

# Hardin County Water District No. 1

*Serving Radcliff and Hardin County for Over 60 Years*

1400 Rogersville Road  
Radcliff, KY. 40160

March 20, 2017

Hon. Talina Mathews  
Executive Director  
Kentucky Public Service Commission  
P.O. Box 615  
Frankfort, KY 40602

RECEIVED

MAR 22 2017

PUBLIC SERVICE  
COMMISSION

Case No. 2017-00144

**SUBJECT: Filing of Application for Certificate of Public Convenience and Necessity, Approval of Revised Water Service Rates and Charges; and Authorizing the Issuance of Certain Securities Pursuant to the Provisions of KRS 278.023**

Dear Director Mathews;

Please find enclosed an original and ten copies our application for the above requested approvals and orders. This application is in accordance to a Federally Funded construction project, per KRS 278.023. This project will include both an adjustment to our water rates and issuance of securities, through a Federal Rural Development loan. Bids have been received which the low bidder will hold their bid prices no later than June 10, 2017.

We look forward to the Commissions approval, as required, in accordance with KRS 278.023. If you have questions or require more information, please contact me directly at;

Mr. Jim Bruce, General Manager  
Email: [jbruce@hcwd.com](mailto:jbruce@hcwd.com)  
Cell Phone: 270-268-4069

Sincerely,



Jim Bruce  
General Manager

Encl; Original and 10 Copies of Application

Cf; Mr. David Wilson II, Esq, Attorney for Hardin County Water District No.

RECEIVED

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

MAR 22 2017

PUBLIC SERVICE  
COMMISSION

IN THE MATTER OF:

APPLICATION OF THE HARDIN COUNTY WATER )  
DISTRICT No. 1 FOR: (1) A CERTIFICATE OF PUBLIC )  
CONVENIENCE AND NECESSITY AUTHORIZING )  
CONSTRUCTION OF ADDITIONS AND )  
IMPROVEMENTS TO ITS WATER SYSTEM; )  
(2) APPROVAL OF REVISED WATER SERVICE RATES )  
AND CHARGES; AND (3) AUTHORIZING )  
THE ISSUANCE OF CERTAIN SECURITIES, )  
PURSUANT TO THE PROVISIONS OF KRS 278.023 )  
AND 807 KAR 5:069 )

CASE NO. 2017-00144

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APPLICATION

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1. The Applicant, Hardin County Water District, No. 1 (the "District"), respectfully tenders this Application, pursuant to KRS 278.023, 807 KAR 5:069, and all other applicable laws and regulations, and requests that the Public Service Commission of Kentucky (the "Commission") issue an Order: (1) granting a Certificate of Public Convenience and Necessity authorizing the District to construct major additions and improvements to its water system (the "Project") for the purpose of increasing its water transmission capacity to both its wholesale and retail customers; (2) approving the proposed adjustment of water rates and charges to be levied and collected by the District; and (3) authorizing the issuance of certain securities by the District. In support of this Application, and in conformity with the regulations of the Commission, the District states as follows:
2. The Applicant's address and contact information for this petition is;  
  
Hardin County Water District No. 1  
1400 Rogersville Road  
Radcliff, KY 40160  
Phone: 270-351-3222 (or cellular 270-268-4069)  
Facsimile: 270-352-3055  
Contact email; jbruce@hewd.com (Mr. Jim Bruce, General Manager)  
Website: [www.hewd.com](http://www.hewd.com)
3. The name, address, telephone number, FAX number and email address for the District's attorney, Mr. David T. Wilson II, is ;  
  
Skeeters, Bennett Wilson & Pike  
550 W Lincoln Trail Blvd

Radcliff, KY 40160  
Phone: 270-351-4404  
Facsimile: 270-352-4626  
Contact email: david.wilson@sbw-law.com  
**(807 KAR 5:001: Section 4 (3.a)).**

