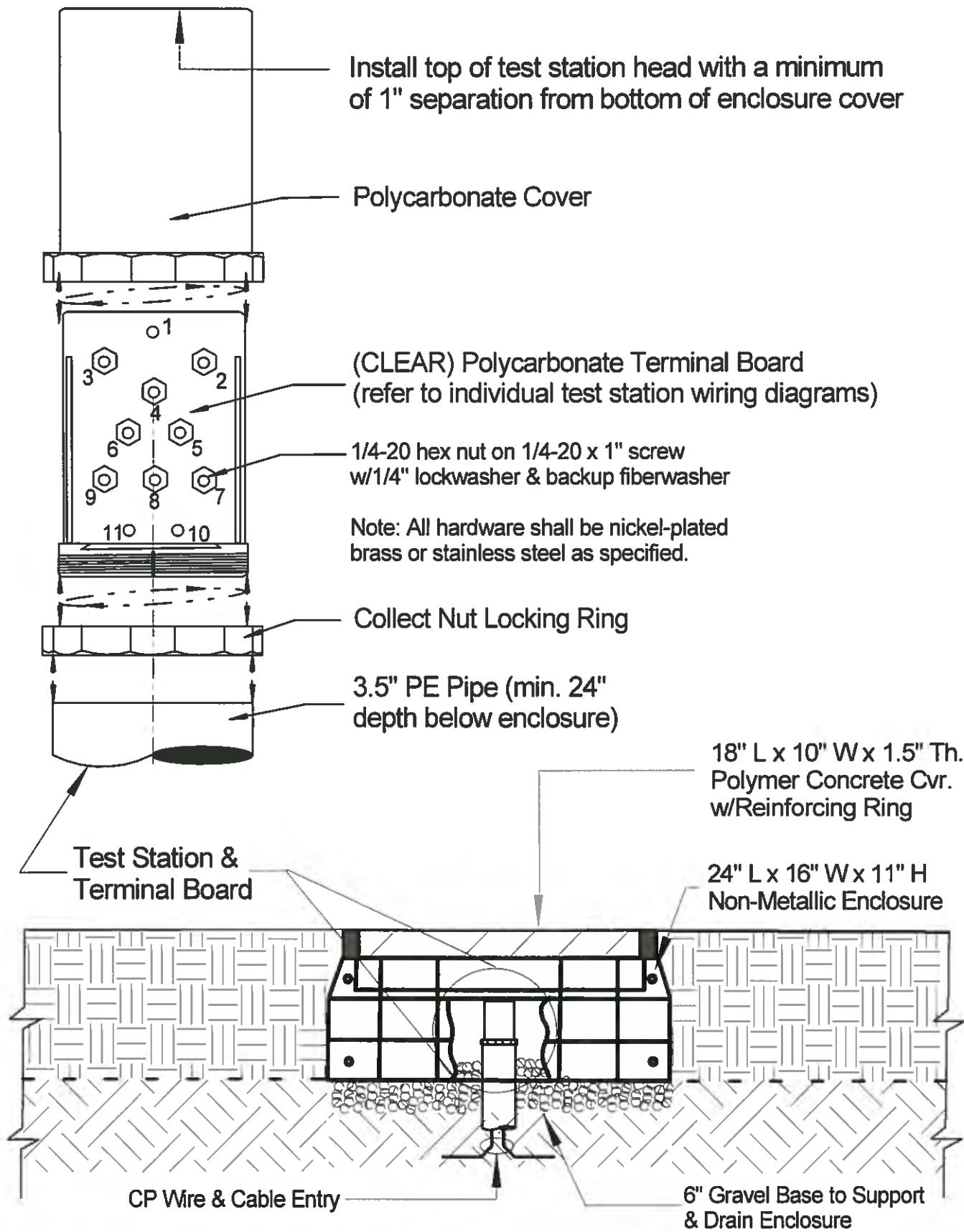
<p>Anode Test Station (Drawing Code "ATS") Ripple Creek P.S. - Main St. Tank Campbell County, Kentucky</p>		<p>Scale: None Drawing #: 13110-7.A Date: 2010-Aug-28 Rev. 0</p>
--	--	--



ATS Terminal Board Installation Details  
Structure Connections & Color Codes  
Ripple Creek P.S. - Main St. Tank  
Campbell County, Kentucky

Northern Kentucky  
**Water District**

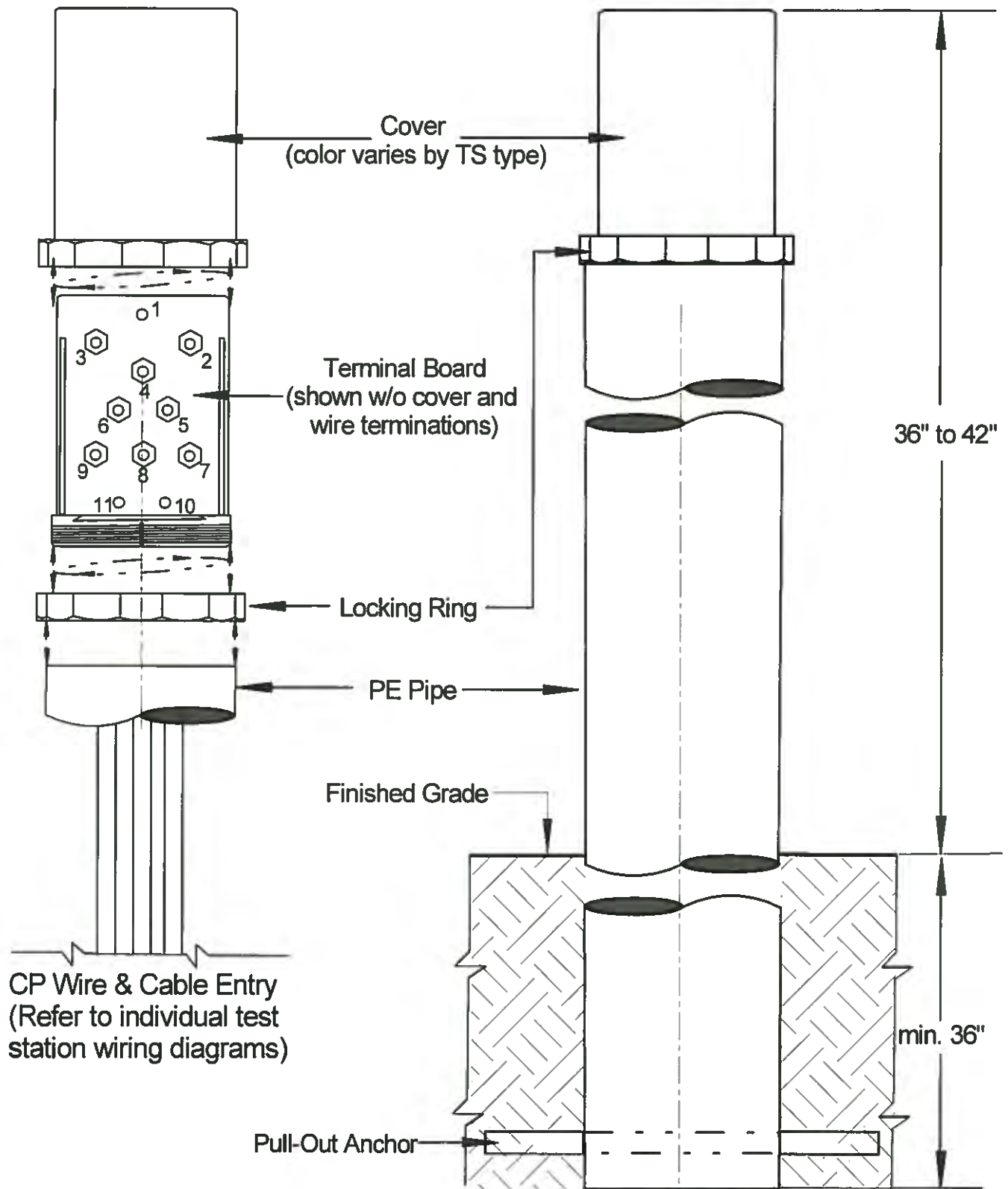
Scale: None  
Drawing #: 13110-7.B  
Date: 2010-Aug-28  
Rev. 0



Flush-Mounted Enclosure for  
Test Station Terminal Board & Wires  
Ripple Creek P.S. - Main St. Tank  
Campbell County, Kentucky

Northern Kentucky  
**Water District**

Scale: None  
Drawing #: 13110-8F  
Date: 2010-Aug-28  
Rev. 0

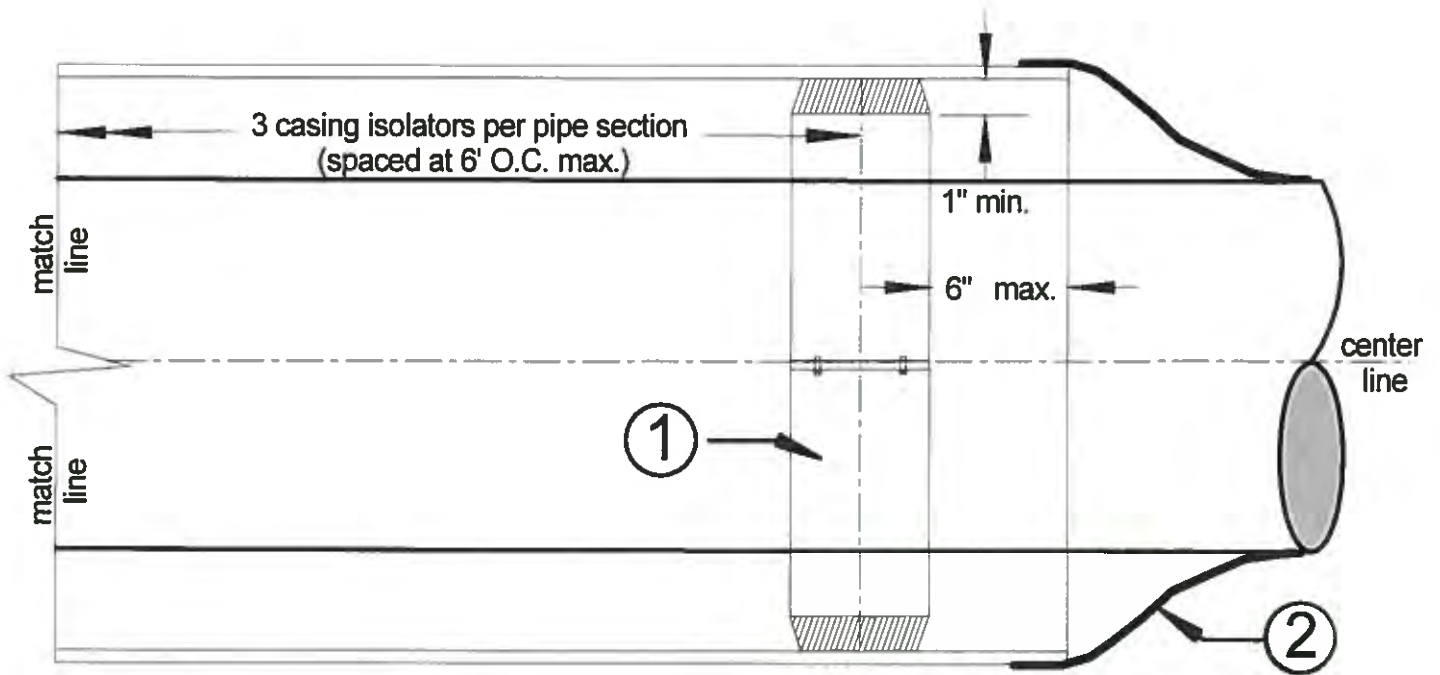


CP Wire & Cable Entry  
 (Refer to individual test  
 station wiring diagrams)

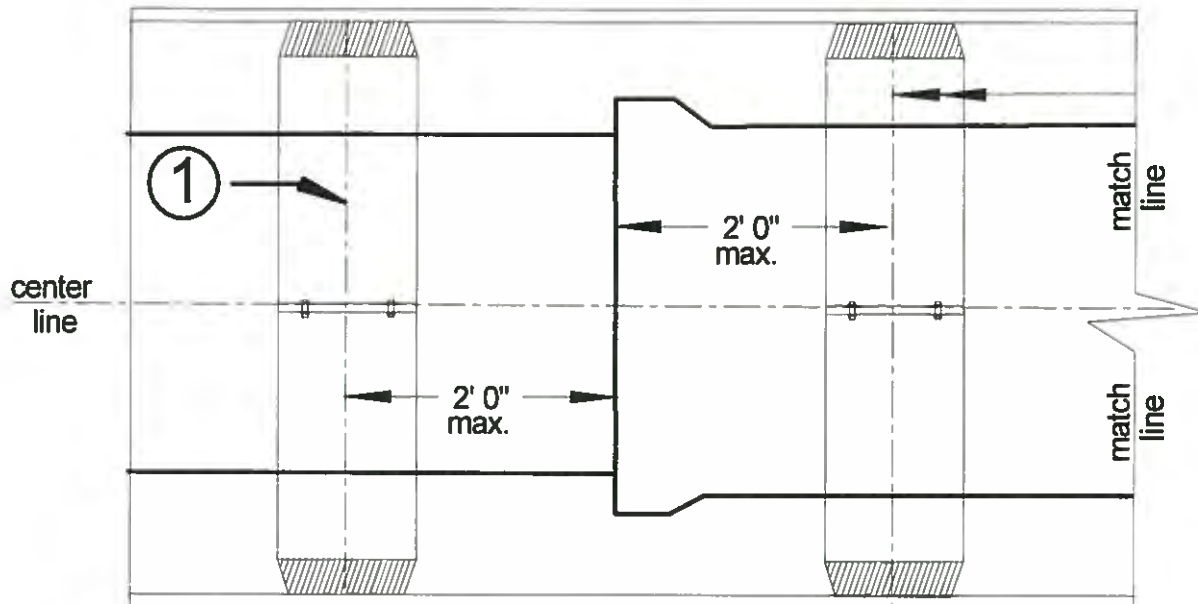
Post Type Test Station for  
 Terminal Board & CP Wire & Cable  
 Ripple Creek P.S. - Main St. Tank  
 Campbell County, Kentucky



Scale: None  
 Drawing #: 13110-8P  
 Date: 2010-Aug-28  
 Rev. 0



## Casing Isolator and Casing End Seal



## Casing Isolators Installed at Pipe Joint

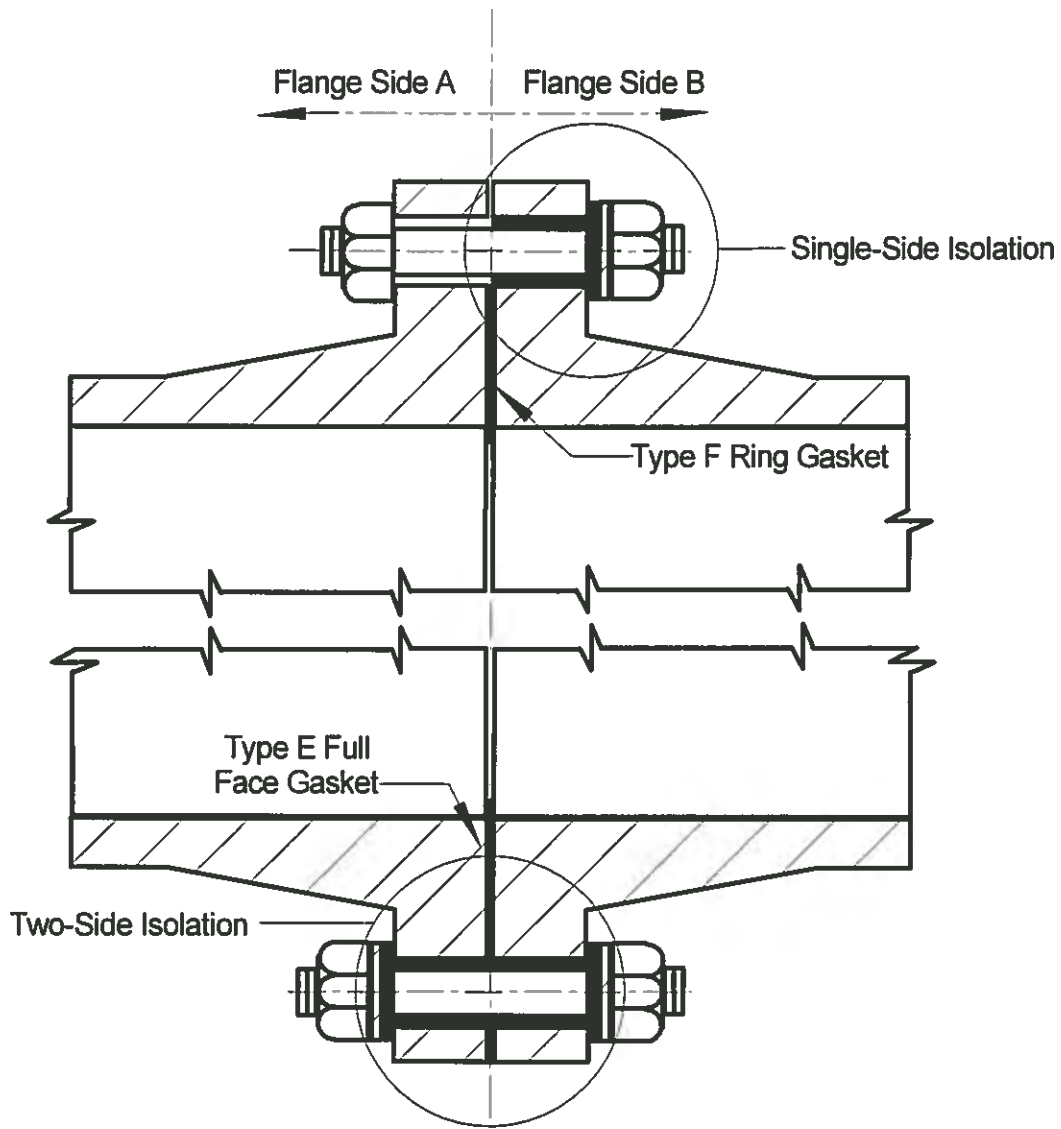
- ① Stainless Steel Band Casing Isolator w/Dielectric Runners
- ② Wrap-Around Casing Boot End Seal (pipe not req'd to be centered)

**Note: Ductile Iron Pipe is shown - casing isolators for WSP are similar**

Electrical Isolation Devices for  
Metallic Casing Sleeves  
Ripple Creek P.S. - Main St. Tank  
Campbell County, Kentucky