4. District is a duly organized and operating water district, established in 1952 under the laws of the Commonwealth of Kentucky (KRS 74 et. seq.) and is in good standing with the Commonwealth and is engaged in producing, selling and purchasing potable water also providing sanitary sewer and storm water services. The District owns five distinct utility systems; the County Water utility (since 1952), the Ft. Knox sanitary and storm water utilities (acquired in 2005), the Radcliff sanitary sewer system (acquired in 2008) and the Ft. Knox water utility (acquired in 2012). The District operates and does business in a service area that includes the City of Radcliff ("City") and portions of Hardin, Meade and Breckinridge counties, and the Ft. Knox Army Post.
5. The District also has wholesale water sales agreements with the City of Vine Grove (100% of demand), Meade County Water District (approximately 70%), City of Hardinsburg (emergency back-up only) and Hardin County Water District No. 2 (emergency back-up only). The entire service area is within the boundaries of the Commonwealth of Kentucky.
6. The project to be financed by a \$1,318,000 U.S. Department of Agriculture, Rural Development ("RD") loan (bond sale) will be used to construct an 8,400 linear foot 16 inch ductile iron transmission main and approximately 6,000 lineal feet of 6 inch water lines along KY 1500, KY 144 and Drake road to allow for the existing 12 inch PVC main to be retired and maintain service to existing customers. This project will be the fourth and last in a series of projects since 1992 to provide a continuous 16 inch diameter transmission main from the Pirtle Spring Water Treatment Plant to the District's main Lincoln Trail elevated water storage tank in Radcliff. The project will also allow the District to allow Meade County Water District ("MCWD") to connect to this new 16 inch main (through another RD loan and project by MCWD) and enable MCWD to purchase up to 100% of its water needs from the District.
7. Any surplus funds from the RD loan will be used to complete the abandonment of the 1982, 12 inch main, which will be replaced by the new 16 inch, which will include two sections or spurs of new 6 inch mains to continue service to current customers in the City of Vine Grove. That additional work is explained also in the Preliminary and Final Engineering Reports included herein.
8. The documents from the federal lending agency stating approval of the project and including all terms and conditions of the agreement are attached as **Exhibit No. 1. 807 KAR 5:069 Section 2(2)**
9. The letter of concurrence in contract award is included as **Exhibit No. 2. 807 KAR 5:069 Section 2(3)**
10. The preliminary and final engineering reports and bid tabs are included as **Exhibit No. 3. 807**

**KAR 5:069 Section 2(4)**

11. The engineering plans and specifications were prepared by Cannon & Cannon Engineering and have been signed, sealed and dated by an engineer registered in the Commonwealth of Kentucky (**KRS 322.340**) and are provided under separate cover as well as an original set of each has been included as a portable document format written to a compact disc under **Exhibit No. 4. 807 KAR 5:069 Section 2(5)**
12. A certified statement from the District's General Manager (Mr. Jim Bruce) has been included as **Exhibit No. 5 (807 KAR 5:069, Section 6)** which states;
  - a. The plans and specifications have been designed to meet **807 KAR 5:066, Sections 4(3) and (4), Section 5(1), Sections 6 and 7, Section 8(1) through (3), Section 9(1) and Section 10 - (807 KAR 5:069, Section 2, (a)(1)**
  - b. That all state approvals or permits have been obtained. **807 KAR 5:069, Section 2, (b)**
  - c. That the proposed rates, as approved by the Federal Government, shall be sufficient to produce the total revenue requirements recommended in the engineering reports and sufficient to service the new debt service for the bond payments to retire the Rural Development bond payments for said financing. **807 KAR 5:069, Section 2, (c)**
  - d. The anticipated beginning of construction is April 24, 2017 and the anticipated end of construction is October 21, 2017. **807 KAR 5:069, Section 2, (d)**
13. Public Notice was published in the local newspaper on March 12, posted on the District's web page, and posted in a high traffic area at the District offices for 30 days as required by **807 KAR 5:069 Section 2(7)**. A copy of that notice with affidavit of publication is also included with **Exhibit No. 6. 807 KAR 5:069 Section 2(7)**
14. All engineering plans, specifications, reports and bid certifications have been prepared and sealed by a Kentucky registered professional engineer in accordance with **KRS 322.340**



WHEREFORE, Hardin County Water District No.1 respectfully requests, pursuant to KRS 278.023, that the Public Service Commission of the Commonwealth of Kentucky to grant;

- a. A Certificate of Public Need and Necessity for construction and installation of the project;
- b. An Order authorizing the District to issue bonds through the Rural Development agency of the Federal Government in an amount up to \$1,318,000 at an interest rate not to exceed 2.75% for a term of 40 years; and
- c. An Order approving, for water service rendered on and after May 1, 2017, the proposed schedule of water service charges and rates as set forth in the Letter of Conditions filed herein as **Exhibit No. 1**. Dated at Radcliff, Kentucky, this 22<sup>nd</sup> day of March, 2017.

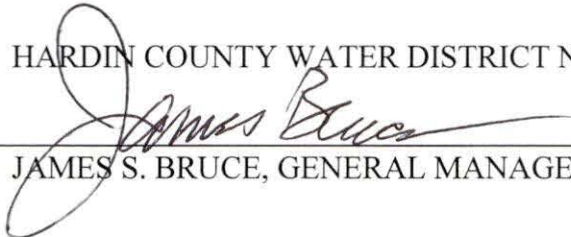
**HARDIN COUNTY WATER DISTRICT No. 1**

By: \_\_\_\_\_

David T. Wilson II, Attorney at Law  
Attorney for Hardin County Water District No.1  
Skeeters, Bennett, Wilson and Pike, PLC  
550 West Lincoln Trail Boulevard, PO Box 610  
Radcliff, Kentucky 40160  
Phone: (270) 351-4404  
Cellular phone: (270) 272-5563  
Facsimile: (270) 352-4626  
email: [david.wilson@sbw-law.com](mailto:david.wilson@sbw-law.com)

### VERIFICATION

The undersigned, Mr. James S. Bruce, General Manager of the Hardin County Water District No.1, hereby verifies that he has personal knowledge of the matters set forth in the enclosed application requesting the Commission issue a Certificate of Public Need and Necessity, and approval of revised water service rates and the issuance of certain securities, and that he is duly designated by the Board of Commissioners of the Hardin County Water District No. 1 to sign and submit this information its behalf.

HARDIN COUNTY WATER DISTRICT No. 1  
By:   
JAMES S. BRUCE, GENERAL MANAGER

### CERTIFICATION OF SERVICE

The undersigned, Mr. David T. Wilson II, attorney for the Hardin County Water District No. 1, hereby verifies that the foregoing was served on Talina Mathers, Executive Director, Kentucky Public Service Commission, 211 Sower Boulevard, Frankfort, KY. 40601-8204 on this 22<sup>nd</sup> Day of March, 2017



Mr. David T. Wilson II, ESQ.  
Attorney for Hardin County Water District No. 1

STATE OF KENTUCKY  
COUNTY OF HARDIN

I, the undersigned, a Notary Public, do hereby certify that on this 20<sup>th</sup> day of March, 2017, personally appeared before me, James S. Bruce and David T. Wilson, II, who being by me first sworn, subscribed to and acknowledged that they both represent the Hardin County Water District No. 1, a Kentucky Corporation, that they have signed the foregoing document as General Manager and Attorney of the Corporation.



NOTARY PUBLIC, STATE OF KENTUCKY

My Commission Expires; 10-12-2019





United States Department of Agriculture

August 22, 2016

Mr. James Bruce, Chairman  
Hardin County Water District No. 1  
1400 Rogersville Road  
Radcliff, Kentucky 40160


Dear Mr. Bruce:

We are enclosing Form RD 1940-1, "Request for Obligation of Funds," as notice that your application for financial assistance from Rural Development has been approved.

We are advised that the funds you requested are reserved in the amount(s) shown in Item(s) 24. The interest rate established for this loan is 2.75%.

If you have any questions concerning this reservation of funds, please contact the Area Manager in Elizabethtown, Kentucky at 270/769-1555.