Northern Kentucky  
**Water District**

Scale: None  
Drawing #: 13110-9  
Date: 2010-Aug-28  
Rev. 0



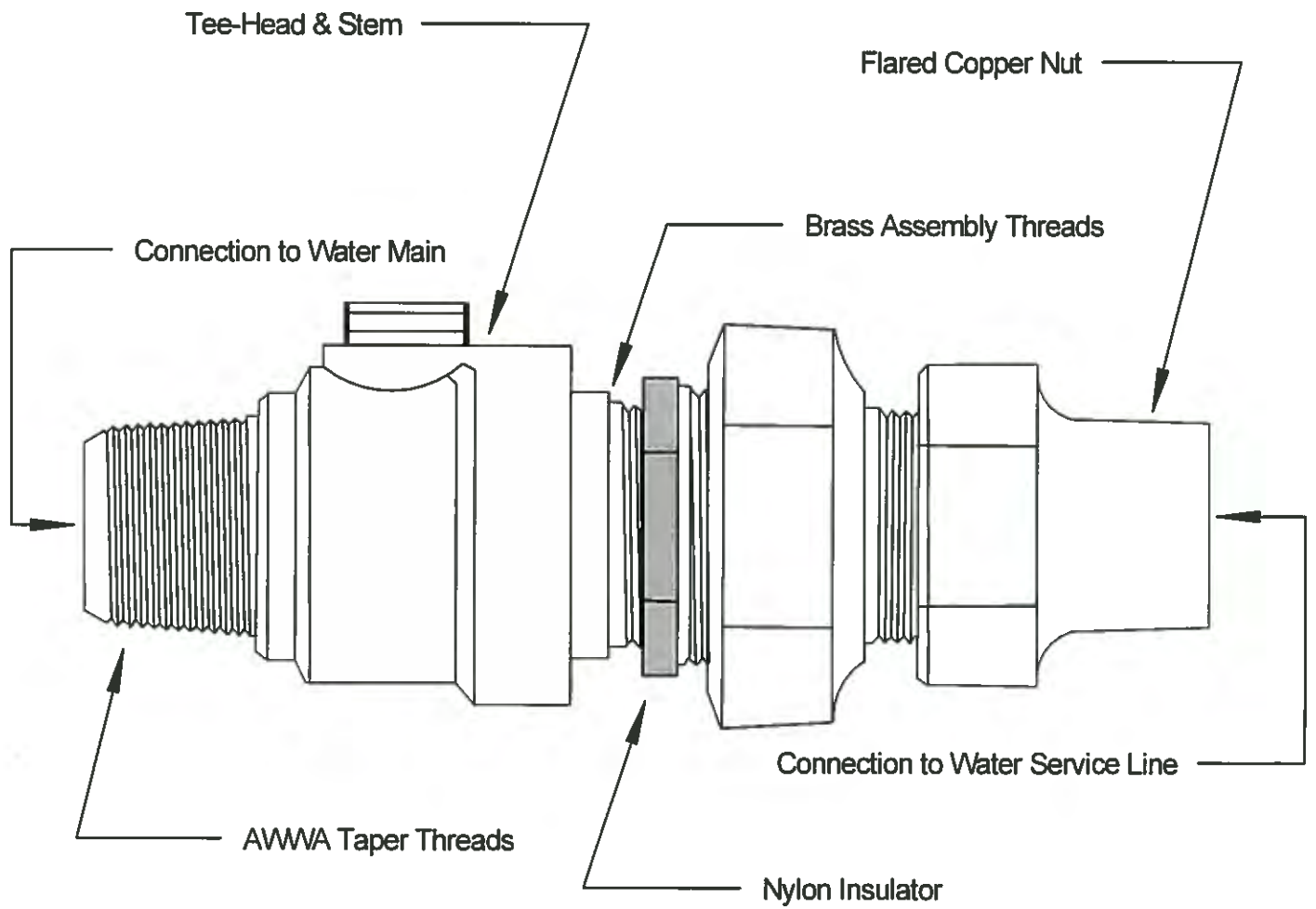
**Required Information to Properly Size a Flange Isolation Kit**

Flange Spec.	_____
Flange Size	_____
Flange Rating	_____
Flange O.D.	_____
Flange I.D.	_____
Bolt Circle Ø	_____
Qty. Bolt Holes	_____
Flange Bolt Ø	_____
Bolt Hole Ø	_____
Flange Thickness (A)	_____
Flange Thickness (B)	_____

Flange Isolation Kit  
 (Drawing Code "FIK")  
 Ripple Creek P.S. - Main St. Tank  
 Campbell County, Kentucky



Scale: None  
 Drawing #: 13110-10  
 Date: 2010-Aug-28  
 Rev. 0

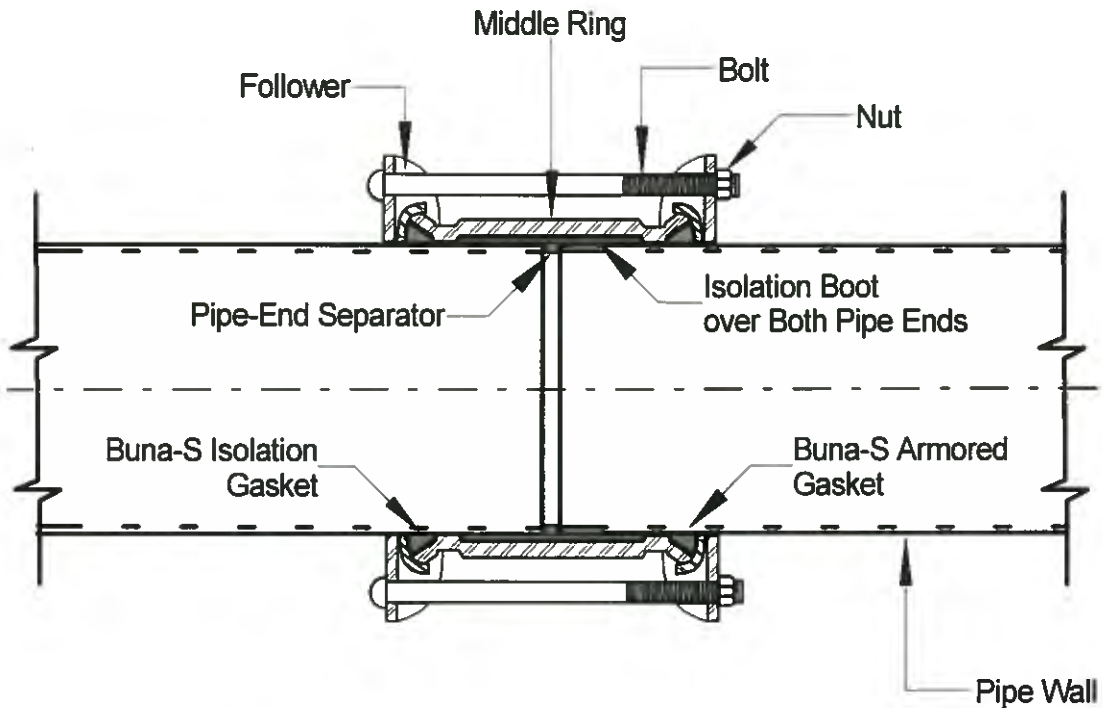


Isolation Corporation Stop  
 (Drawing Code "ICS")  
 Ripple Creek P.S. - Main St. Tank  
 Campbell County, Kentucky

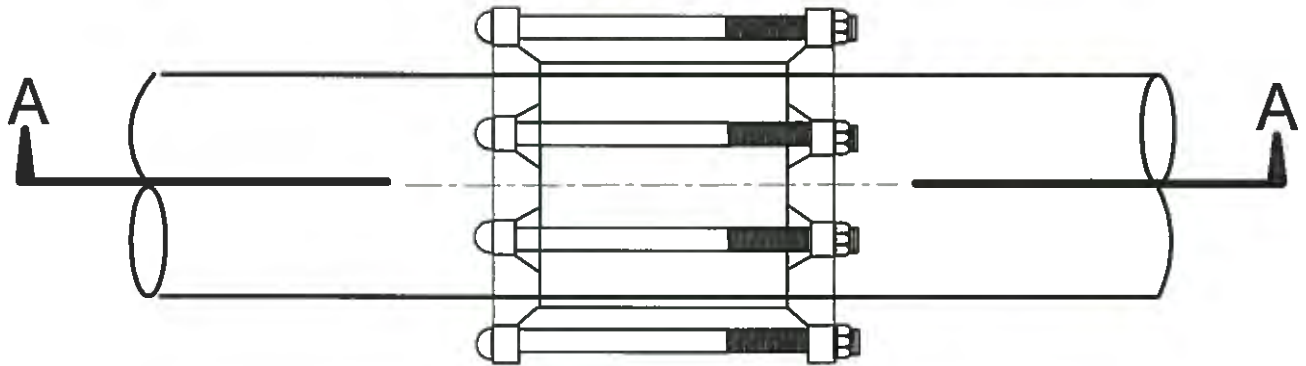


Scale: None  
 Drawing #: 13110-11  
 Date: 2010-Aug-28  
 Rev. 0





Section A: View through Pipe Coupling



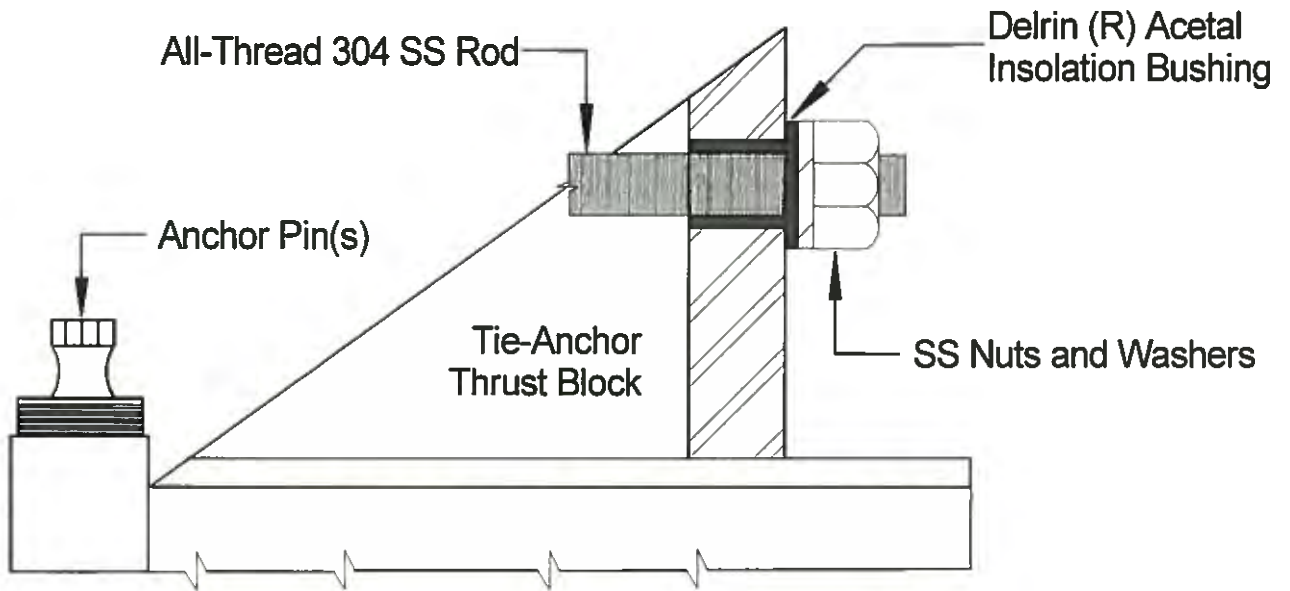
Pipe Isolation Coupling

See Dwg. 13110-12b for Pipe Isolation Coupling w/Supplemental Restraint

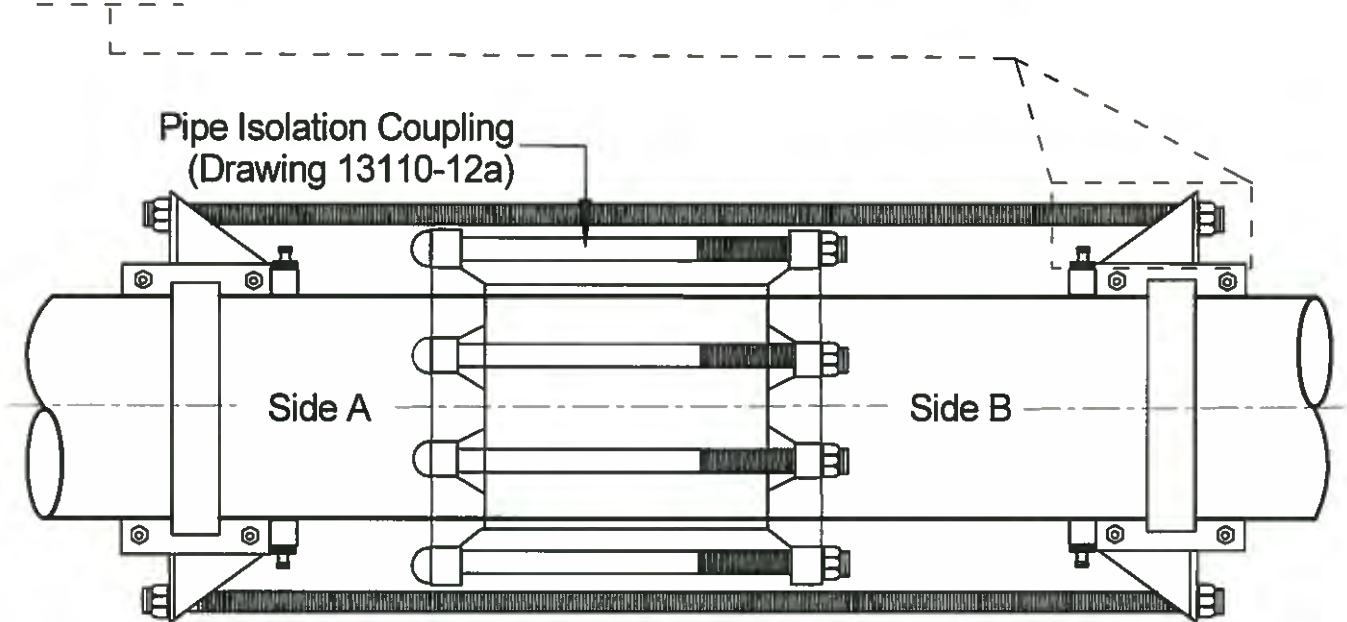
Pipe Isolation Coupling (w/o Restraint)  
 (Drawing Code "PIC")  
 Ripple Creek P.S. - Main St. Tank  
 Campbell County, Kentucky

Northern Kentucky  
**Water District**

Scale: None  
 Drawing #: 13110-12a  
 Date: 2010-Sep-27  
 Rev. 0



## Detail - Electrical Isolation at Restraint Rod Bolts



## Pipe Isolation Coupling w/Supplemental Restraint

### Required Information to Properly Size Joint Restraint

Pipe Diameter	_____
Working Pressure	_____
Test Pressure	_____
Thrust Load Req'd	_____
Rod Length Req'd	_____
Pipe Material (Side A)	_____
Pipe Material (Side B)	_____

Pipe Isolation Coupling (Restrained)  
 (Drawing Code "PIC")  
 Ripple Creek P.S. - Main St. Tank  
 Campbell County, Kentucky

Northern Kentucky  
**Water District**

Scale: None  
 Drawing #: 13110-12b  
 Date: 2010-Sep-27  
 Rev. 0

**Cathodic Protection Schedule - 24" Ductile Iron Pipe**

Test Station PL STA # (x 100 ft)	Anode Spacing (feet)	First Anode STA (x 100 ft)	Last Anode STA (x 100 ft)	Est. Amt. #8 Cable (feet)	Anodes Per TS	TS Style	TS Type	Remarks
0.00	-	-	-	-	-	None	-	End PL at New 24" WM (Phase 3)
3.83	35	2.43	5.23	620	9	Flush	ATS	1
11.48	35	10.26	12.71	540	8	Flush	ATS	2
19.13	35	17.73	20.53	620	9	Flush	ATS	3
26.78	35	25.56	28.01	540	8	Flush	ATS	4
34.43	35	33.03	35.83	620	9	Flush	ATS	5
42.08	35	40.86	43.31	540	8	Flush	ATS	6
49.73	35	48.33	51.13	620	9	Flush	ATS	7
57.38	35	56.16	58.61	540	8	Flush	ATS	8
60.48	-	-	-	-	-	Flush	FTS	Duke Energy Pipeline Crossing
65.03	35	63.63	66.43	620	9	Flush	ATS	9
72.68	35	71.46	73.91	540	8	Flush	ATS	10
80.33	35	78.93	81.73	620	9	Flush	ATS	11
87.60	35	86.76	89.21	540	8	Flush	ATS	12
93.11	-	-	-	-	-	None	-	End PL at New 24" WM (Phase 5)
<b>Total</b>				<b>6960</b>	<b>102</b>		<b>13</b>	

1. Extend test station lead wires outside cultivated or paved areas and place them at a minimum of 36" deep in these areas.

Key to Test Stations (See CP Installation Detail Drawings)

<b>CTS</b>	Casing Test Station
<b>ITS</b>	Isolator Test Station
<b>ATS</b>	Anode Test Station

**Phase 3 - Electrical Isolation Schedule**

Connection Point	PL STA # (x 100 ft)	Location Description	Pipe Size	Isolator Type	TS Req'd?
Existing WM	10.00	West Side of U.S. 27	16"	PIC	Yes
Existing WM	15.00	Greenup Street	12"	PIC	No
Existing WM	16.61	Church Entrance Road	6"	PIC	No
Existing WM	23.42	South Side Jefferson Street	6"	PIC	No
Existing WM	23.42	North Side Jefferson Street	4"	PIC	No
Existing WM	27.36	North Side Washington Street	12"	PIC	No
Existing WM	34.24	Route 10 Intersection	8"	PIC	No
Proposed WM	34.05	Phase 5 WM Tie-In	24"	None	-
Multiple Water Services		Along Entire Length of New WM	Varies	ICS	No

**Phase 4 - Electrical Isolation Schedule**

Connection Point	PL STA # (x 100 ft)	Location Description	Pipe Size	Isolator Type	TS Req'd?
Existing WM	186.37	South Side Poplar Ridge Road	6"	PIC	No
Existing WM	186.42	North Side Poplar Ridge Road	6"	PIC	No
Proposed WM	221.75	Phase 5 WM Tie-In	24"	None	-
Existing WM	224.00	Four Mile Road	12"	PIC	Yes

**Phase 5 - Electrical Isolation Schedule**

Connection Point	PL STA # (x 100 ft)	Location Description	Pipe Size	Isolator Type	TS Req'd?
Proposed WM	0.00	Phase 3 WM Tie-In	24"	None	-
Proposed WM	93.21	Phase 4 WM Tie-In	24"	None	-

Key to Isolator Types: (See CP Installation Detail Drawings)

- FIK Flange Isolation Kit
- PIC Pipe Isolation Coupling
- ICS Isolation Corporation Stop

# Geotechnical Engineering Report

## Ripple Creek Pump Station to Main Street Tank Phase 5 Water Main Extension

Riley Road, Alexandria, Campbell County, Kentucky

Project No. N1105017

March 24, 2010

### Prepared for:

Northern Kentucky Water District

Erlanger, Kentucky

### Prepared by:



Offices Nationwide  
Employee-Owned

Established in 1965  
terracon.com

# Terracon

Geotechnical   ■   Environmental   ■   Construction Materials   ■   Facilities



March 16, 2010

Northern Kentucky Water District  
2835 Crescent Springs Road  
P.O. Box 18640  
Erlanger, Kentucky 41018

Attn: Mr. Steve Broering  
P: (859) 426-2728  
F: (859) 578-7893  
E: sbroering@nkywater.org

Re: Geotechnical Engineering Report  
Ripple Creek Pump Station to Main Street Tank- Phase 5 Water Main Extension  
Riley Road (KY 547) from East Main Street (KY 10) to AA Highway (KY 9)  
Alexandria, Campbell County, Kentucky  
HCN/Terracon Project Number: N1105017

Dear Mr. Broering:

H.C. Nutting, A Terracon Company (HCN) has completed the geotechnical engineering services for the above referenced project. This study was performed in general accordance with our proposal number PN1091387, dated December 23, 2009. This report presents the findings of the subsurface exploration and provides geotechnical related recommendations concerning the proposed water main extension.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,  
H.C. Nutting, a Terracon Company

David W. Westendorf, P.E.  
Senior Staff Geotechnical Engineer

Jess A. Schroeder, P.E.  
Senior Principal - Office Manager



H.C. Nutting, A Terracon Company 611 Lunken Park Drive Cincinnati, Ohio 45226  
P [513] 321 5818 F [513] 321 0294 www.terracon.com



**TABLE OF CONTENTS**

	<b>Page</b>
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
<b>2.0 PROJECT INFORMATION.....</b>	<b>1</b>
<b>3.0 SUBSURFACE CONDITIONS.....</b>	<b>2</b>
3.1 TYPICAL PROFILE.....	2
3.2 GROUNDWATER.....	2
<b>4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION.....</b>	<b>3</b>
4.1 GEOTECHNICAL CONSIDERATIONS.....	3
4.2 CONSTRUCTION ASSESSMENT.....	3
4.3 TRENCH EXCAVATIONS.....	4
4.3 UNDERCUT AND REPLACEMENT.....	5
4.4 BEDDING AND BACKFILL.....	5
4.5 DRAINAGE AND GROUNDWATER CONSIDERATIONS.....	7
4.6 SLOPE STABILITY CONSIDERATIONS.....	8
4.7 THRUST BLOCK AND RESTRAINED JOINTS RECOMMENDATIONS.....	8
<b>5.0 GENERAL COMMENTS.....</b>	<b>10</b>
 <b>APPENDIX A- FIELD EXPLORATION</b>	
Exhibit A-1	Site Vicinity Map
Exhibit A-2 to A-9	Test Boring Location Plans
Exhibit A-10 to A-17	Test Boring Logs
Exhibit A-18	Field Exploration Description
 <b>APPENDIX B- SUPPORTING INFORMATION</b>	
Exhibit B-1	Laboratory Test Description
 <b>APPENDIX C- SUPPORTING DOCUMENTS</b>	
Exhibit C-1	General Notes
Exhibit C-2	Unified Soil Classification



## **EXECUTIVE SUMMARY**

A geotechnical study was performed for the phase 5 portion of the proposed Ripple Creek Pump Station to Main Street Phase 5 Water Main Extension in Alexandria, Campbell County, Kentucky. The project involves installation of a water main extension along Riley Road in Alexandria, Campbell County, Kentucky. Based on a review of provided plan and profile drawings the proposed water main invert elevations are generally about 5 to 8 feet below existing site grade.

A total of 8 test borings were performed as part of the exploration program. The typical subsurface profile at the test borings consisted of natural cohesive soils underlain by shale and limestone bedrock.

The following key geotechnical-related items were identified:

- Trench excavations in the area of the test boring locations will typically consist of stiff to very stiff natural cohesive soils and weathered shale bedrock with limestone. All temporary cut slopes required for water main installation should be made in accordance with OSHA Safety Regulations.
- In general, the placement of the water main, hydrants, and valves within the soil profile will not add significant load on the underlying bearing material. However, it is important to have uniform and proper support, and to maintain proper line and grade of the pipe to prevent the pipe from becoming over-stressed in hoop compression or bending. Any soft to medium stiff soils encountered at pipe subgrade elevation may need undercutting to expose suitable stiff to very stiff bearing materials.

Close monitoring of the construction operations discussed herein is important to confirm design subgrade support. We recommend that HCN/Terracon be retained to perform construction testing and inspection for this project.

This summary should be used in conjunction with the entire report for design purposes. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein. The section titled **GENERAL COMMENTS** should be read for an understanding of the report limitations.



**GEOTECHNICAL ENGINEERING REPORT  
 RIPPLE CREEK PUMP STATION TO MAIN STREET TANK  
 PHASE 5 WATER MAIN EXTENSION  
 RILEY ROAD FROM EAST MAIN STREET TO AA HIGHWAY  
 ALEXANDRIA, CAMPBELL COUNTY, KENTUCKY  
 HCN/TERRACON PROJECT NO. N1105017  
 MARCH 24, 2010**

**1.0 INTRODUCTION**

A geotechnical engineering report has been completed for the Phase 5 portion of the proposed Ripple Creek Pump Station to Main Street Tank water main extension project in Alexandria, Campbell County, Kentucky (Exhibit 1). A total of eight borings along Riley Road were drilled to approximate depths of 9.5 to 14.4 feet below existing grades. Logs of the borings along with site vicinity map, and boring location plans are included in Appendix A of this report.

The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- subsurface soil conditions
- groundwater conditions
- thrust block recommendations
- earthwork recommendations
- slope stability considerations
- pipe subgrade recommendations

**2.0 PROJECT INFORMATION**

Item	Description
Project Purpose	Water main extension
Project Alignment	Riley Road (KY547) from East Main Street (KY10) to AA Highway (KY9)
Total Project Length	9,311 feet (1.76 miles)
Pipe Invert Elevation	5 to 8 feet
Existing Grades	From station 0+00 to approximately 11+20 grades generally slope downward. Grades then slope upward to approximately station 19+20 where they again slope downward until 57+20. The remainder of the proposed alignment is level to slightly sloped downward.



### 3.0 SUBSURFACE CONDITIONS

#### 3.1 Typical Profile

The surficial material at test borings consisted of asphalt pavement and fill. Asphalt pavement with thickness varying between 6 and 12 inches was encountered at four test borings (B-1, B-3, B-5, and B-6). Granular base consisting of sand and gravel was encountered at borings B-3, B-5, and B-6. Existing fill was encountered at all the test borings just below the pavement or at the surface. The fill thickness ranges from 2.5 to 10.5 feet. The following table summarizes the encountered subsurface conditions:

Description	Approximate Depth to Bottom of Stratum (feet)	Material Encountered	Consistency/Density
Existing Fill	2.5 to 10.5	Lean Clay	Medium Stiff to Very Stiff
Natural Overburden Soils	12.5 or Bottom of Boring	Lean Clay	Stiff to Very Stiff
Bedrock <sup>2</sup>	Bottom of Boring	Weathered Brown and Gray Shale with Limestone	Soft (rock hardness)

1. It is unknown if the existing fill was placed with compactive effort. We have not reviewed any records showing its placement as structural fill. Boring B-8 was terminated within existing fill at a depth of 10.5 feet.
2. Bedrock was encountered at three test borings (B-5, B-6, and B-7). Based on the elevation at which bedrock was encountered, a review of published literature suggests that the encountered bedrock is Ordovician Age and part of the Kope Formation. The Kope formation is shale-rich with occasional interbedded limestone.

Conditions encountered at each boring location are indicated on the individual boring logs. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; the transition between materials may be gradual. Details for each of the borings can be found on the boring logs in Appendix A of this report.

#### 3.2 Groundwater

Groundwater conditions were noted during and after drilling operations at each of the test boring locations. During drilling, groundwater was encountered at a depth of 3.5 feet below existing grade at boring B-2 and 5 feet in B-4. After drilling, water was encountered at a depth of 5 feet in B-2. No groundwater, or "dry" conditions, were reported during and after drilling operations at the remaining test boring locations. A "dry" condition is reported when no water is observed in the borehole or on the sampling tools. Boreholes were backfilled immediately upon completion and patched at the roadway surface for safety reasons. Therefore, long-term groundwater conditions at the site were not obtained.



Perched water may be encountered at shallow depths within the existing fill, at the fill/natural soil interface or near the soil/bedrock interface.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or later may be higher or lower than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

## 4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

### 4.1 Geotechnical Considerations

Based on the provided water main alignment plans prepared by Cardinal Engineering, the proposed water main inverts are generally about 5 to 8 feet below existing site grades along Riley Road. Based on the results of the test borings and the anticipated water main subgrade elevations, we anticipate that trench excavations in the area of the test boring locations will typically penetrate medium stiff to very stiff existing fill and natural overburden soils. Weathered shale and limestone bedrock may be encountered at pipe subgrade elevation at some locations. Additional details regarding general water main construction are provided in the following sections.

### 4.2 Construction Assessment

We anticipate excavations could likely be completed using conventional trench box support or conventional trench box support incorporated with laid-back slopes (open-cut and cover). Open-cut and cover techniques (with/without trench box support) can be considered, provided that precautions are taken to protect any existing utilities, structures, roadways, or creeks within the construction area. The following table shows the proposed invert elevations and anticipated bearing materials at the soil test boring locations.

Boring Number	Station	Approx. Ground Elevation (ft)	Approx. Invert Depth (ft)	Anticipated Material @ Pipe Invert (approx)
B-1	2+50	859	5	Stiff Lean Clay
B-2	19+40	848	5	Very Stiff Lean Clay
B-3	34+15	785	6	Very Stiff Lean Clay
B-4	47+35	700	6	Shale/Limestone Bedrock
B-5	53+10	657	7	Shale/Limestone Bedrock
B-6	66+50	626	6	Very Stiff Lean Clay
B-7	81+05	610	6	Shale/Limestone Bedrock
B-8	93+11	558	5	Very Stiff Lean Clay (Fill)



In general, the placement of the water main, hydrants, and valves within the soil profile will not add significant load on the underlying bearing material. However, it is important to have uniform and proper support, and to maintain proper line and grade of the pipe to prevent the pipe from becoming over-stressed in hoop compression or bending. Based on the proposed invert elevations and subsurface conditions encountered at the test borings, we anticipate the bearing material at invert elevations should generally consist of stiff to very stiff cohesive soils and/or shale and limestone bedrock. Any soft to medium stiff soils encountered at pipe subgrade elevation may need undercutting to expose suitable stiff to very stiff bearing materials. The undercut area may be brought up to design bearing levels with engineered fill as discussed in the Bedding and Backfill section of this report. For uniform support, the water main should be bedded on a minimum of 3 inches of appropriate granular (sand) material. The contractor should adhere to all installation specifications provided by the water main designer. Thrust blocks should be provided along water main alignment in accordance with the specifications.

#### **4.3 Trench Excavations**

All temporary cut slopes required for water main installation should be made in accordance with OSHA Safety Regulations. It is anticipated that the depths of excavation will range between about 5 and 8 feet below existing grades. We anticipate that trench boxes or other types of temporary shoring will be utilized within the existing roadway and in close proximity to existing physical features. Keep in mind that trench boxes are typically used for worker safety but may not provide adequate lateral support for adjacent structures, pavements, or utilities.

Where sufficient space is available, the excavation slope can be laid back, in accordance with OSHA criteria. It is recommended that temporary excavation slopes be examined periodically to evaluate any potential destabilizing effects.

Trench excavations are not anticipated to be deeper than about 8 feet below existing grade. It is our opinion that the overburden soils/weathered shale bedrock encountered in the test borings can typically be excavated using conventional rubber tired-backhoes and/or with trackhoes. If excavations penetrate into residuum or bedrock, hard limestone layers can occur in perhaps 20 to 25% (+/-)% of the mass. No rock coring was performed as part of this study. The bedrock typically breaks along the natural horizontal bedding planes. Excavation of narrow trenches in the shale and limestone can be difficult. A rock trencher or line drilling may be used to define the edge of the trench, with the rock being excavated with a large hydraulic hoe. Breaking with percussion tools will likely be advantageous to excavate some zones of limestone. The Contractor's "responsible person" should also establish a minimum lateral distance from the crest of the slope or excavation for all spoil piles and vehicles. Likewise, the contractor's "responsible person" should establish protective measures for exposed slope faces.

We recommend that the engineering specifications state that the contractor be responsible for the temporary shoring, bracing, and sheeting design, if required, and the protection of roadways,



utilities, and any other structures. We recommend that a pre-condition survey of all-adjacent structures and roadways be performed prior to the start of construction.

Unless visually apparent, the location of private underground utilities and other manmade physical features may not have been identified during our site reconnaissance. Oftentimes, the subsurface soils adjacent to these underground features, whether in-use or abandoned, may not represent the subsurface conditions encountered in the soil test borings. The potential presence of underground manmade features such as leach fields, septic systems, irrigation piping, drainage tile, vaults, privies, cisterns, wells, shelters, private utilities, etc. are unknown.

These manmade features are often used to collect, store, and/or provide an avenue for transporting water/ liquid waste. Similarly, underground utilities bedded in granular soils and utility trenches that may be inadequately backfilled tend to "hold" water. As a result, the soils in the area of the underground features tend to be saturated or near saturation, resulting in "weakening" of the soil structure and increased susceptibility to failure if exposed and/or disturbed. Due to the proposed construction being within a developed area where manmade disturbances are likely, we recommend that the contractor carefully evaluate their excavation methods so that properly laid back slopes or sheeting/shoring/trench boxes can be readily utilized during construction. Additionally, if any suspicious surficial features (i.e., depressions, mounds, etc.) and/or seepage within the excavation are observed, further excavation should stop and the owner and geotechnical engineer should be notified.

#### **4.3 Undercut and Replacement**

The bottom of the excavations for the water main pipes and valves/hydrants must be stable so that no excessive settlement will occur. In some of the proposed pipe subgrade areas where soft to medium stiff soils may be encountered or if excessive water seepage is encountered during excavation, the on-site cohesive fill or natural soil is considered susceptible to strength loss when wet and disturbed. Therefore, a limited undercut and replacement could be required (or other stabilizing measures). The undercut depth or other stabilization measures can be decided in the field during construction based on the encountered conditions. It is recommended that the undercut of existing fill or soft to medium stiff natural soils expose at least stiff to very stiff natural cohesive soils. The shallow undercuts to expose stiff to very stiff natural soils can be replaced with engineered granular fill like Dense Graded Aggregate (DGA) or with flowable fill if the pipeline is within the roadway easement; however, this does not preclude the use of proper bedding below and around the pipe.

#### **4.4 Bedding and Backfill**

It is recommended that pipe bedding material be used and consist of a "shaped" surface of well-graded sand and/or gravel (with a maximum size less than 1 inch) with no more than 10 percent passing the No. 200 sieve. This granular material should not be less than 3 inches in thickness below the bottom of the pipe and should extend to a height of at least 12 inches above the top of



the pipe. This material should be placed in 4 to 6 inch thick lifts and be uniformly compacted to at least 95 percent of the Standard Proctor maximum dry density (ASTM D 698) at 2 percent below to 3 percent above of the optimum moisture content. Some pipe manufacturers provide backfill requirements pertaining to their particular brand or type of pipe. If this is the case for this project, the manufacturer's specifications could be adopted. If the manufacturer's specifications vary significantly from those provided herein, HCN/Terracon should be contacted to evaluate the appropriateness of the compaction specifications.

The remaining backfill above the granular zone previously described, can consist of on-site cohesive soils or high quality granular material unless specified otherwise. Excavated overburden soils from the water main alignment areas appear to be suitable for reuse as trench backfill, though likely wet of optimum. Some moisture adjustment may be necessary to achieve specified compaction. Any proposed backfill material (on-site or imported) should be properly tested to determine its optimum moisture content and moisture-density characteristics and pre-approved before use. All backfill material should be free of organics, topsoil, debris and other deleterious substances. Maximum solid particle size (rock fragments, etc.) should be less than about 4 inches. The following table provides property requirements for structural fill:

Fill Type	USCS Classification	Acceptable Location for Placement
Lean clay	CL (LL<40)	All locations and elevations
Fat clay <sup>2</sup>	CH (LL >50)	In non-structural fill areas
Well graded granular	GW <sup>3</sup>	All locations and elevations
On-site soils	Varies	The on-site soils, including the existing uncontrolled fill material, typically appear suitable for use as fill; however, some culling of wood or other deleterious substances may be necessary. Appropriate moisture conditioning may be needed.

1. New structural fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the geotechnical engineer for evaluation.
2. Delineation of fat clays should be performed in the field by a qualified geotechnical engineer or their representative. Generally it is preferred not to use high plasticity clay within the structural fill areas, within 2 ft. of pavement subgrade.
3. Similar to KTC DGA stone or crushed limestone aggregate or granular material such as sand, gravel or crushed stone containing less than 8% low plasticity fines. If utility



trenches are backfilled with relatively clean granular material, they should be capped with at least 18 inches of cohesive fill in non-pavement areas to reduce the infiltration and conveyance of surface water through the trench backfill.

**Compaction Requirements for Backfill**

Fill Lift Thickness	8-inches or less in loose thickness 6-inches or less if hand compaction equipment used
Compaction Requirements (Pavement Areas)	Top 12" beneath pavement areas, 100% of the material's maximum Standard Proctor dry density (ASTM D 698); structural fill beneath the top 12" should be compacted to at least 98% of the material's maximum Standard Proctor dry density (ASTM D 698)
Compaction Requirements (Landscape Areas)	95% of maximum Standard Proctor dry density (ASTM D 698) provided long-term plans do not include a structure in these areas
Moisture Content - Cohesive Soil (Low Plasticity)	Within ±3% of optimum moisture content (OMC) as determined by the Standard Proctor test at the time of placement and compaction
Moisture Content - Granular Material	Within ±2% of OMC

1. Where the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved.
2. Moisture levels should be maintained low enough to allow for satisfactory compaction to be achieved without the cohesionless fill material pumping when proofrolled.

All materials to be used as structural fill should be tested in the laboratory to determine their suitability and compaction characteristics. The trench backfill above the bedding fill should be in compliance with Northern Kentucky Water District and KTC 2004 specifications if within the roadway right-of-way (low strength mortar).

Flowable concrete fill (low strength mortar) should be used within roadway easements to reduce construction time and minimize the risk of future trench settlement. It is our experience that reduced labor costs associated with flowable concrete backfill make the use of this material an attractive alternative. Flowable concrete is a semi-rigid backfill, typically stronger than the soil that was removed.

**4.5 Drainage and Groundwater Considerations**

Water should not be allowed to collect in the bottom of excavation or on prepared subgrades of the construction area. Undercut or excavated areas should be sloped toward one corner to facilitate removal of any collected rainwater, groundwater, or surface runoff.



Based on the predominately cohesive soil types and observed groundwater conditions during drilling, we do not anticipate significant seepage within the excavations. Any encountered water can most likely be removed with typical sump and pump methods. The presence and handling of groundwater should be further evaluated at the time of construction.

#### **4.6 Slope Stability Considerations**

Based on the relatively very stiff cohesive overburden soils and relatively shallow shale bedrock in some areas, deep-seated (global) slope failure does not appear to be a concern. Detailed slope stability analyses were not performed. Additional borings and information on the previously performed slope repairs would be required to provide the information needed for a detailed analysis. During our site visit, two areas with slope issues were observed along Riley Road, near stations 47+35 and 53+10. The asphalt in these areas has been patched on the downhill traffic lane. Additionally, the downhill slope was observed to be rehabilitated with a row of soldier beams installed along the edge of the road. We are not aware of the cause of these repairs, but they are likely to be the result of slope creep and subsequent pavement distress. Details on the repair are not available.

Based on the provided plans, the water main alignment in this area is to be constructed along the upslope side of the road. Test borings B-4 and B-5 performed in the vicinity of these rehabilitated areas encountered very stiff natural cohesive overlying weathered shale bedrock (located 5 to 12.5 ft. below grade, respectively). Considering the encountered soil conditions and observed rehabilitation of the apparent instability, it is our opinion that the proposed water main should be installed along upslope side of the road as currently shown on the plans in this area of the alignment. Consideration should also be given to using restrained joints from station 45+00 to 55+00 where prior slope repairs was observed.

We have not identified any obvious areas of potential instability along the roadways within other portions of this phase of the project; however, we recommend that the water main generally be installed along the upslope side of the road when feasible. Due to the long-term nature of creep, slope movement may become evident in this area and along other portions of the alignment in the future. Therefore, we recommend that monitoring along the alignment be performed on a regular basis due to the potential for creep movement.