Sincerely,



THOMAS G. FERN  
State Director

Enclosure

cc: Area Director  
Columbia, Ky.

Area Manager  
Elizabethtown, Ky.

Rural Development • Kentucky State Office  
771 Corporate Drive, Suite 200, Lexington, Kentucky 40502  
Voice (859) 224-7300 • Fax (859) 224-4748 • TTY (859) 224-7422

USDA is an equal opportunity provider and employer.

If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form (PDF), found online at [http://www.ascr.usda.gov/complaint\\_filing\\_cust.html](http://www.ascr.usda.gov/complaint_filing_cust.html), or at any USDA office, or call (866) 632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter to us by mail at U.S. Department of Agriculture, Director, Office of Adjudication, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, by fax (202) 690-7442 or email at [program.intake@usda.gov](mailto:program.intake@usda.gov)

REQUEST FOR OBLIGATION OF FUNDS

FORM APPROVED  
OMB No. 0570-0062

INSTRUCTIONS-TYPE IN CAPITALIZED ELITE TYPE IN SPACES MARKED ( )			
Complete Items 1 through 29 and applicable Items 30 through 34. See FMI.			
1. CASE NUMBER ST CO BORROWER ID 20-047-*****0729		LOAN NUMBER FISCAL YEAR	
2. BORROWER NAME Hardin County Water District No. 1		3. NUMBER NAME FIELDS (1, 2, or 3 from Item 2)	
		4. STATE NAME Kentucky	
		5. COUNTY NAME Hardin	
GENERAL BORROWER/LOAN INFORMATION			
6. RACE/ETHNIC CLASSIFICATION 1 - WHITE 2 - BLACK 3 - ASIAN 4 - HISPANIC 5 - API	7. TYPE OF APPLICANT 1 - INDIVIDUAL 2 - PARTNERSHIP 3 - CORPORATION 4 - PUBLIC BODY 5 - ASSOC. OF FARMERS 6 - ORG. OF FARMERS 7 - NONPROFIT-SECULAR 8 - NONPROFIT-FAITH BASED 9 - INDIAN TRIBE 10 - PUBLIC COLLEGE/UNIVERSITY 11 - OTHER	8. COLLATERAL CODE 1 - REAL ESTATE SECURED 2 - REAL ESTATE AND CHATTEL 3 - NOTE ONLY OR CHATTEL ONLY 4 - MACHINERY ONLY 5 - LIVESTOCK ONLY 6 - CROPS ONLY 7 - SECURED BY BONDS 8 - RLF ACCT	9. EMPLOYEE RELATIONSHIP CODE 1 - EMPLOYER 2 - MEMBER OF FAMILY 3 - CLOSE RELATIVE 4 - ASSOC.
10. SEX CODE 1 - MALE 2 - FEMALE 3 - FAMILY UNIT 4 - ORGAN MALE OWNED 5 - ORGAN FEMALE OWNED 6 - PUBLIC BODY	11. MARITAL STATUS 1 - MARRIED 2 - UNMARRIED (INCLUDES SEPARATED WIDOWED/DIVORCED)	12. VETERAN CODE 1 - YES 2 - NO	13. CREDIT REPORT 1 - YES 2 - NO
14. DIRECT PAYMENT 3 (See FMI)	15. TYPE OF PAYMENT 1 - MONTHLY 2 - ANNUALLY 3 - SEMI-ANNUALLY 4 - QUARTERLY	16. FEE INSPECTION 1 - YES 2 - NO	
17. COMMUNITY SIZE 1 - 10,000 OR LESS (FOR SPH AND HPG ONLY) 2 - OVER 10,000	18. USE OF FUNDS CODE (See FMI)		
COMPLETE FOR OBLIGATION OF FUNDS			
19. TYPE OF ASSISTANCE 061 (See FMI)	20. PURPOSE CODE	21. SOURCE OF FUNDS	22. TYPE OF ACTION 1 - OBLIGATION ONLY 2 - OBLIGATION/CHECK REQUEST 3 - CORRECTION OF OBLIGATION
23. TYPE OF SUBMISSION 1 - INITIAL 2 - SUBSEQUENT	24. AMOUNT OF LOAN \$1,318,000.00	25. AMOUNT OF GRANT	
26. AMOUNT OF IMMEDIATE ADVANCE	27. DATE OF APPROVAL MO DAY YR 08 12 16	28. INTEREST RATE 2.7500 %	29. REPAYMENT TERMS 40
COMPLETE FOR COMMUNITY PROGRAM AND CERTAIN MULTIPLE-FAMILY HOUSING LOANS			
30. PROFIT TYPE 1 - FULL PROFIT 2 - LIMITED PROFIT 3 - NONPROFIT			
COMPLETE FOR EM LOANS ONLY		COMPLETE FOR CREDIT SALE-ASSUMPTION	
31. DISASTER DESIGNATION NUMBER (See FMI)	32. TYPE OF SALE 1 - CREDIT SALE ONLY 2 - ASSUMPTION ONLY 3 - CREDIT SALE WITH SUBSEQUENT LOAN 4 - ASSUMPTION WITH SUBSEQUENT LOAN		
FINANCE OFFICE USE ONLY		COMPLETE FOR FP LOANS ONLY	
33. OBLIGATION DATE MO DA YR	34. BEGINNING FARMER/RANCHER (See FMI)		

If the decision contained above in this form results in denial, reduction or cancellation of USDA assistance, you may appeal this decision and have a hearing or you may request a review in lieu of a hearing. Please use the form we have included for this purpose.

Position 2

ORIGINAL - Borrower's Case Folder

COPY 1 - Finance Office

COPY 2 - Applicant/Lender

COPY 3 - State Office

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0570-0062. The time required to complete this information collection is estimated to average 13 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

## CERTIFICATION APPROVAL

For All Farmers Programs

EM, OL, FO, and SW Loans

This loan is approved subject to the availability of funds. If this loan does not close for any reason within 90 days from the date of approval on this document, the approval official will request updated eligibility information. The undersigned loan applicant agrees that the approval official will have 14 working days to review any updated information prior to submitting this document for obligation of funds. If there have been significant changes that may affect eligibility, a decision as to eligibility and feasibility will be made within 30 days from the time the applicant provides the necessary information.

If this is a loan approval for which a lien and/or title search is necessary, the undersigned applicant agrees that the 15-working-day loan closing requirement may be exceeded for the purposes of the applicant's legal representative completing title work and completing loan closing.

### 35. COMMENTS AND REQUIREMENTS OF CERTIFYING OFFICIAL

Approval of financial assistance is subject to the provisions of the Letter of Conditions dated 8-12-16, and any amendments thereto.

8/12/16 Obligation entered over terminal c 4:19pm. *aw*

36. I HEREBY CERTIFY that I am unable to obtain sufficient credit elsewhere to finance my actual needs at reasonable rates and terms, taking into consideration prevailing private and cooperative rates and terms in or near my community for loans for similar purposes and periods of time. I agree to use the sum specified herein, subject to and in accordance with regulations applicable to the type of assistance indicated above, and request payment of such sum. I agree to report to USDA any material adverse changes, financial or otherwise, that occur prior to loan closing. I certify that no part of the sum specified herein has been received. I have reviewed the loan approval requirements and comments associated with this loan request and agree to comply with these provisions.

(For FP loans at eligible terms only) If this loan is approved, I elect the interest rate to be charged on my loan to be the lower of the interest rate in effect at the time of loan approval or loan closing. If I check "NO", the interest rate charged on my loan will be the rate specified in Item 28 of this form.        YES        NO

**WARNING:** Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statements or representations, or makes or uses any false writing or document knowing the same to contain any false, fictitious or fraudulent statement or entry, shall be fined under this title or imprisoned not more than five years, or both."