#### **4.7 Thrust Block and Restrained Joints Recommendations**

Thrust block or restrained joints are used to resist thrust forces that occur in waterlines when the pipeline changes directions, changes sizes, or stops. A thrust block may be constructed between the fitting and the undisturbed side or bottom of the trench. The base of the thrust block is designed to support the anticipated thrust loads by providing a bearing area through which the thrust forces can be transferred to the soil without exceeding the bearing capacity of the soil.





An alternative method of providing thrust restraint is the use of restrained joints. A restrained joint is a special type of push-on or mechanical joint that is designed to provide longitudinal restraint. Restrained joint systems function in a manner similar to thrust blocks; as the reaction of the entire restrained unit of piping with the soil balances the thrust forces. The objective in designing a restrained joint thrust restraint system is to determine the length of pipe that must be restrained on each side of the focus of a thrust force. This will be a function of the pipe size, the internal pressure, depth of cover, the characteristics of the soil surrounding the pipe, and whether the pipe is polyethylene encased.

The provided plans depicting the water main alignment shows several bends where thrust blocks are anticipated. Based on the invert elevations of the water main pipeline, existing fill and natural cohesive soils and/or weathered shale bedrock are anticipated in the vicinity of the thrust blocks. Two areas of instability were identified in this study where long-term creep of the slopes is likely. Consideration should be given to using restrained joints from station 45+00 to 55+00 where the slope instability was observed.

The following soil parameters can be used in sizing the thrust blocks and restrained joints:

Material	Angle of Internal Friction (°)	Unit Weight (pcf)	$\mu$ (Active)	$K_0$ (Passive)
Stiff to Very Stiff Existing Fill	23°	120	0.61	2.28
Stiff to Very Stiff Natural Cohesive Soil	26 °	125	0.56	2.56
Weathered Shale Bedrock	36 °	135	0.41	3.85

The following allowable bearing capacities can be used in sizing the thrust block for downward directed thrust:

Bearing Material	Allowable Bearing Capacity
New Engineered Granular Fill (placed over stiff to very stiff natural soils)	3,000 psf
Stiff to Very Stiff Natural Cohesive soils	3,000 psf
Weathered Shale Bedrock	8,000 psf

The following table summarizes the recommended coefficient of friction values for the interface of thrust block concrete and in-situ soil. These are ultimate values (no safety factors applied).



Interface Material	Coefficient of Friction
Stiff to Very Stiff Existing Fill	0.30
Stiff to Very Stiff Natural Cohesive soils	0.35
Weathered Shale Bedrock	0.50

It is recommended that the trench backfill in the areas of thrust blocks and restrained joints consist of compacted granular backfill or flowable concrete fill.

## 5.0 GENERAL COMMENTS

Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either expressed or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

**APPENDIX A**  
**FIELD EXPLORATION**

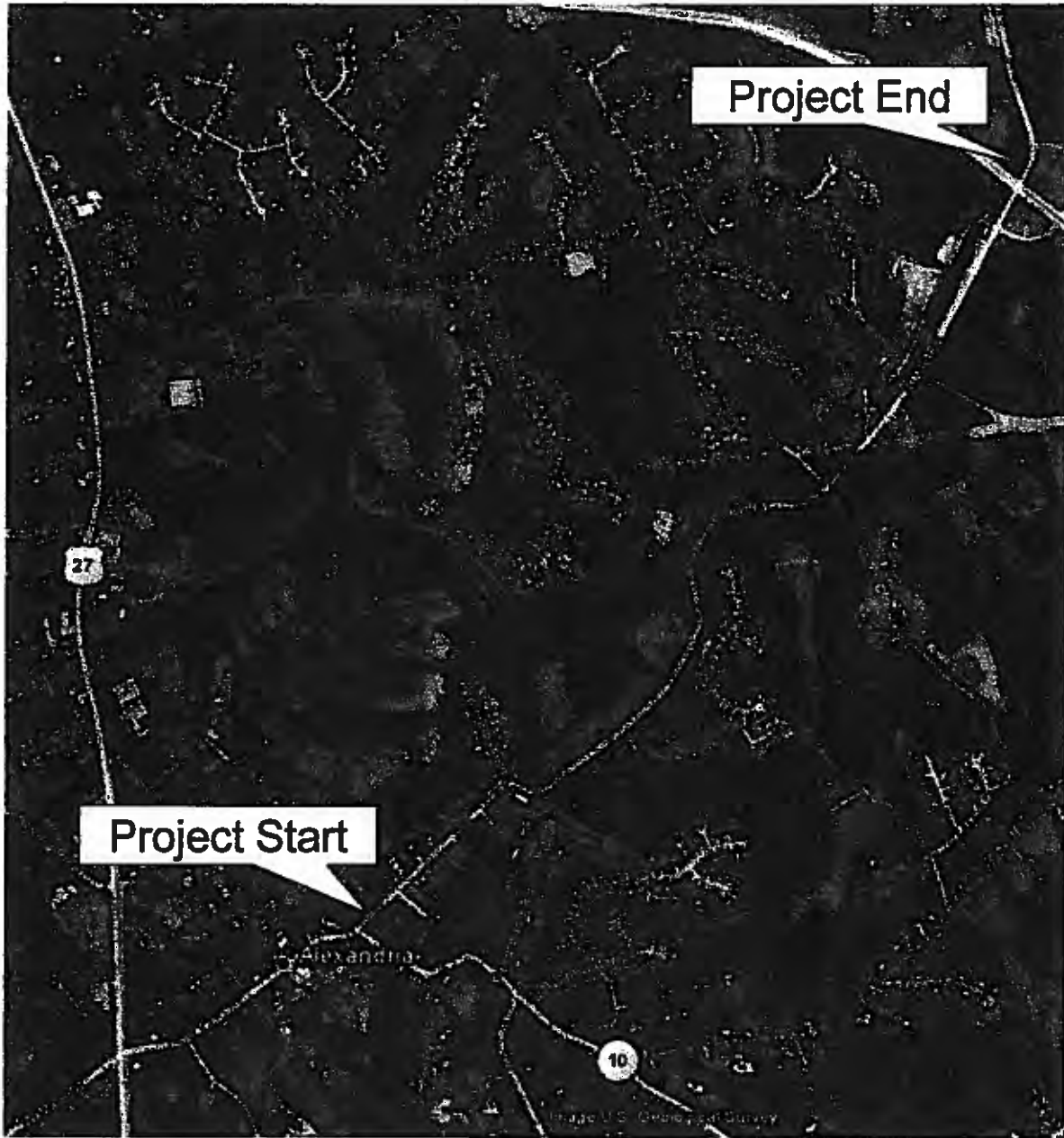

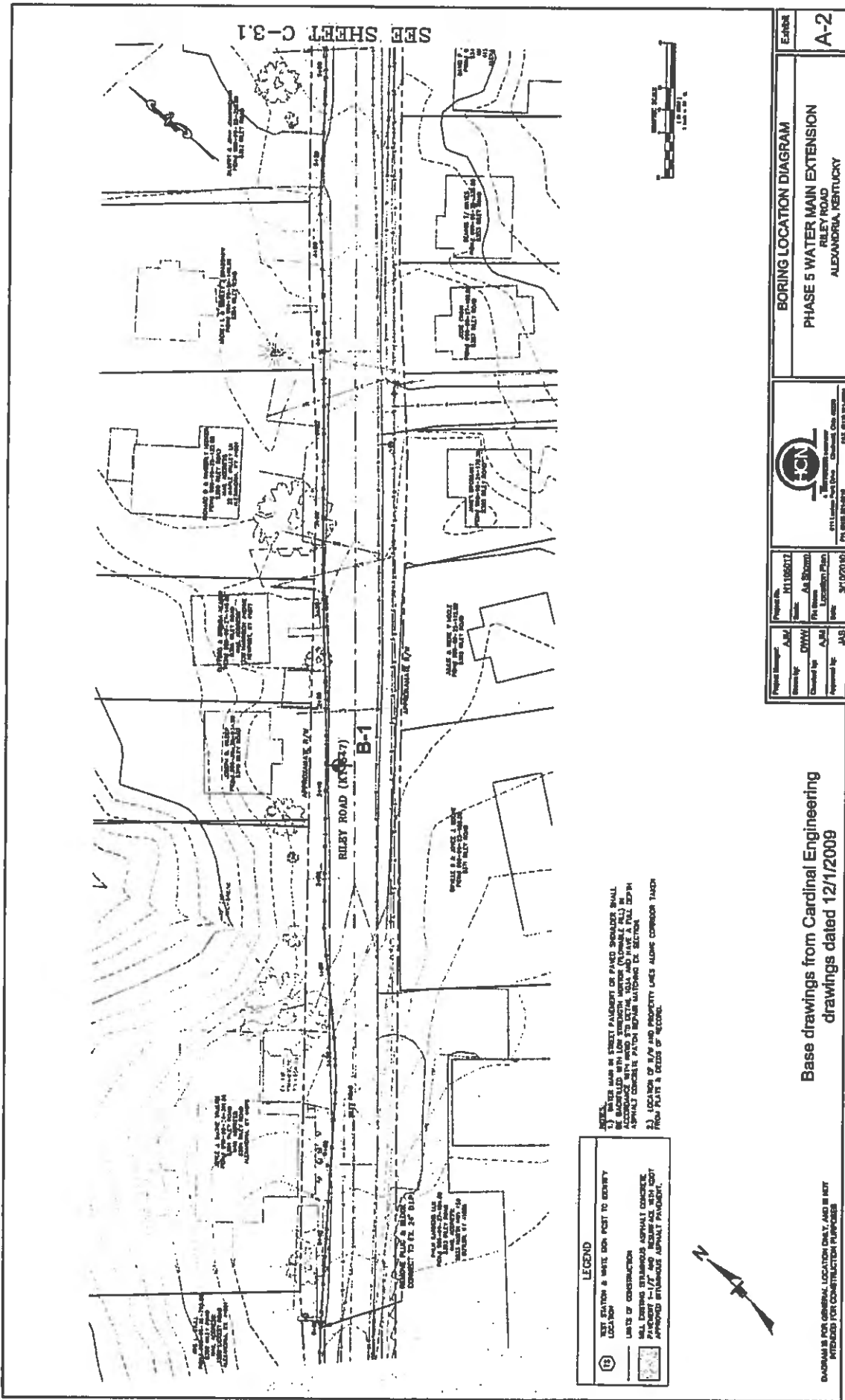


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager: AJM Drawn by: DWW Checked by: AJM Approved by: JAS	Project No. N1105017 Scale: N.T.S. File Name: A1 Date: 3/10/2010	 <small>911 Larkin Park Blvd      Oneiro, Ohio 45229</small> <small>PH. 612 221-8918      FAX. 612 221-8284</small>	<b>SITE VICINITY MAP</b>  <b>PHASE 5 WATER MAIN EXTENSION</b> <b>RILEY ROAD</b> <b>ALEXANDRIA, CAMPBELL COUNTY, KENTUCKY</b>	Exhibit  <b>A-1</b>
--	---	--	--	---------------------------



**NOTES:**

- 1.) WATER MARK ON STREET PAVEMENT OF PAVED SHOULDER SHALL BE REPAIRED WITH LOW VISCOSITY WATER POLYMER EMULSION ACCORDING TO THE SPECIFICATIONS FOR THE FULL DEPTH ASPHALT CONCRETE PATCH REPAIR METHOD WITHIN THE SECTION.
- 2.) LOCATION OF S/W AND PROPERTY LINES ALONG CORNER TAKEN FROM PLATS & DEEDS OF RECORD.

**LEGEND**

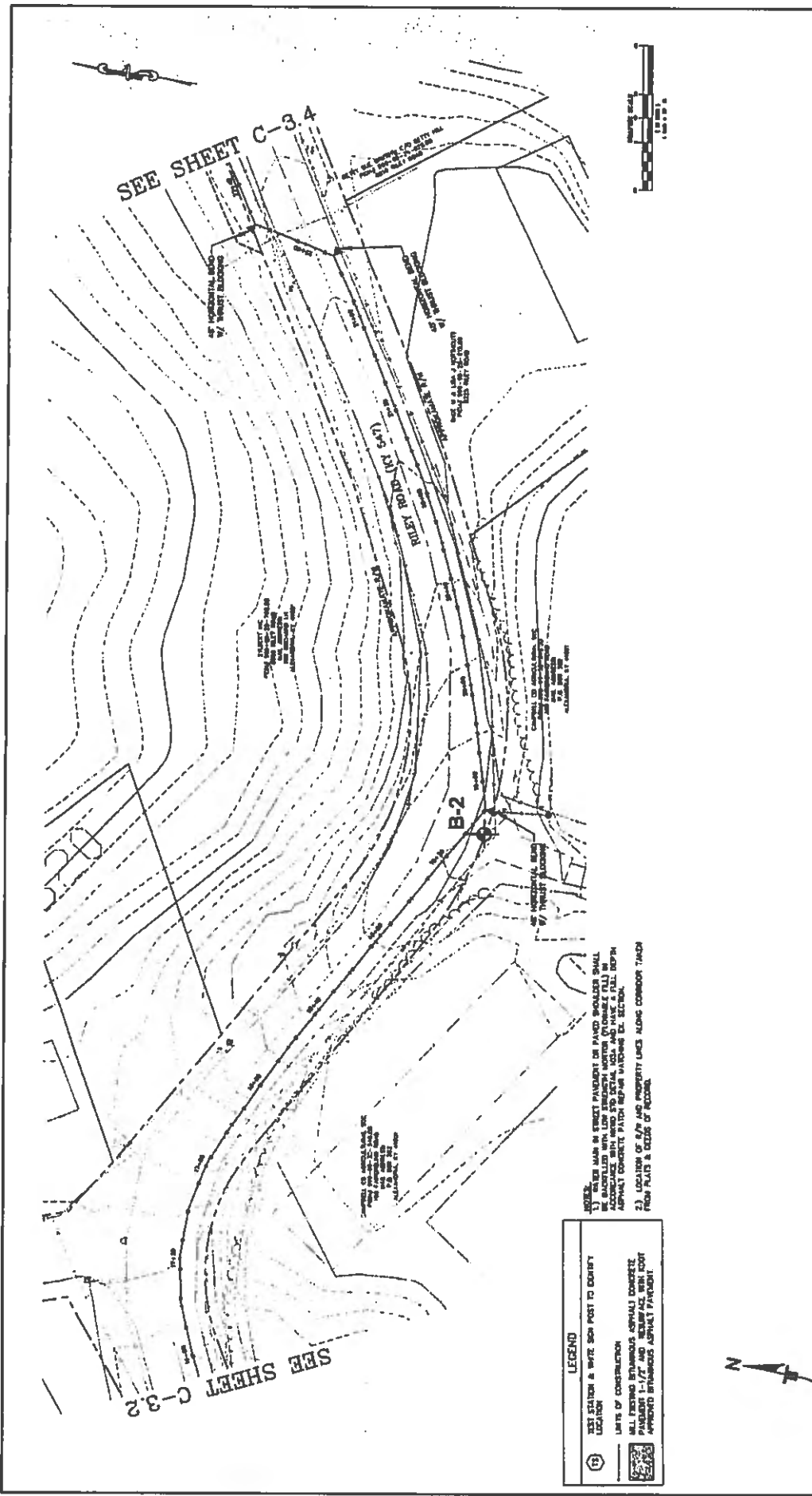
	STREET STATION & WHITE BOX POST TO IDENTIFY LOCATION
	UTILITY LINES OF CONSTRUCTION
	1/2" THICK ASPHALT CONCRETE PAVEMENT
	1/2" THICK ASPHALT PAVEMENT



Project Name: A-2	Project No.: M1185511	Scale: As Shown	Revision: 1	Drawn by: DWH	Checked by: AJM	Approved by: AJM	Date: 3/1/2009
				FCN CONSULTING, INC. 2111 LEXINGTON ROAD, SUITE 200 ALEXANDRIA, KY 40303 TEL: 502-538-2400 FAX: 502-538-2401			
BORING LOCATION DIAGRAM				PHASE 5 WATER MAIN EXTENSION			
RILEY ROAD				ALEXANDRIA, KENTUCKY			
A-2				SEE SHEET C-31			

Base drawings from Cardinal Engineering  
drawings dated 12/1/2009

DIAGRAM IS FOR GENERAL LOCATION ONLY. AND IS NOT  
INTENDED FOR CONSTRUCTION PURPOSES



**LEGEND**

1. TEST STATION & BUREAU POST TO CORNER LOCATION

2. LIMITS OF CONSTRUCTION

3. ALL EXISTING BRICKWORK, SPALLS, CONCRETE PARAPETS 1'-1/2" AND REINFORCE WITH EOT APPROVED BRICKWORK ASPHALT PARAPET

**NOTES:**

1. EXISTING CURB & GUTTER PARAPETS TO BE DEMOLISHED AND RECONSTRUCTED WITH LOW STRENGTH MORTAR (1/2" CONC. & FILL) IN ACCORDANCE WITH WEDD 570 DETAIL, UGA, AND MAKE A FULL 180° ASPHALT CONCRETE PATCH REPAIR INCLUDING 1/2" SECTION.