Date 8-12, 20 16

James Bruce  
James Bruce, Chairman  
General Manager (Signature of Applicant)

Date \_\_\_\_\_, 20 \_\_\_\_\_

(Signature of Co-Applicant)

37. I HEREBY CERTIFY that all of the committee and administrative determinations and certifications required by regulations prerequisite to providing assistance of the type indicated above have been made and that evidence thereof is in the docket, and that all requirements of pertinent regulations have been complied with. I hereby approve the above-described assistance in the amount set forth above, and by this document, subject to the availability of funds, the Government agrees to advance such amount to the applicant for the purpose of and subject to the availability prescribed by regulations applicable to this type of assistance.

Thomas G. Fern

(Signature of Approving Official)

Typed or Printed Name: Thomas G. Fern

Date Approved: 8-12-16

Title: State Director

38. TO THE APPLICANT: As of this date 8-22-16 *aw*, this is notice that your application for financial assistance from the USDA has been approved, as indicated above, subject to the availability of funds and other conditions required by the USDA. If you have any questions contact the appropriate USDA Servicing Office.



Form RD 1942-46  
(Rev. 6-10)

UNITED STATES DEPARTMENT OF AGRICULTURE  
RURAL DEVELOPMENT

FORM APPROVED  
OMB NO. 0575-0015  
OMB NO. 0570-0021  
OMB NO. 0570-0061  
OMB NO. 0570-0062  
OMB NO. 0572-0137

**LETTER OF INTENT TO MEET CONDITIONS**

Date 08-12-2016

TO: United States Department of Agriculture

RURAL DEVELOPMENT

(Name of USDA Agency)

250 SPORTSMAN LAKE ROAD  
ELIZABETHTOWN, KY 42701

(USDA Agency Office Address)

We have reviewed and understand the conditions set forth in your letter dated 08-12-2016. It is our intent to meet all of them not later than 03-12-2017.

HARDIN COUNTY WATER DISTRICT 1

(Name of Association)

BY

JAMES BRUCE,

(Title)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0575-0015, 0570-0021, 0570-0061, 0570-0062 and 0572-0137. The time required to complete this information collection is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.



United States Department of Agriculture

August 12, 2016

Mr. James Bruce, Chairman  
Hardin County Water District No. 1  
1400 Rogersville Road  
Radcliff, Kentucky 40160

SUBJECT: Recipient Name: Hardin County Water District No. 1  
Project Name: FY16 Water Main Replacement

Dear Chairman Bruce:

This letter establishes conditions that must be understood and agreed to by you before further consideration may be given to the application. The loan will be administered on behalf of the Rural Utilities Service (RUS) by the State and Area office staff of USDA Rural Development. Any changes in project cost, source of funds, scope of services or any other significant changes in the project or applicant must be reported to and approved by USDA Rural Development, by written amendment to this letter. Any changes not approved by Rural Development shall be cause for discontinuing processing of the application. It should also be understood that Rural Development is under no obligation to provide additional funds to meet an overrun in construction costs.

This letter is not to be considered as loan approval or as a representation as to the availability of funds. The docket may be completed on the basis of a RUS loan not to exceed \$1,318,000.

If Rural Development makes the loan, the interest rate will be the lower of the rate in effect at the time of loan approval or the rate in effect at the time of loan closing, unless the applicant otherwise chooses. The loan will be considered approved on the date a signed copy of Form RD 1940-1, "Request for Obligation of Funds," is mailed to you.

Please complete and return the attached Form RD 1942-46, "Letter of Intent to Meet Conditions," if you desire that further consideration be given to your application.

The "Letter of Intent to Meet Conditions" must be executed within three weeks from the date of this letter or it becomes invalid unless a time extension is granted by Rural Development.

If the conditions set forth in this letter are not met within 240 days from the date hereof, Rural Development reserves the right to discontinue the processing of the application. In signing Form RD 1942-46, "Letter of Intent to Meet Conditions," you are agreeing to complete the following as expeditiously as possible:

Rural Development • Kentucky State Office  
771 Corporate Drive, Suite 200, Lexington, Kentucky 40502  
Voice (859) 224-7300 • Fax (855) 661-8335 • TTY (859) 224-7422

USDA is an equal opportunity provider, employer and lender.