2. LOCATION OF 4/8" AND PROPERTY LINES ALONG CONDUIT TANK FROM PLATS & DEEDS OF RECORD.



Project Number: A-01	Project No: R1108217
Drawn by: DWW	Title: As Shown
Checked by: A-01	Location/Date: 3/10/2010
Approved by: JAS	Scale: 1" = 20'

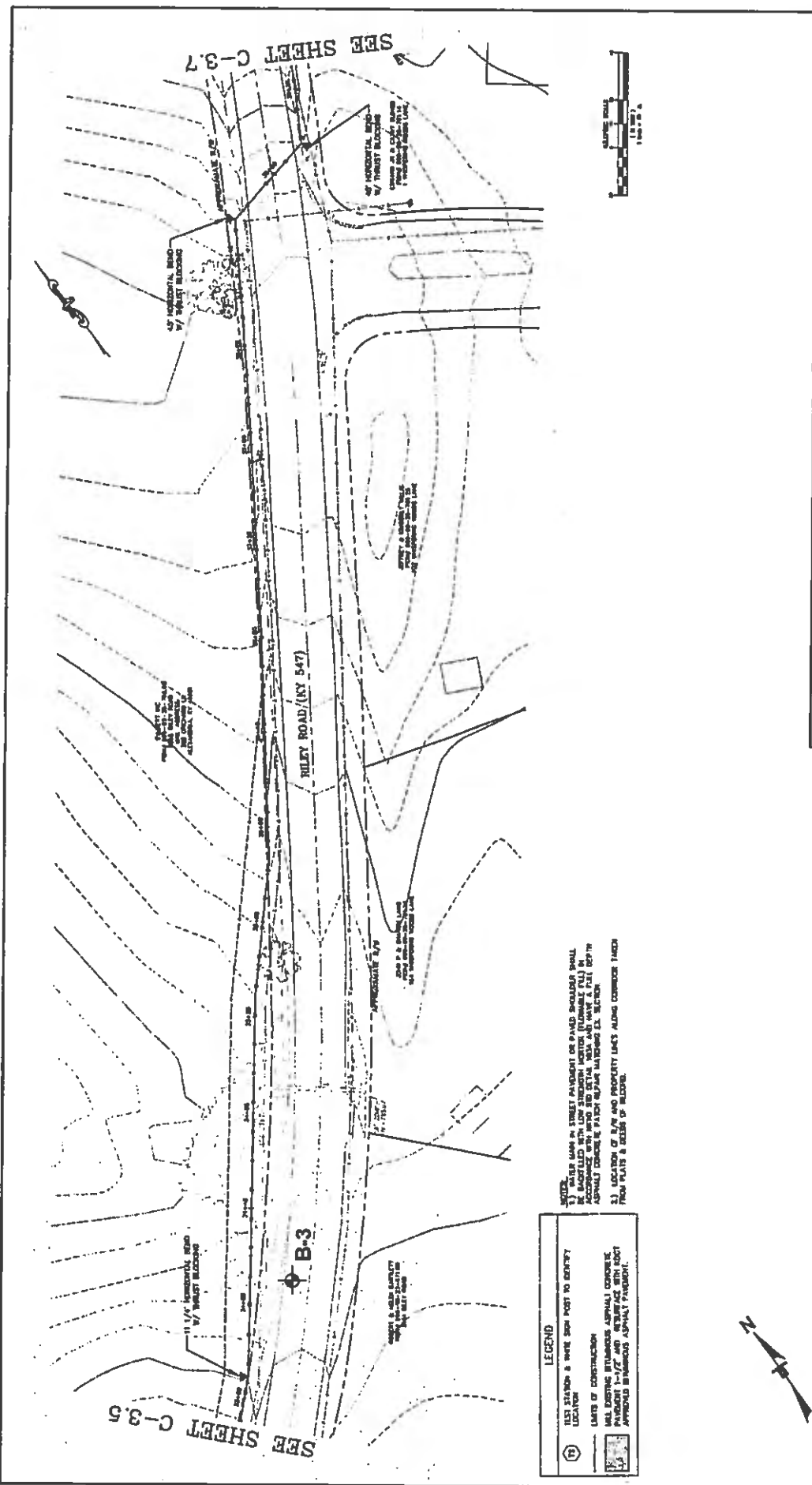
Base drawings from Cardinal Engineering  
 drawings dated 12/1/2009

DIAGRAM IS FOR GENERAL LOCATION ONLY AND IS NOT  
 INTENDED FOR CONSTRUCTION PURPOSES

**FCN**  
 CONSULTING ENGINEERS  
 2011 Locust Street, Suite 200  
 Alexandria, KY 40302  
 (502) 545-2200

**BORING LOCATION DIAGRAM**  
**PHASE 5 WATER MAIN EXTENSION**  
 RILEY ROAD  
 ALEXANDRIA, KENTUCKY

Exhibit **A-3**



DATE: A-4



Project No. H1106011  
 Date: 12/1/2009  
 Checked by: A. B. Brown  
 Location: PHASE 5 WATER MAIN EXTENSION  
 Scale: 3/16\"/>

Project Manager: A.J. J...  
 Design by: D.W. J...  
 Checked by: A.J. J...  
 Approved by: J.A.S.

Base drawings from Cardinal Engineering  
 drawings dated 12/1/2009

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT  
 INTENDED FOR CONSTRUCTION PURPOSES

**LEGEND**

(H) USE LOCATIONS & WIRE SIZE POST TO IDENTIFY LOCATIONS

--- LIMITS OF CONSTRUCTION

--- WELL EXISTING (BETWEEN) APPROVAL CONCRETE APPROVED BY FCN AND APPROVAL FUNDING

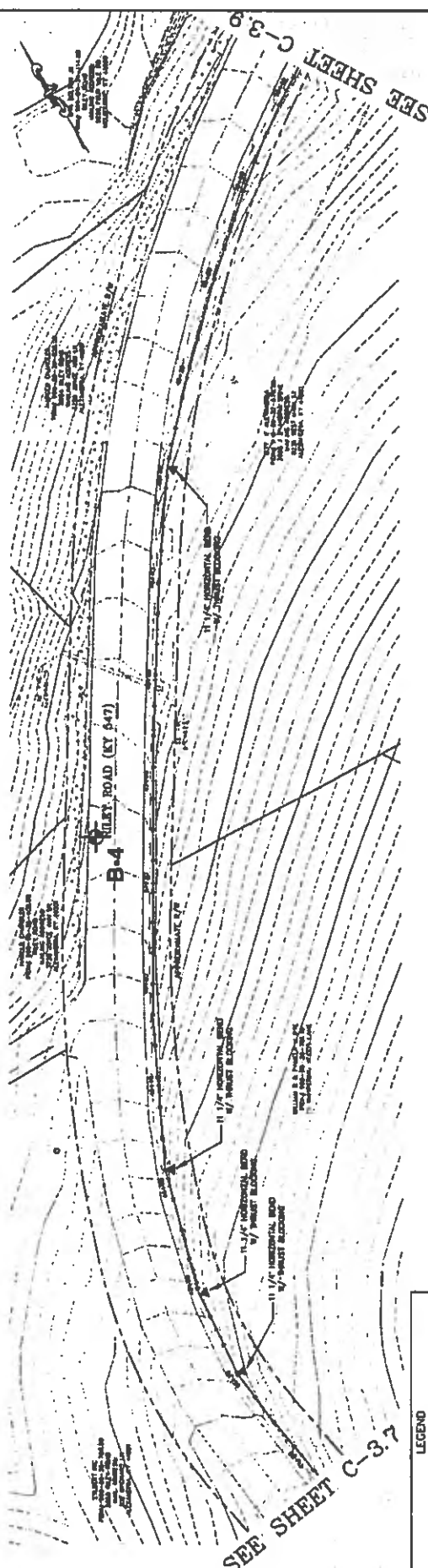
**NOTES**

1. WATER MAIN IN STREET AND/OR ON PAVED SHOULDER SHALL BE INSTALLED WITH LOW SIDE OF ROAD (LOWEST FULL IN) APPROXIMATE 4\"/>



SEE SHEET C-35

SEE SHEET C-37



(1) TEST STATION & WHITE SHOW POINT TO CORNER LOCATION  
 (2) LIMITS OF CONSTRUCTION  
 (3) ALL EXISTING BRICKWORK ASPHALT CONCRETE PAVEMENT 1-1/2\"/>

NOTES:  
 1. ALL CONCRETE SHALL BE BACKFILLED WITH LOW STRENGTH MORTAR (FLUSHING FULL) IN ACCORDANCE WITH SECTION 901, DETAIL 901A AND 901B, A FULL DEPTH ASPHALT CONCRETE WITH 10% FIBER REINFORCEMENT SHALL BE USED.  
 2. LOCATIONS OF CURB AND PROPERTY LINES ALONG CORRIDOR SHALL BE SHOWN BY CURB & GUYON RECORD.



SEE SHEET C-3.7

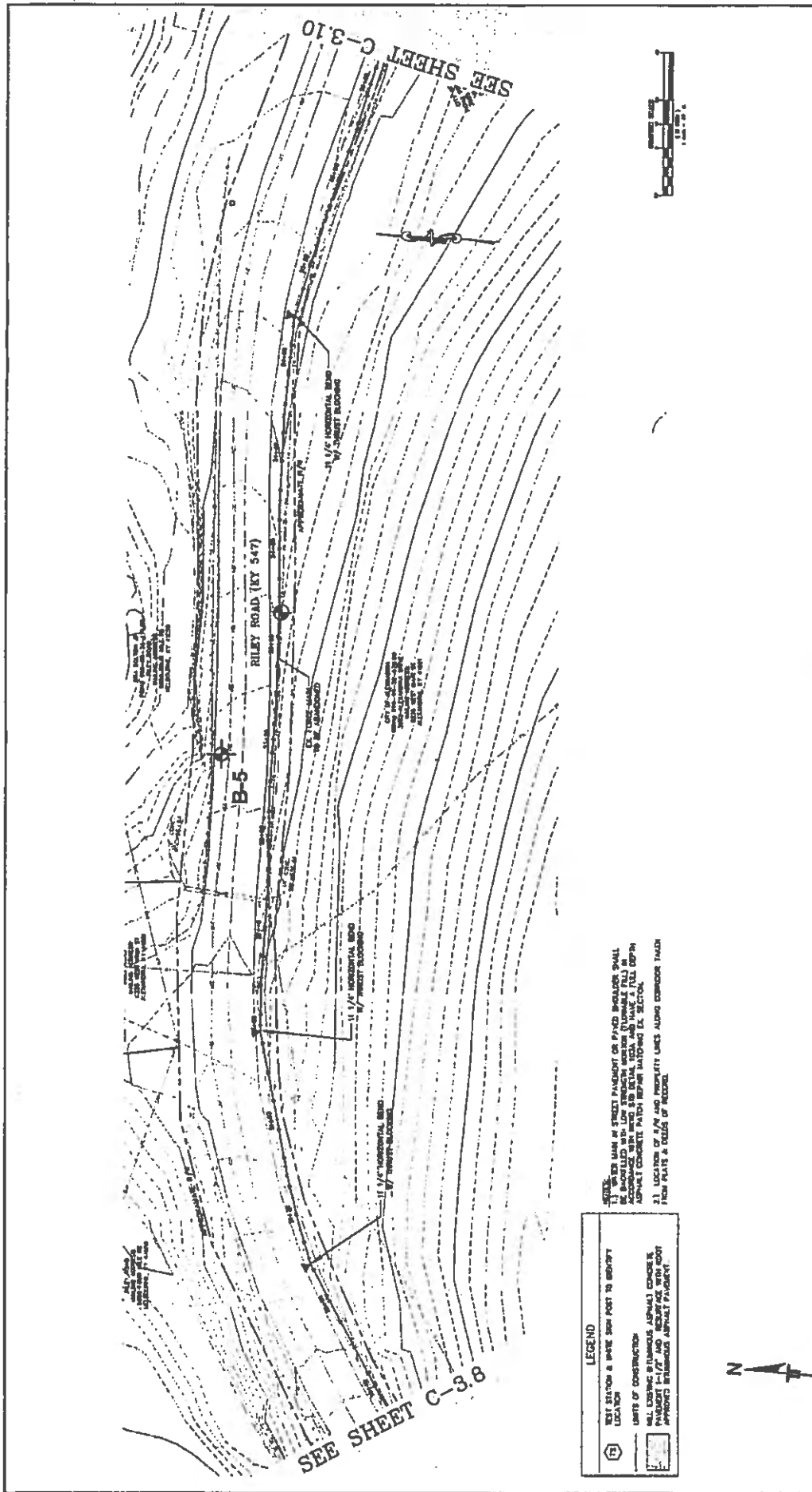
SEE SHEET C-3.8

Base drawings from Cardinal Engineering  
 drawings dated 12/11/2009

DRAWING IS FOR GENERAL LOCATION ONLY AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project No.: H1196021 Issue: As Shown Checked by: AJS Approved by: JAS Date: 3/10/2010	 FCN CONSULTANTS 201 Lakeside Ave. Ste. 200 Columbia, KY 40304 TEL: 502-243-2274 FAX: 502-243-2275	BORING LOCATION DIAGRAM PHASE 5 WATER MAIN EXTENSION RILEY ROAD ALEXANDRIA, KENTUCKY	Exhibit A-5
--	--	---	----------------





SEE SHEET C-3.10

RILEY ROAD (KY 547)

B-5

SEE SHEET C-3.8

**LEGEND**

1. RILEY ROAD & BASE SIDE FOOT TO EXISTING LOCATION

2. LIMITS OF CONSTRUCTION

3. ALL EXISTING 8" (DUNLOP ASPHALT) CONCRETE & APPROXIMATE 12" (DUNLOP ASPHALT) FAVORITE

**NOTES:**

1. ALL WATER MAINS AT STREET FAVORITE OR 12" (DUNLOP ASPHALT) SHALL BE INSTALLED WITH 12" (DUNLOP ASPHALT) CONCRETE FAVORITE FULL 12" (DUNLOP ASPHALT) CONCRETE MATCH BEHIND MATCHED EX. SECTION.

2. LOCATION OF 8" (DUNLOP ASPHALT) CONCRETE SHALL BE SHOWN FROM PLATE & TABLE OF RECORD.



Project No.	J1108011
Drawn by	ADW
Checked by	ADW
Approved by	JAE
Date	2/10/2010
File Name	B-1



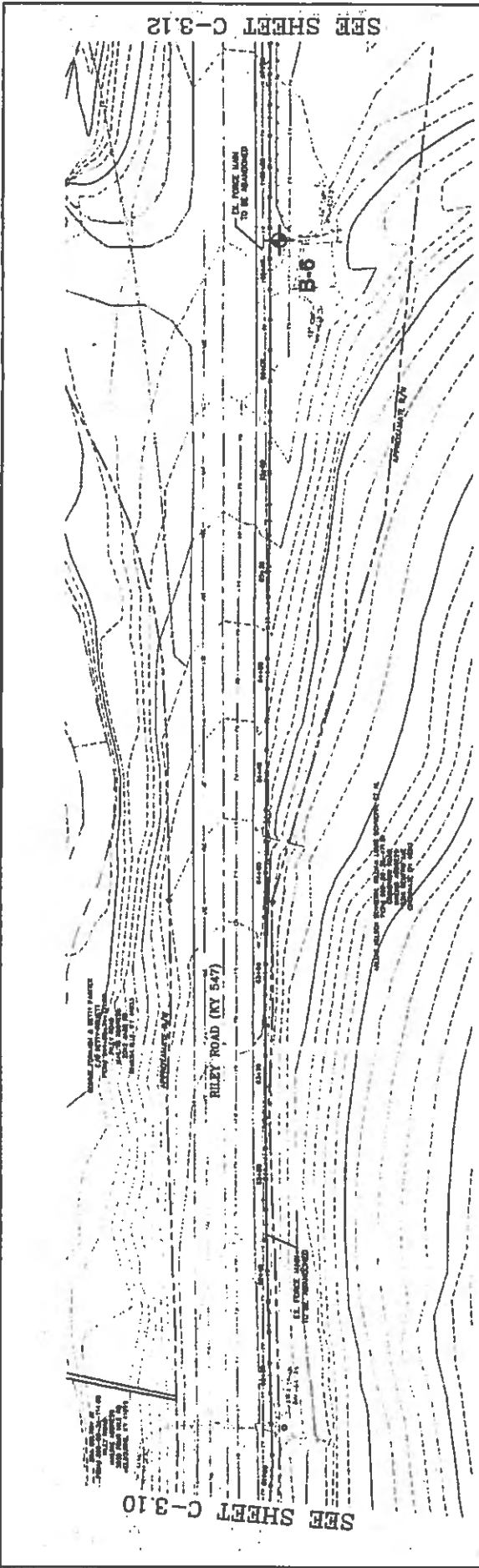
Fluid Control Networks  
 2111 Lakeside Drive, Suite 200  
 Lexington, KY 40502  
 Tel: 606.253.8888 Fax: 606.253.8888

**BORING LOCATION DIAGRAM**  
 PHASE 5 WATER MAIN EXTENSION  
 RILEY ROAD  
 ALEXANDRIA, KENTUCKY

Exhibit  
**A-6**

Base drawings from Cardinal Engineering  
 drawings dated 12/1/2009

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT  
 INTENDED FOR CONSTRUCTION PURPOSES



SEE SHEET C-312

SEE SHEET C-310

**LEGEND**

(1) SEE YELLOW & WHITE BOX POST TO CERTIFY LOCATION

--- LIMITS OF CONSTRUCTION

--- ALL EXISTING BITUMINOUS ASPHALT CONCRETE'S APPROVED FOR REPAIRS

--- ALL EXISTING PORTLAND CEMENT CONCRETE APPROVED FOR REPAIRS

- NOTES**
- 1) GATED MARK IN STREET PARALLEL OR PARALLEL SHOULDER SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND SHALL BE REPAIRED TO ORIGINAL CONDITION WITHIN 30 DAYS OF COMPLETION OF WORK.
  - 2) LOCATION OF E/W AND PROPERTY LINES ALONG CORNER TACKS FROM PLATS & DEEDS OF RECORD.



Project Manager: A.M.		Project No.: H1105817	
Drawn by: D.W.		Scale: As Shown	
Checked by: A.M.		File Name: P-1	
Approved by: J.S.		Date: 3/10/2010	

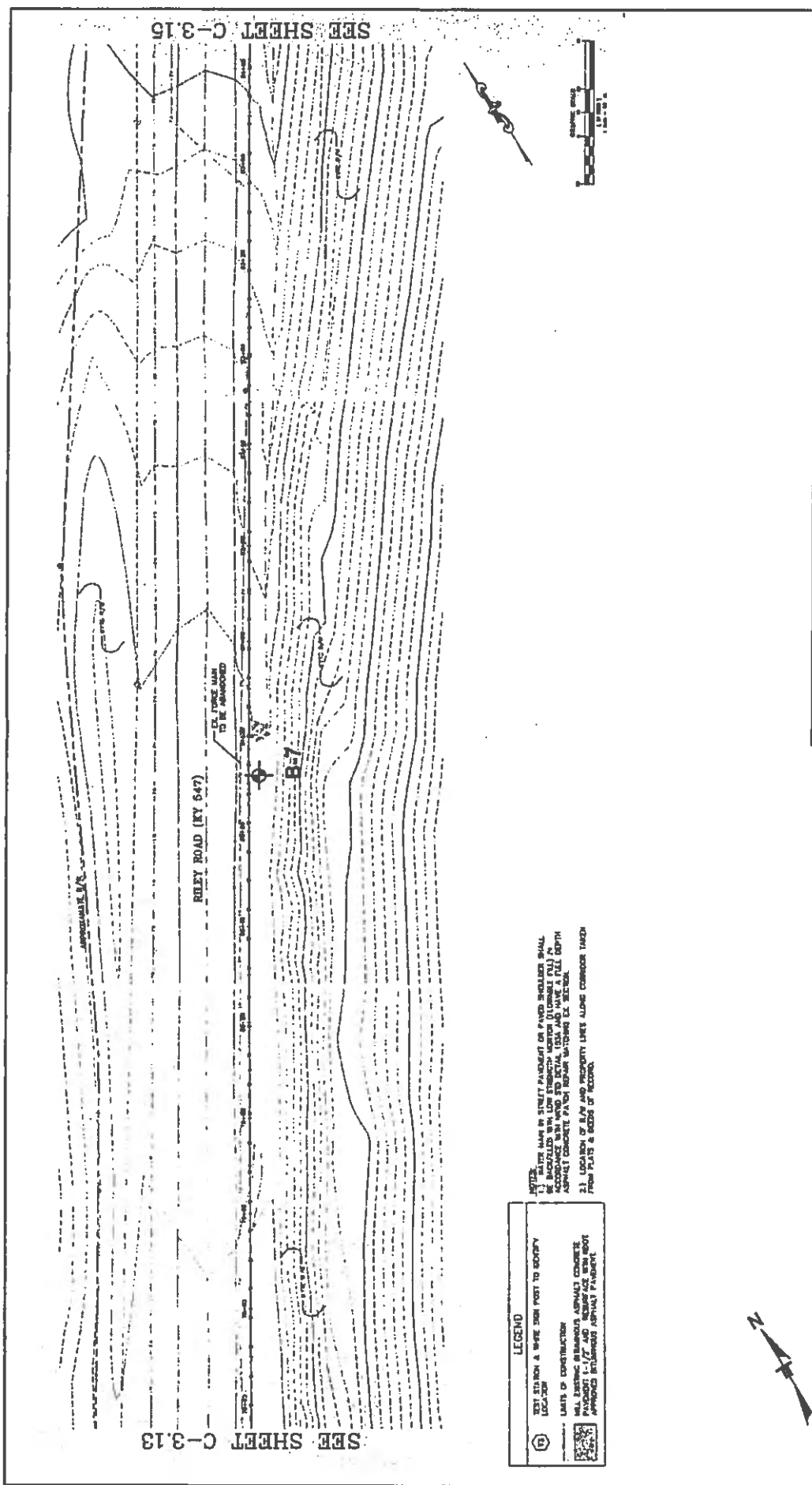
Base drawings from Cardinal Engineering  
drawings dated 12/1/2009

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

**BORING LOCATION DIAGRAM**  
PHASE 5 WATER MAIN EXTENSION  
RILEY ROAD  
ALEXANDRIA, KENTUCKY



Sheet  
A-7



SEE SHEET C-3.13

SEE SHEET C-3.16

**LEGEND**

① NEXT STATION & WHERE SIGN POST TO LOCATE LOCATION

--- LIMITS OF CONSTRUCTION


--- MAIL BARRING GRANULAR ASPHALT CONCRETE PAVEMENT 1-1/2" AND REBARFACE WITH ROOT ANCHORS ENHANCED ASPHALT PAVEMENT

NOTES

1. ALL UTILITY LINES SHOWN ARE PROPOSED OR FROM RECORDS SHALL BE RECORDED WITH LOW TENSION- MEDIUM (LOWVOLTAGE FULL) IN ACCORDANCE WITH WPD TO EXIST. (USA) AND HAVE A FULL DEPTH ASPHALT CONCRETE PATCH NEARBY TO TOWARD EX. UTILITY.

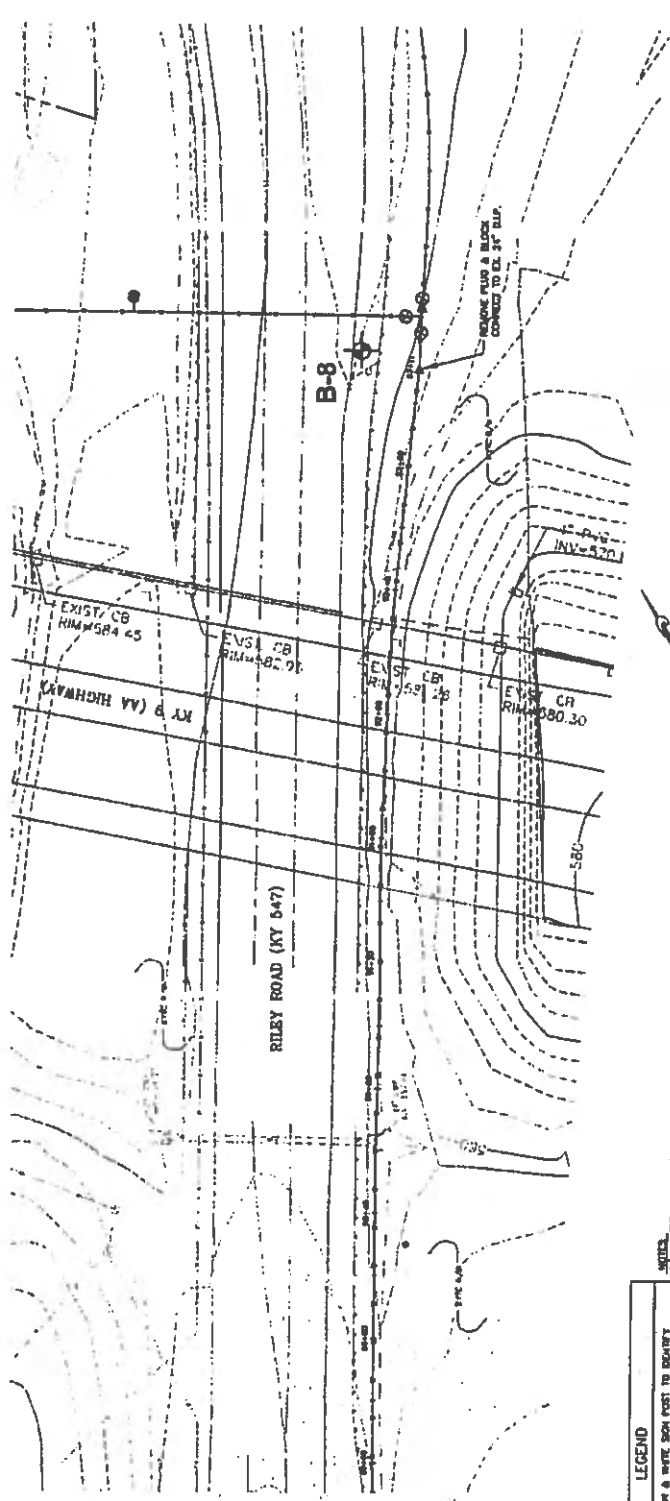
2. LOCATION OF SIGN AND PROPERTY LINES ALONG CORNER TAKEN FROM PLATS & RECORDS OF RECORD.



Project Manager A.S.H.	Project No. M1108217	 FCN CONSULTING ENGINEERS 2011 Lakeside Blvd. Ste. 200 Alexandria, KY 40302 Phone: 502.525.2222
Drawn by D.W.M.	Date 3/29/2010	
Checked by A.S.H.	Scale AS IS	BORING LOCATION DIAGRAM PHASE 5 WATER MAIN EXTENSION RILEY ROAD ALEXANDRIA, KENTUCKY
Approved by A.S.H.		Exhibit <b>A-8</b>

Base drawings from Cardinal Engineering  
drawings dated 12/1/2009

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT  
INTENDED FOR CONSTRUCTION PURPOSES



SEE SHEET C-3.15

**LEGEND**

TEST STATION & BORE SIGN POST TO SECURITY LOCATION

LIMITS OF CONSTRUCTION

EXISTING CONCRETE BORINGS

PROPOSED BORING LOCATION

PROPOSED BORING LOCATION

PROPOSED BORING LOCATION

- NOTES:**
- 1.) WHEN WORK IN STREET PAVEMENT OR PAVED SHOULDER SHALL BE COMPLETED, THE SURFACE SHALL BE FULLY RECONSTRUCTED TO ORIGINAL FINISH WITH A MINIMUM 4" THICK ASPHALT CONCRETE PATCH REPAIR MATCHING EX. SECTION.
  - 2.) LOCATION OF L/W AND PROPERTY LINES ALONG CORROUS TACKS FROM PLATS & DEEDS OF RECORD.



Project Number: JAB	Project No.: 11188012	Scale: AS SHOWN	Sheet: A-9
Drawn By: DMM	Checked By: JAB	File Name: B-1	Date: 3/10/2010
Approved By: JAB	Author: JAB	Client: KY 547	Scale: 1" = 20' (VERTICAL)

Base drawings from Cardinal Engineering  
drawings dated 12/1/2009

THIS DRAWING IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

PHASE 5 WATER MAIN EXTENSION  
RILEY ROAD  
ALEXANDRIA, KENTUCKY

# LOG OF BORING NO. B-1

CLIENT <b>Northern Kentucky Water District</b>		ELEVATION REFERENCE <b>Interpolated from plans</b>	
SITE <b>Riley Road Alexandria, Kentucky</b>		PROJECT <b>Ripple Creek Phase V - Riley Road</b>	
GRAPHIC LOG	Boring Location: As Shown on Test Boring Location Plan		SAMPLES
	DESCRIPTION	TESTS	
	Approx. Surface Elev.: 859 ft	DEPTH, ft.	USCS SYMBOL
	0.5 <b>ASPHALT PAVEMENT</b> 858.5		NUMBER
	<b>FILL</b> , lean clay with sand, trace rock fragments, brown, medium stiff		TYPE
			RECOVERY, %
			BLOWS / 6in. (SPT - N)
			WATER CONTENT, %
			DRY UNIT WT pcf
			UNCONFINED STRENGTH, psf
	5 <b>LEAN CLAY</b> , trace silt, brown, stiff to very stiff 854	5	
	10.5 <b>Boring Completed at 10.5 ft.</b> 848.5	10	

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual. \*Calibrated Hand Penetrometer Exhibit A-10

WATER LEVEL OBSERVATIONS, ft			
WL	▽ N/E	WD	▽
WL	▽ N/E	AB	▽
WL			



BORING STARTED	2-8-10
BORING COMPLETED	2-8-10
RIG D-45 Truck	FOREMAN JJ
LOGGED DWW	JOB # N1105017

BORING NO. 99 TEST BORING LOGS.GPJ TERRACON TEST.GDT 3/16/10

# LOG OF BORING NO. B-2

<b>CLIENT</b> Northern Kentucky Water District		<b>ELEVATION REFERENCE</b> Interpolated from plans	
<b>SITE</b> Riley Road Alexandria, Kentucky		<b>PROJECT</b> Ripple Creek Phase V - Riley Road	
<b>GRAPHIC LOG</b>	<b>Boring Location:</b> As Shown on Test Boring Location Plan	<b>DEPTH, ft.</b>	<b>SAMPLES</b>
	<b>DESCRIPTION</b>	<b>USCS SYMBOL</b>	<b>TESTS</b>
	Approx. Surface Elev.: 848 ft		
0.5	<b>FILL</b> , lean clay with gravel, trace sand, dark brown, stiff	847.5	1 SS 100 7-2-4 (6)
2.5	<b>FILL</b> , lean clay, trace sand and gravel, reddish-brown,	845.5	
	<b>LEAN CLAY</b> , with fine sand and silt, trace rock fragments, brown to reddish-brown, very stiff	▽	2 SS 100 1-3-3 (6) 5000*
		▽	3 SS 100 3-4-5 (9) 5000*
		5	4 SS 100 4-4-4 (8) 6000*
		10	5 SS 100 3-3-4 (7) 5000*
10.5	Boring Completed at 10.5 ft.	837.5	

The stratification lines represent the approximate boundary lines between soil and rock types: In-situ, the transition may be gradual.

\*Calibrated Hand Penetrometer  
Exhibit A-11

WATER LEVEL OBSERVATIONS, ft			
WL	▽ 3.5	WD	▽
WL	▽ 5.0	AB	▽
WL			



BORING STARTED		2-8-10	
BORING COMPLETED		2-8-10	
RIG	D-45 Truck	FOREMAN	JJ
LOGGED	DWW	JOB #	N1105017

BOREHOLE B9 TEST BORING LOGS, GPJ, TERRACON TEST, G01, 3/16/10

# LOG OF BORING NO. B-3

<b>CLIENT</b> Northern Kentucky Water District		<b>ELEVATION REFERENCE</b> Interpolated from plans					
<b>SITE</b> Riley Road Alexandria, Kentucky		<b>PROJECT</b> Ripple Creek Phase V - Riley Road					
<b>GRAPHIC LOG</b>	<b>Boring Location:</b> As Shown on Test Boring Location Plan	<b>DEPTH, ft.</b>	<b>SAMPLES</b>			<b>TESTS</b>	
	<b>DESCRIPTION</b>	<b>USCS SYMBOL</b>	<b>NUMBER</b>	<b>TYPE</b>	<b>RECOVERY, %</b>	<b>BLOWS / bin. (SPT - N)</b>	<b>UNCONFINED STRENGTH, psf</b>
	Approx. Surface Elev.: 785 ft						
	0.5 <b>ASPHALT PAVEMENT</b> <span style="float: right;">784.5</span>						
	1 <b>FILL</b> , sand with asphalt fragments, gray and black, medium dense <span style="float: right;">784</span>		1	SS	100	50-14-10 (24)	
	<b>FILL</b> , lean clay with sand and gravel, dark gray, very stiff						
	5 <b>LEAN CLAY</b> , trace silt, trace rock fragments, brown, trace gray, very stiff <span style="float: right;">780</span>	5	2	SS	67	10-14-13 (27)	5000*
			3	SS	100	12-11-12 (23)	7000*
			4	SS	100	8-13-12 (25)	5500*
			5	SS	100	7-14-10 (24)	5500*
	10.5 <b>Boring Completed at 10.5 ft.</b> <span style="float: right;">774.5</span>	10					

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual. \*Calibrated Hand Penetrometer Exhibit A-12

WATER LEVEL OBSERVATIONS, ft			
WL	N/E	WD	N/E
WL	N/E	AB	N/E
WL			



BORING STARTED	2-8-10
BORING COMPLETED	2-8-10
RIG	D-45 Truck
FOREMAN	JJ
LOGGED	DWW
JOB #	N1105017

BOREHOLE B3 TEST BORING LOGS.GPJ TERRACON TEST.GDT 3/18/10

# LOG OF BORING NO. B-4

<b>CLIENT</b> Northern Kentucky Water District		<b>ELEVATION REFERENCE</b> Interpolated from plans								
<b>SITE</b> Riley Road Alexandria, Kentucky		<b>PROJECT</b> Ripple Creek Phase V - Riley Road								
<b>GRAPHIC LOG</b>	<b>Boring Location:</b> As Shown on Test Boring Location Plan	<b>DEPTH, ft.</b>	<b>SAMPLES</b>			<b>TESTS</b>				
	<b>DESCRIPTION</b>		<b>USCS SYMBOL</b>	<b>NUMBER</b>	<b>TYPE</b>	<b>RECOVERY, %</b>	<b>BLOWS / 6in. (SPT - N)</b>	<b>WATER CONTENT, %</b>	<b>DRY UNIT WT pcf</b>	<b>UNCONFINED STRENGTH, psf</b>
	Approx. Surface Elev.: 700 ft									
	<b>ASPHALT PAVEMENT</b>									
	1 689									
	1.5 698.5		1	SS	44	1-2-9 (11)				
	<b>FILL</b> , sand, trace gravel, dark brown and black, medium dense									
	<b>FILL</b> , lean clay with limestone fragments, trace sand, brown to dark brown, very stiff		2	SS	100	6-10-13 (23)				6000*
	5 695									
	<b>SHALE</b> , severely to highly weathered, trace limestone fragments, brown, soft to very soft	5	3	SS	100	21-10-11 (21)				
	9.5 690.5		4	SS	63	8-50/3"				
	<b>SAUGER</b>									
	Boring Completed at 9.5 ft.		6	SS	0	100/0*				

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\*Calibrated Hand Penetrometer  
Exhibit A-14

**WATER LEVEL OBSERVATIONS, ft**

WL	N/E	WD	V
WL	N/E	AB	V
WL			



BORING STARTED	2-8-10
BORING COMPLETED	2-8-10
RIG D-45 Truck	FOREMAN JJ
LOGGED DWW	JOB # N1105017

BOREHOLE NO. TEST BORING LOGS.GPJ TERRACON TEST.GDT 3/18/10



# LOG OF BORING NO. B-5

<b>CLIENT</b> Northern Kentucky Water District		<b>ELEVATION REFERENCE</b> Interpolated from plans	
<b>SITE</b> Riley Road Alexandria, Kentucky		<b>PROJECT</b> Ripple Creek Phase V - Riley Road	
<b>GRAPHIC LOG</b>	<b>Boring Location:</b> As Shown on Test Boring Location Plan		<b>SAMPLES</b>
	<b>DESCRIPTION</b>	<b>TESTS</b>	
	Approx. Surface Elev.: 657 ft	<b>DEPTH, ft.</b>	<b>USCS SYMBOL</b>
	658		<b>NUMBER</b>
1	655.5		<b>TYPE</b>
1.5	652		<b>RECOVERY, %</b>
5	644.5	5	<b>BLOWS / 6in. (SPT - N)</b>
12.5	642.8	10	<b>WATER CONTENT, %</b>
14.4			<b>DRY UNIT WT pcf</b>
			<b>UNCONFINED STRENGTH, psf</b>

ASPHALT PAVEMENT

658

1.5 **FILL**, sand with gravel, dark brown and black, medium dense

**FILL**, lean clay with rock fragments, brown, stiff

655.5

5 **LEAN CLAY**, with rock fragments, brown, very stiff

652

12.5 **SHALE**, with limestone fragments, gray, soft

644.5

14.4 Boring Completed at 14.4 ft.

642.8

DEPTH, ft.	USCS SYMBOL	NUMBER	TYPE	RECOVERY, %	BLOWS / 6in. (SPT - N)	WATER CONTENT, %	DRY UNIT WT pcf	UNCONFINED STRENGTH, psf
		1	SS	67	2-3-4 (7)			
		2	SS	100	4-4-8 (10)			4500*
5		3	SS	100	4-3-4 (7)			
		4	SS	100	4-4-4 (8)			5000*
10		5	SS	100	8-5-11 (16)			5000*
		6	SS	89	91-100/4'			4000*
		7	SS	100	100/4"			

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\*Calibrated Hand Penetrometer  
Exhibit A-15

WATER LEVEL OBSERVATIONS, ft			
WL	∇ N/E	WD	∇
WL	∇ N/E	AB	∇
WL			



<b>BORING STARTED</b>		2-8-10	
<b>BORING COMPLETED</b>		2-8-10	
<b>RIG</b>	D-45 Truck	<b>FOREMAN</b>	JJ
<b>LOGGED</b>	DWW	<b>JOB #</b>	N1105017

BOREHOLE 99 TEST BORING LOGS.GPJ TERRACON TEST.GDT 3/16/10

# LOG OF BORING NO. B-6

<b>CLIENT</b> Northern Kentucky Water District		<b>ELEVATION REFERENCE</b> Interpolated from plans	
<b>SITE</b> Riley Road Alexandria, Kentucky		<b>PROJECT</b> Ripple Creek Phase V - Riley Road	
<b>GRAPHIC LOG</b>	<b>Boring Location:</b> As Shown on Test Boring Location Plan		
	<b>DESCRIPTION</b>	<b>DEPTH, ft.</b>	<b>SAMPLES</b>
	Approx. Surface Elev.: 626 ft		<b>TESTS</b>
5	FILL, lean clay with gravel and rock fragments, trace sand, brown and gray, medium stiff to stiff	1	SS 33 1-1-1 (2) 3000*
5	LEAN CLAY, with weathered shale fragments, trace limestone fragments, brown, trace gray, very stiff	2	SS 89 3-2-5 (7) 1500*
10.5	LEAN CLAY, with weathered shale fragments, trace limestone fragments, brown, trace gray, very stiff	3	SS 33 2-2-2 (4) 4500*
		4	SS 100 4-3-7 (10) 7000*
		5	SS 67 5-7-10 (17) 7500*
	Boring Completed at 10.5 ft.		

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\*Calibrated Hand Penetrometer  
Exhibit A-13

**WATER LEVEL OBSERVATIONS, ft**

WL	▽ 5.0	WD	▽
WL	▽ N/E	AB	▽
WL			



BORING STARTED		2-8-10	
BORING COMPLETED		2-8-10	
RIG	D-45 Truck	FOREMAN	JJ
LOGGED	DWW	JOB #	N1105017

BOREHOLE 09 TEST BORING LOGS.GPJ TERRACON TEST.GDT 3/16/10

# LOG OF BORING NO. B-7

CLIENT <b>Northern Kentucky Water District</b>		ELEVATION REFERENCE <b>Interpolated from plans</b>	
SITE <b>Riley Road Alexandria, Kentucky</b>		PROJECT <b>Ripple Creek Phase V - Riley Road</b>	
GRAPHIC LOG	Boring Location: As Shown on Test Boring Location Plan		SAMPLES
	DESCRIPTION	TESTS	
	Approx. Surface Elev.: 610 ft	DEPTH, ft.	USCS SYMBOL
2.5	607.5	1	SS
FILL, lean clay with limestone and shale fragments, gray and brown, medium stiff		RECOVERY, %	BLOWS / 6in. (SPT - N)
		100	1-2-4 (6)
5	607.5	2	SS
SHALE, moderately weathered, trace limestone, gray, trace brown, soft		RECOVERY, %	BLOWS / 6in. (SPT - N)
		100	9-12-8 (20)
10	600	3	SS
SHALE, trace limestone, gray, soft		RECOVERY, %	BLOWS / 6in. (SPT - N)
		67	7-9-7 (16)
10.5	599.5	4	SS
SHALE, trace limestone, gray, soft		RECOVERY, %	BLOWS / 6in. (SPT - N)
		100	7-11-9 (20)
		5	SS
Boring Completed 10.5 ft.		RECOVERY, %	BLOWS / 6in. (SPT - N)
		67	12-21
		5A	SS
		67	50

The stratification lines represent the approximate boundary lines between soil and rock types: In-situ, the transition may be gradual. \*Calibrated Hand Penetrometer Exhibit A-16

WATER LEVEL OBSERVATIONS, ft			
WL	<input checked="" type="checkbox"/> N/E	WD	<input checked="" type="checkbox"/>
WL	<input checked="" type="checkbox"/> N/E	AB	<input checked="" type="checkbox"/>
WL			



BORING STARTED	2-8-10
BORING COMPLETED	2-8-10
RIG	D-45 Truck
FOREMAN	JJ
LOGGED	DWW
JOB #	N1105017

BOREHOLE 99 TEST BORING LOGS.GPJ TERRACON TEST.GDT 3/18/10

# LOG OF BORING NO. B-8

<b>CLIENT</b> Northern Kentucky Water District	<b>ELEVATION REFERENCE</b> Interpolated from plans
<b>SITE</b> Riley Road Alexandria, Kentucky	<b>PROJECT</b> Ripple Creek Phase V - Riley Road

GRAPHIC LOG	Boring Location: As Shown on Test Boring Location Plan	DEPTH, ft.	USCS SYMBOL	SAMPLES				TESTS	
				NUMBER	TYPE	RECOVERY, %	BLOWS / 6in. (SPT - N)	WATER CONTENT, %	DRY UNIT WT pcf
	DESCRIPTION								
	Approx. Surface Elev.: 558 ft								
	FILL, lean clay with rock fragments, trace sand, brown, medium stiff	2.5		1	SS	78	1-2-7 (9)		2000*
	FILL, lean clay with shale fragments, trace limestone fragments, trace wood fragments at 9 ft., gray and brown, very stiff	555.5		2	SS	100	15-7-7 (14)		4000*
		5		3	SS	100	8-10-11 (21)		7000*
		10		4	SS	100	11-11-10 (21)		6000*
		10.5		5	SS	33	8-12-10 (22)		6000*
	Boring Completed at 10.5 ft.	547.5							

The stratification lines represent the approximate boundary lines between soil and rock types: In-situ, the transition may be gradual.

\*Calibrated Hand Penetrometer  
Exhibit A-17

WATER LEVEL OBSERVATIONS, ft			
WL	N/E	WD	N/E
WL	N/E	AB	N/E
WL			



BORING STARTED	2-8-10
BORING COMPLETED	2-8-10
RIG D-45 Truck	FOREMAN JJ
LOGGED DWW	JOB # N1105017

BOREHOLE 99 TEST BORING LOGS.GPJ TERRACON TEST.GDT 3/16/10



### **Field Exploration Description**

The boring locations were laid out on the site by HCN/Terracon personnel using water main alignment plans provided by Cardinal Engineering, (dated 12/1/09). Ground surface elevations at test boring locations were interpolated from the water main alignment plan drawings. The borings were drilled with truck-mounted rotary drill rigs using continuous flight hollow-stem augers to advance the boreholes. Samples of the soil encountered in the borings were obtained using the split-barrel sampling procedures.

In the split barrel sampling procedure, the number of blows required to advance a standard 2 Inch O.D. split barrel sampler the last 12 inches of the typical total 18 inch penetration by means of a rope and cathead manual safety hammer with a free fall of 30 inches, is the standard penetration resistance value (SPT-N). This value is used to estimate the in-situ relative density of cohesionless soils and consistency of cohesive soils.

An automatic SPT hammer was used to advance the split-barrel sampler in the borings performed on this site. A greater efficiency is typically achieved with the automatic hammer compared to the conventional safety hammer operated with a cathead and rope. Published correlations between the SPT values and soil properties are based on the lower efficiency cathead and rope method. This higher efficiency affects the standard penetration resistance blow count (N) value by increasing the penetration per hammer blow over what would be obtained using the cathead and rope method. The effect of the automatic hammer's efficiency has been considered in the interpretation and analysis of the subsurface information for this report.

The samples were tagged for identification, sealed to reduce moisture loss, and taken to our laboratory for further examination, testing, and classification. Information provided on the boring logs attached to this report includes soil descriptions, consistency evaluations, boring depths, sampling intervals, and groundwater conditions. The borings were backfilled with auger cuttings prior to the drill crew leaving the site.

A field log of each boring was prepared by the drill crew. These logs included visual classifications of the materials encountered during drilling as well as the driller's interpretation of the subsurface conditions between samples. Final boring logs included with this report represent the engineer's review of obtained soil samples, driller's field logs and include modifications based on laboratory tests of the samples.

**APPENDIX B**  
**SUPPORTING INFORMATION**



**Laboratory Testing**

Selected soil samples were tested in the laboratory to measure natural water content and Atterberg Limits. A calibrated hand penetrometer was used to estimate the approximate unconfined compressive strength of some samples. The calibrated hand penetrometer has been correlated with unconfined compression tests and provides a better estimate of soil consistency than visual examination alone. The test results are provided on the boring logs included in Appendix A.

Descriptive classifications of the soils indicated on the boring logs are in accordance with the enclosed General Notes and the Unified Soil Classification System. Also shown are estimated Unified Soil Classification Symbols. A brief description of this classification system is attached to this report. All classification was by visual manual procedures. Selected samples were further classified using the results of Atterberg limit testing. The Atterberg limit test results are also provided on the boring logs.

**APPENDIX C**  
**SUPPORTING DOCUMENTS**



## GENERAL NOTES

### DRILLING & SAMPLING SYMBOLS:

SS: Split Spoon - 1-<sup>3</sup>/<sub>8</sub>" I.D., 2" O.D., unless otherwise noted  
 ST: Thin-Walled Tube - 2" O.D., unless otherwise noted  
 RS: Ring Sampler - 2.42" I.D., 3" O.D., unless otherwise noted  
 DB: Diamond Bit Coring - 4", N, B  
 BS: Bulk Sample or Auger Sample

HS: Hollow Stem Auger  
 PA: Power Auger  
 HA: Hand Auger  
 RB: Rock Bit  
 WB: Wash Boring or Mud Rotary

The number of blows required to advance a standard 2-inch O.D. split-spoon sampler (SS) the last 12 inches of the total 18-inch penetration with a 140-pound hammer falling 30 inches is considered the "Standard Penetration" or "N-value".

### WATER LEVEL MEASUREMENT SYMBOLS:

WL: Water Level  
 WCI: Wet Cave In  
 DCI: Dry Cave In  
 AB: After Boring  
 WS: White Sampling  
 WD: White Drilling  
 BCR: Before Casing Removal  
 ACR: After Casing Removal  
 NE: Not Encountered

Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. Groundwater levels at other times and other locations across the site could vary. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels may not be possible with only short-term observations.

**DESCRIPTIVE SOIL CLASSIFICATION:** Soil classification is based on the Unified Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

### CONSISTENCY OF FINE-GRAINED SOILS

<u>Unconfined Compressive Strength, Qu, psf</u>	<u>Standard Penetration or N-value (SS) Blows/Ft.</u>	<u>Consistency</u>
< 500	< 2	Very Soft
500 - 1,000	2-3	Soft
1,001 - 2,000	4-6	Medium Stiff
2,001 - 4,000	7-12	Stiff
4,001 - 8,000	13-26	Very Stiff
8,000+	28+	Hard

### RELATIVE DENSITY OF COARSE-GRAINED SOILS

<u>Standard Penetration or N-value (SS) Blows/Ft.</u>	<u>Ring Sampler (RS) Blows/Ft.</u>	<u>Relative Density</u>
0 - 3	0-6	Very Loose
4 - 9	7-18	Loose
10 - 29	19-58	Medium Dense
30 - 49	59-98	Dense
50+	99+	Very Dense

### RELATIVE PROPORTIONS OF SAND AND GRAVEL

<u>Descriptive Term(s) of other Constituents</u>	<u>Percent of Dry Weight</u>
Trace	< 15
With	15 - 29
Modifier	> 30

### GRAIN SIZE TERMINOLOGY

<u>Major Component of Sample</u>	<u>Particle Size</u>
Boulders	Over 12 in. (300mm)
Cobbles	12 in. to 3 in. (300mm to 75 mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm)
Silt or Clay	Passing #200 Sieve (0.075mm)

### RELATIVE PROPORTIONS OF FINES

<u>Descriptive Term(s) of other Constituents</u>	<u>Percent of Dry Weight</u>
Trace	< 5
With	5 - 12
Modifiers	> 12

### PLASTICITY DESCRIPTION

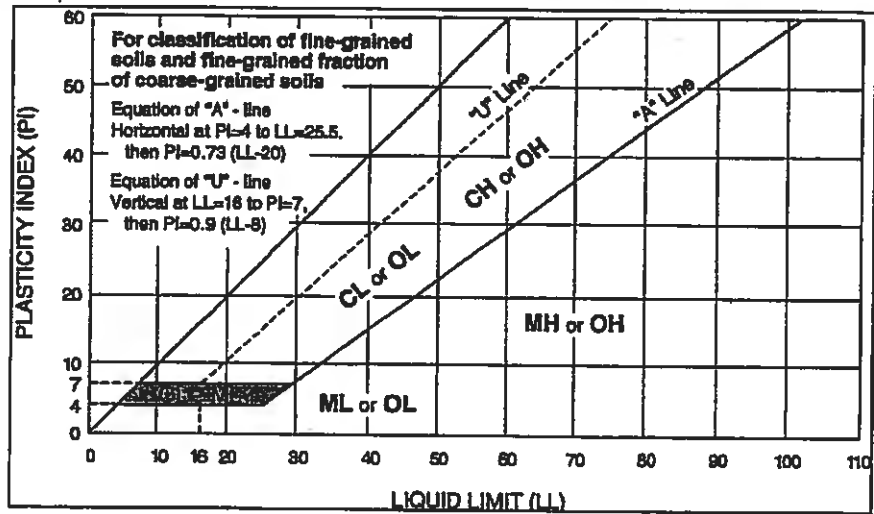
<u>Term</u>	<u>Plasticity Index</u>
Non-plastic	0
Low	1-10
Medium	11-30
High	30+

# UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests		GROUP SYMBOL	GROUP NAME	
<b>Coarse Grained Soils:</b> More than 50% retained on No. 200 sieve	<b>Gravels:</b> More than 50% of coarse fraction retained on No. 4 sieve	<b>Clean Gravels:</b> Less than 5% fines <sup>c</sup>	$Cu \geq 4$ and $1 \leq Cc \leq 3^e$ GW Well-graded gravel <sup>f</sup>	
		<b>Gravels with Fines:</b> More than 12% fines <sup>c</sup>	$Cu < 4$ and/or $1 > Cc > 3^e$ GP Poorly graded gravel <sup>f</sup>	
		<b>Sands:</b> 50% or more of coarse fraction passes No. 4 sieve	Fines classify as ML or MH GM Silty gravel <sup>f, g, h</sup>	
	<b>Fine-Grained Soils:</b> 50% or more passes the No. 200 sieve	<b>Silts and Clays:</b> Liquid limit less than 50	Fines classify as CL or CH GC Clayey gravel <sup>f, g, h</sup>	$Cu \geq 6$ and $1 \leq Cc \leq 3^e$ SW Well-graded sand <sup>i</sup>
			Fines classify as ML or MH SM Silty sand <sup>g, j, k</sup>	$Cu < 6$ and/or $1 > Cc > 3^e$ SP Poorly graded sand <sup>i</sup>
			Fines classify as CL or CH SC Clayey sand <sup>g, j, k</sup>	PI $> 7$ and plots on or above "A" line <sup>j</sup> CL Lean clay <sup>k, l, m</sup>
<b>Highly organic soils:</b>	<b>Silts and Clays:</b> Liquid limit less than 50	PI $< 4$ or plots below "A" line <sup>j</sup> ML Silt <sup>k, l, m</sup>	PI plots on or above "A" line CH Fat clay <sup>k, l, m</sup>	
		Liquid limit - oven dried Liquid limit - not dried $< 0.75$ OL Organic clay <sup>k, l, m, n</sup> Organic silt <sup>k, l, m, o</sup>	PI plots below "A" line MH Elastic Silt <sup>k, l, m</sup>	
	<b>Silts and Clays:</b> Liquid limit 50 or more	Liquid limit - oven dried Liquid limit - not dried $< 0.75$ OH Organic clay <sup>k, l, m, p</sup> Organic silt <sup>k, l, m, o</sup>	PI plots on or above "A" line PT Peat	PI plots below "A" line
		Primarily organic matter, dark in color, and organic odor		

- <sup>A</sup> Based on the material passing the 3-in. (75-mm) sieve
- <sup>B</sup> If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
- <sup>C</sup> Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
- <sup>D</sup> Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay
- <sup>E</sup>  $Cu = D_{60}/D_{10}$      $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
- <sup>F</sup> If soil contains  $\geq 15\%$  sand, add "with sand" to group name.
- <sup>G</sup> If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

- <sup>H</sup> If fines are organic, add "with organic fines" to group name.
- <sup>I</sup> If soil contains  $\geq 15\%$  gravel, add "with gravel" to group name.
- <sup>J</sup> If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
- <sup>K</sup> If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
- <sup>L</sup> If soil contains  $\geq 30\%$  plus No. 200 predominantly sand, add "sandy" to group name.
- <sup>M</sup> If soil contains  $\geq 30\%$  plus No. 200, predominantly gravel, add "gravelly" to group name.
- <sup>N</sup> PI  $\geq 4$  and plots on or above "A" line.
- <sup>O</sup> PI  $< 4$  or plots below "A" line.
- <sup>P</sup> PI plots on or above "A" line.
- <sup>Q</sup> PI plots below "A" line.





**TRANSPORTATION CABINET**

**Steven L. Beshear**  
Governor

Department of Highways District 6 Office  
421 Buttermilk Pike  
Covington, KY 41017  
(859) 341-2700

**Michael W. Hancock, P.E.**  
Secretary

**RECEIVED**  
APR 17 2012

April 13, 2012

**BY:** .....

**SUBJECT:** Campbell County, MP-19-547-0  
KY 547 (RILEY ROAD)  
Permit Number 06-0177-12

Dear NORTHERN KENTUCKY WATER SERVICE DISTRICT:

Your application for an encroachment permit has been approved by the Department of Highways. We are returning two copies of the approved permit so one may be kept in your record files. The other copy must be given to the party responsible for completing the project and must be kept at the jobsite at all times.

Please see that the work is done in strict conformity with the permit and any other applicable conditions (See Form TC99-21 and any other attached documents, conditions or specifications). The work should be completed no later than January 1, 2013. When the permitted work and any necessary restoration have been completed please notify this office by using the attached form which will serve as notification for final inspection.

If there are any questions regarding this permit, please do not hesitate to contact James Minckley at 859-341-2700 or fax number 859-341-6729.

Sincerely,

Robert Hans, P.E.  
Chief District Engineer  
Department of Highways  
District 6 -Covington  
421 Buttermilk Pike  
Covington, KY 41017



NOTICE OF COMPLETION OF ENCROACHMENT PERMIT WORK

Please return this form to the District Office when work is completed and ready for final inspection.

---

---

Applicant Identification

Project Identification

Name: NORTHERN KENTUCKY WATER SERVICE Permit Number: 06-0177-12

Contact Person:

County: Campbell

Address: P.O. BOX 17010

Route Number: 547

City: COVINGTON

Road Name: RILEY ROAD

State: KY Zip: 41017

Milepoint: 0

Telephone: 606-331-3066

---

---

I wish to notify the Department of Highways that the above mentioned permit work and any necessary right of way restoration have been completed and are ready for final inspection.

---

Applicant

---

Please Return To:

Department of Highways  
District 6 Covington  
421 Buttermilk Pike  
Covington, Ky. 41017

Attention:

James Minckley

KENTUCKY TRANSPORTATION CABINET  
Department of Highways  
Permits Branch

TC 99-1E  
Rev.  
02/2010

Released Date \_\_\_\_\_

**ENCROACHMENT PERMIT**

PERMIT NO. 06-0177-12

<b>APPLICANT IDENTIFICATION:</b> NAME: <u>Northern Kentucky Water District</u> CONTACT PERSON: <u>Steve Broering</u> ADDRESS: <u>2835 Crescent Springs Road</u> CITY: <u>Erlanger</u> STATE: <u>KY</u> ZIP CODE: <u>41018</u> PHONE: area code ( <u>859</u> ) <u>428-2728</u>		<b>PROJECT IDENTIFICATION:</b> ACCESS CONTROL: <input checked="" type="checkbox"/> By Permit <input type="checkbox"/> Partial <input type="checkbox"/> Full COUNTY: <u>Campbell</u> PRIORITY ROUTE NO: <u>KY 547</u> MILEPOINT: <u>X</u> <input type="checkbox"/> Left <input checked="" type="checkbox"/> Right <input checked="" type="checkbox"/> X-Ing PROJECT STATUS: <input checked="" type="checkbox"/> Maint. <input type="checkbox"/> Const. <input type="checkbox"/> Design PROJECT # STATE: <u>mp-019-0517</u> PROJECT # FEDERAL: _____ ROAD/STREET NAME: <u>Riley Road</u>	
---	--	---	--

**TYPE OF ENCROACHMENT:**

COMMERCIAL ENTRANCE - BUSINESS\*

PRIVATE ENTRANCE:  Single Family  Farm

UTILITY:  Overhead  Underground

GRADE:  Fill  Landscape on R/W

AIRSPACE:  Agreement  Lease

C & R Sign(s)

TODS

LOGOS

OTHER: (Specify) \_\_\_\_\_

\*Electronic PDF file required of final plans and specifications

**ATTACHMENTS:**

Standard Drawings (List on TC 99-21 under Misc.)

Applicant's Plans

Highway Plan and Profile Sheets

TC 99-3 (Ponding Encroachment Specs. and Conditions)

TC 99-4 (Rest Area Usage Specs. and Conditions)

TC 99-5 (Tree Cutting/Trimming Specs. and Conditions)

TC 99-6 (Chemical Use of Specs. and Conditions)

TC 99-10 (Typical Highway Boring Crossing Detail)

TC 99-12 (Overhead Utility Encroachment Diagram)

TC 99-13 (Surface Restoration Methods)

TC 99-21 (Encroachment Permit General Notes and Specs.)

TC 99-22 (Agreement for Services to Be Performed)

TC 99-23 (Mass Transit Shelter Specs. and Conditions)

TC 99-201 (Tourist Signage Program Application)

TC 99-202 (Temporary Agritourism Site Application)

TC 99-203 (Attraction Eligibility Information)

TC 99-204 (Signing Incentive Program Application)

Other Attachments (Specify): \_\_\_\_\_

**TYPE OF INDEMNITY:**  Bond  Cash

SELF-INSURED AMOUNT ENCUMBERED \$ 50,000

OTHER \_\_\_\_\_

**NAME AND ADDRESS OF LOCAL INSURANCE AGENCY OR SELF-INSURED REPRESENTATIVE:**

\_\_\_\_\_

**APPROVED**  
APR 18 2012

**INDEMNITY:** The applicant, in order to secure this obligation, has deposited with the Transportation Cabinet as a guarantee of conformance with the Department's Encroachment Permit requirements, an indemnity in the amount of \$ \_\_\_\_\_ as determined by the Department. It shall be the responsibility of the applicant or permittee, his heirs and assignees to keep all indemnities in full force until construction or reconstruction has been completed and duly accepted by an authorized agent of the Transportation Cabinet, Department of Highways.

**BRIEF DESCRIPTION OF WORK TO BE DONE.**

New Construction - Ripple Creek Pump to Alexandria Tank Phase 5 - Water Main replacement/Water Main extension - installation of 9,321 feet of 24" Class 200 Ductile iron water pipe from the intersection of KY 10 and KY 547 to KY 9. Restoration will be mill and pave or topsoil.

Applicant certifies project area  does  does not exceed one acre. Projects disturbing more than one acre require a KPDES KYR 10 permit.

X mp - 0.00 - 1.804 184-0146

**IMPORTANT (PLEASE READ):** Applicant  does  does not intend to apply for excess R/W.

When the work is completed in accordance with the terms of this encroachment permit, your indemnity will be released. However, the permit is effective until revoked by the Transportation Cabinet and the terms on the permit accompanying permit documents and drawings remain in effect as long as the encroachment exists. **FUTURE MAINTENANCE OF THE ENCROACHMENT IS THE RESPONSIBILITY OF THE PERMITEE.** It is important that you understand the requirements of this encroachment permit application and accompanying documents. If you have not done so, it is suggested that you review these documents and place the permit package in a safe place for future reference.

A copy of this permit and all documents shall be given to your contractor and shall be readily available at the work site for the encroachment permit inspector to review at all times. Failure to meet this requirement may result in cancellation of this permit.

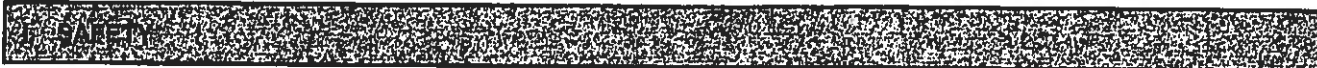
IN THE EVENT THIS APPLICATION IS APPROVED, THIS DOCUMENT SHALL CONSTITUTE A PERMIT FOR THE APPLICANT TO USE THE RIGHT-OF-WAY, BUT ONLY IN THE MANNER AUTHORIZED BY THIS DOCUMENT AND REGULATIONS OF THE DEPARTMENT AND THE DRAWINGS, PLANS, ATTACHMENTS, AND OTHER PERTINENT DATA ATTACHED HERETO AND MADE A PART HEREOF.





## ENCROACHMENT PERMIT GENERAL NOTES & SPECIFICATIONS

Permit No. 06-0177-12



### A. General Provisions

- All signs and control of traffic shall be in accordance with the Manual on Uniform Traffic Control Devices for Streets and Highways, latest edition, Part VI, and safety requirements shall comply with the Permits Manual.
- All work necessary in shoulder or ditch line areas of a state highway shall be scheduled to be promptly completed so that hazards adjacent to the traveled way are kept to an absolute minimum.
- No more than one (1) traveled-lane shall be blocked or obstructed during normal working hours. All signs and flaggers during lane closure shall conform to the Manual on Uniform Traffic Control Devices.
- When necessary to block one (1) traveled-lane of a state highway, the normal working hours shall be as directed by the Department. No lanes shall be blocked or obstructed during adverse weather conditions (rain, snow, fog, etc.) without specific permission from the Department. Working hours shall be between 8:30 am and 4:30 pm.
- The traveled-way and shoulders shall be kept clear of mud and other construction debris at all times during construction of the permitted facility.
- No nonconstruction equipment or vehicles or office trailers shall be allowed on the right of way during working hours.
- The right of way shall be left free and clear of equipment, material, and vehicles during non-working hours.

### B. Explosives

- No explosive devices or explosive material shall be used within state right of way without proper license and approval of the Kentucky Department of Mines and Minerals, Explosive Division.

### C. Other Safety Requirements

- All roadway signs must be replaced if removed or damaged during construction. Mill & overlay required for any area where water main was installed within paved roadway. See Sec. VI for paving details



- \*All work necessary within the right of way shall be performed behind a temporary fence erected prior to a boring operation.
- \*The temporary woven wire fence shall be removed immediately upon completion of work on the right of way, and the control of access immediately restored to original condition, in accordance with applicable Kentucky Department of Highways Standard Drawings.
- \*All vents, valves, manholes, etc., shall be located outside of the right-of-way.
- \*Encasement pipe shall extend from right-of-way line to right-of-way line and shall be one continuous run of pipe. The encasement pipe shall be welded at all joints.
- The boring pit and tail ditch shall extend past the existing toe of slope or bottom of ditch line and shall be a minimum of 42 inches deep.

**II. UTILITIES (continued)**

- Encasement pipe shall conform to current standards for highway crossings in accordance with the Permits Manual.
- Parallel lines shall be constructed between back slope of ditch line and right-of-way line and shall have a minimum of ~~36-inch~~ <sup>36"</sup> cover above top of pipe or conduit.
- All pavement cuts shall be restored per Kentucky Transportation Cabinet form TC 99-13.
- Aerial crossing of this utility line shall have a minimum clearance of \_\_\_\_\_ feet from the high point of the roadway to the low point of the line (calculated at the coefficient for expansion of 120 degrees Fahrenheit).
- The 30-foot clear zone requirement shall be met to the extent possible in accordance with the Permits Manual.
- Special requirements:

Fill & overlay required for roadway where water main is installed under pavement. See Sec. VI for paving details.  
Flowable fill required under paved areas & if water main is installed with 4' of edge of roadway.

**III. GENERAL**

**A. OSHA**

- Kentucky Occupational Safety and Health Standards for the construction industry, which has the effect of law, states in part: (Page 52, 1926.651, Specific Excavation Requirements) "Prior to opening an excavation, effort shall be made to determine whether underground installations, (sewer, telephone, water, fuel, electric lines, etc.) will be encountered, and if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined, and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation."

**B. Archaeological**

- Whenever materials of an archaeological nature are discovered during the course of construction work or maintenance operations, contact shall be made immediately with the Division of Environmental Analysis, which maintains an archaeologist on staff, or with the Office of the State Archaeologist located at the University of Kentucky. Following this consultation, further action shall be decided on a case-by-case basis by the State Highway Engineer or the Transportation Planning Engineer or their designated representative.

**C. Utilities in the Work Areas**

- The permittee shall be responsible for any damage to existing utilities, and any utility modifications or relocations within state right of way necessary, as determined by the Department or by the owner of the utility, shall be at the expense of the permittee and subject to the approval of the Department.
- All existing manholes and valve boxes shall be adjusted to be flush with finished grade.

**D. Environmental**

- If the activity to which this permit relates disturbs one acre or more of land, you must obtain a KPDES KYR10 permit.

**Websites**

<http://www.water.ky.gov/permitting/wastewaterpermitting/KPDES/storm/>

Inspectors for KPDES KYR10 at [www.KEPSC.org](http://www.KEPSC.org)



**RIGHT OF WAY RESTORATION**

- All disturbed portions of the right of way shall be restored to grass as per Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition). A satisfactory turf, as determined by the Department, shall be established by the permittee prior to release of indemnity. Sodding or seeding shall be as follows:

Lawn or High Maintenance Situation

70% Lawn Fescue (e.g., variety - Falcon)  
30% Bluegrass or

70% Lawn Rye (e.g., variety - Derby)  
30% Bluegrass

Right of Way Lawn Maintenance Situation

70% KY 31 Fescue  
30% Perennial Rye Grass or

100% KY Fescue

- Two tons of clean straw mulch per acre of seeding.
- Prior to seeding, the ground shall be prepared in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).
- Substitutes for sod such as artificial turf, rocked mulch, or paved areas may be acceptable if they are aesthetically pleasing.
- All ditch-flow lines and all ditch-side slopes shall be sodded.
- Existing concrete right of way markers shall not be disturbed, but if damaged in any way, they shall be entirely replaced by the permittee, with new concrete markers to match the original markers, in accordance with Kentucky Department of Highways Standard Drawings. Markers that are entirely removed shall be re-established in the proper locations by the permittee and to the satisfaction of the Department.
- Other right of way restoration requirements are as follows:

**DRAINAGE**

- All pipe shall be laid in a straight alignment, to proper grades, and with all materials and methods of installation including bedding and joint seating in accordance with Department Standard Specifications for Road and Bridge Construction (latest edition). Pipe shall not be covered until inspected by the Department and express permission obtained to make backfill.
- All gutter lines at the base of new curbs shall be on continuous grades, and pockets of water along with curbs or in entrance areas or other paved areas within the right of way shall not be acceptable.
- All drainage structures and appurtenances (manholes, catch basins, curbing, inlet basins, etc.) shall conform to Department specifications and shall be constructed in accordance with the Department Standard Drawings. Type required:

Any damage to existing drainage facilities will be responsibility of applicant to repair.

Permit No. 06-0177-12

**VI. PAVING**

- No bituminous pavement shall be installed within the right of way between November 15 and April 1, nor when the temperature is below 40 degrees Fahrenheit, without the express consent of the Department. No bituminous pavement shall be installed when the underlying course is wet.
- Paving within the right of way shall be as follows:
  - Base (Type) Flowable Fill (Thickness) various depth
  - Surface Base (Type) Bit. Base CL II (Thickness) match existing depth
  - Finished Surface (Type) Bit. Surface CL II (Thickness) 1.5 inch
- Existing pavement and shoulder material shall be removed to accommodate the above paving specifications.
- The finished surface of all new pavement within the right of way shall be true to the required slope and grade, uniform in density and texture, free of irregularities, and equivalent in riding qualities to the adjacent highway pavement or as determined by the Department of Highways.
- All materials and methods of construction, including base and subgrade preparation, shall be in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).
- 24 hours notice to the Department is required prior to beginning paving operations.  
Phone: 859-341-2700 Name: Ed Thompson
- To ensure proper surface drainage, the new pavement shall be flush with the edge of existing highway pavement and shall slope away from the existing edge of the pavement as specified in drawings.
- Existing edge of pavement shall be saw-cut to provide a straight and uniform joint for new pavement. An approved joint sealer, in accordance with Kentucky Department of Highways Standard Specifications (latest edition), shall be applied between new and existing pavements.

**VII. SIDEWALK SPECIFICATIONS - This dimension shall be equal to the width of the sidewalk.**

**A. New Sidewalks**

- Sidewalks shall be constructed of Class A concrete (3,500 p.s.i. test), shall be \* \_\_\_\_\_ feet in width, 6 inches in thickness across the bituminous entrance, and 4 inches in thickness across the remaining sections.
- Sidewalks shall have tooled joints not less than 1 inch in depth at four foot intervals\*, and 1/2 premoided expansion joints extending entirely through the sidewalk at intervals not to exceed 50 feet.
- All materials and methods of construction, including curing, shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

**B. Existing Sidewalks**

- (Applicable if existing sidewalks are being relocated) Use of the sidewalk shall not be blocked or obstructed, and a usable walkway shall be maintained across the construction area at all times.
- All damaged sections of the sidewalks shall be entirely replaced to match existing sections.

**III. DENSE-GRADED SHOULDERS**

- Any existing dense-graded aggregate shoulders in the entire frontage within the construction area, which have been disturbed or damaged or on which dirt has been placed or mud has been deposited or tracked, shall be restored to original condition by removal of all contaminated material and replaced to proper grade with new dense-graded aggregate.
- All new aggregate shoulders as specified in the plan shall consist of 5 inches of compacted dense-graded aggregate, 2<sup>1/2</sup> pounds per square yard of calcium chloride.
- All dense-graded aggregate shoulders shall slope away from the new edge of pavement at the rate of 3/4 inch per foot.

**IV. CURBING**

**A. Bituminous Curbs**

- Bituminous concrete curbs shall be given a paint coat of asphalt emulsion.
- The surface under the bituminous concrete curb shall be tacked with asphalt emulsion.
- All bituminous concrete curbs shall be constructed of a Class I bituminous concrete mixture as specified by official Department of Highways specifications.
- All bituminous curbs shall be rolled curb, with a minimum base width of 6 inches and a minimum height of \_\_\_\_\_ inches. The top of the curb shall be constructed in such a manner as to guarantee a uniform rolled effect throughout the entire run.

**B. Concrete Curbs**

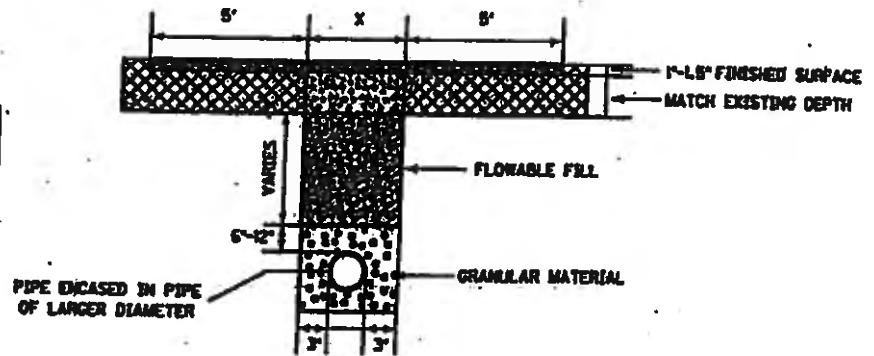
- All curbs or curb and gutter shall be constructed of Class A concrete (3,500 p.s.i. test) and shall be uniform in height, width, and alignment, true to grade, and satisfactory in finish and appearance as determined by the Department. All materials and methods of construction, including curing, shall be in accordance with Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).
- All concrete curbs shall be 6 inches in width, extend \_\_\_\_\_ inches above finished grade and 12 inches below finished grade, with all visible edge rounded to 1/2 inch radii.
- All concrete curbs shall have expansion joints constructed at intervals of not more than 30 feet, and 1/2 inch preformed expansion joint material (cut to conform to the curb or to the curb and gutter section) shall be used in each expansion joint.
- The last \_\_\_\_\_ feet of all concrete curbs are to be tapered down to finished grade.

# SURFACE RESTORATION METHODS

## Bituminous Surfacing

**NOTES:**

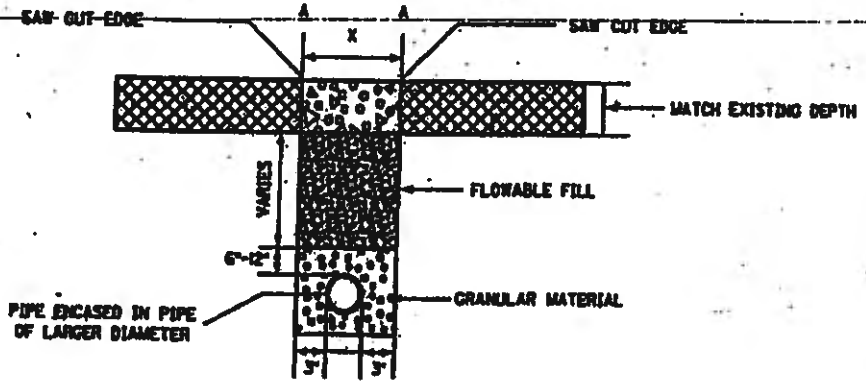
- SURFACE SHALL BE MILLED AND REPLACED 5 FEET PAST EDGE OF TRENCH.
- SURFACE EDGE SHALL BE SAW CUT ON ALL REPAIRS.
- AN APPROVED JOINT SEALER IS TO BE APPLIED BETWEEN NEW AND EXISTING PAVEMENT.



## Concrete Pavement

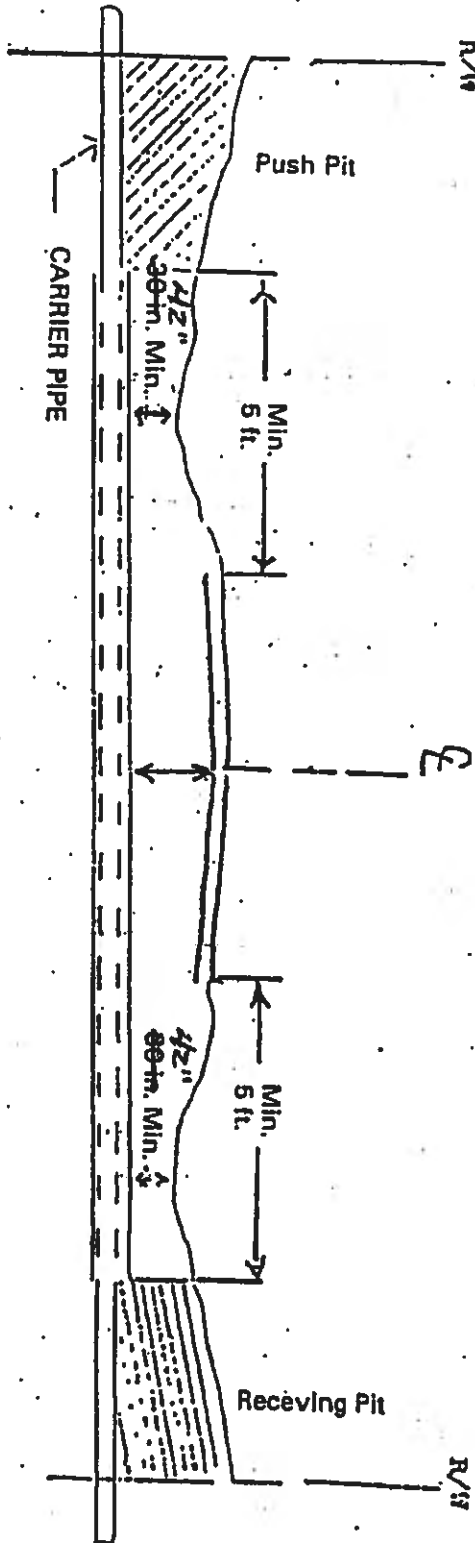
**NOTES:**

- ALL EDGES SHALL BE SAW CUT AND SEALED WITH APPROVED JOINT SEALER.
- DISTANCE FROM POINTS 'A' (CONCRETE PAVEMENT) TO NEAREST JOINT OR BREAK IN PAVEMENT MUST BE SIX (6) FEET OR MORE. IF LESS THAN SIX (6) FEET, REMOVE PAVEMENT TO JOINT OR BREAK AND REPLACE ENTIRE SLAB.



**Typical Highway Boring Crossing Detail**

Permit No. 06-0177-12  
 Route No. KY 547  
 Pavement Width 24'



1. Push Pit and Receiving Pit to be backfilled and thoroughly compacted.
2. All Ditch Lines to be left open.
3. Seed and straw all areas disturbed by this work.

Services over 2" to be encased or exempt under Chapter 2 of the Permits Guidance Manual

# IMPORTANT NOTICE

Federal law requires that traffic control shall be implemented in accordance with MUTCD Standards and KYTC Specifications under the supervision of a Work Zone Traffic Control Supervisor.

A Work Zone Traffic Control Technician shall be available on the jobsite to ensure that the work zone is in compliance with the applicable standards.

If any questions, please contact James Minckley at (859) 341-2700.

# IMPORTANT NOTICE

Federal law requires that High visibility Class 2 or Class 3 retroreflective safety apparel that meets ANSI/ISEA 107-2004 Standards shall be worn at all times by anyone working within the KYTC R/W limits.

Class 3 apparel is required for flaggers after dark.

If any questions, please contact James Minckley at (859) 341-2700.