If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form (PDF), found online at [http://www.ascr.usda.gov/complaint\\_filing\\_cust.html](http://www.ascr.usda.gov/complaint_filing_cust.html), or at any USDA office, or call (866) 832-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter to us by mail at U.S. Department of Agriculture, Director, Office of Adjudication, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, by fax (202) 890-7442 or email at [program.intake@usda.gov](mailto:program.intake@usda.gov).

1. Number of Users and Their Contribution:

There shall be 10,077 residential and non-residential users and 2 wholesale water users, of which all are existing users. The Area Director will review and authenticate the number of users and amount of connection fees prior to advertising for construction bids.

2. Drug-Free Work Place:

Prior to grant closing, the District will be required to execute Form AD-1049, "Certification Regarding Drug-Free Workplace Requirements (Grants) Alternative I - For Grantees Other Than Individuals."

3. Repayment Period:

The loan will be scheduled for repayment over a period not to exceed 40 years from the date of the Bond. Principal payment will not be deferred for a period in excess of two years from the date of the Bond. Payments will be in accordance with applicable KRS, which requires interest to be paid semi-annually (January and July) and principal will be due on or before the first of January. Rural Development may require the District to adopt a supplemental payment agreement providing for monthly payments of principal and interest so long as the bond is held or insured by RUS. Monthly payments will be approximate amortized installments.

4. Recommended Repayment Method:

Payments on this loan shall be made using the Preauthorized Debit (PAD) payment method. This procedure eliminates the need for paper checks and ensures timely receipt of RD loan payments. To initiate PAD payments, Form RD 3550-28, "Authorization Agreement for Preauthorized Payments," should be signed by the District to authorize the electronic withdrawal of funds from your designated bank account on the exact installment payment due date. The Area Director will furnish the necessary forms and further guidance on the PAD procedure.

5. Reserve Accounts:

Reserves must be properly budgeted to maintain the financial viability of any operation. Reserves are important to fund unanticipated emergency maintenance, pay for repairs, and assist with debt service should the need arise.

The District will be required to deposit \$470 per month into a "Funded Debt Reserve Account" until the account reaches \$56,400. The deposits are to be resumed any time the account falls below the \$56,400.

The required monthly deposits to the Reserve Account and required Reserve Account levels are in addition to the requirements of the District's prior bond ordinances.

The monthly deposits to the Reserve Account are required to commence with the first month of the first full fiscal year after the facility becomes operational.

The District also needs to fund an account for short-lived assets by depositing a sum of \$53,268 monthly into the account. The funds in the short-lived asset account may be used by the District as needed to replace or add short-lived assets in the District's utility systems.

6. Security Requirements:

A pledge of gross revenue(s) will be provided in the Bond Ordinance. Bonds shall rank on a parity with existing bonds, if possible.

If this is not possible, the bond will be subordinate and junior to the existing bonds, in which case the District will be required to abrogate its right to issue additional bonds ranking on a parity with the existing bonds, so long as any unpaid indebtedness remains on this bond issue.

Additional security requirements are contained in [RUS Bulletin 1780-12, "Water and Waste System Grant Agreement," and RUS Bulletin 1780-28, "Loan Resolution Security Agreement," which also serves as an assignment of income.] A draft of all security instruments must be reviewed and concurred in by the Agency prior to advertising for bids. The Loan Resolution must be duly adopted and executed prior to loan closing. The Grant Agreement must be fully executed prior to the first disbursement of grant funds.

7. Land Rights and Real Property:

The District will be required to furnish satisfactory title, easements, etc., necessary to install, maintain and operate the facility to serve the intended users.

The pipelines will be on private rights-of-way where feasible. Easements and options are to be secured prior to advertising for construction bids.

8. Organization:

The District will be legally organized under applicable KRS, which will permit them to perform this service, borrow, or repay money.

The District must maintain a current registration of their Dun and Bradstreet Data Universal Numbering System (DUNS) number in SAM.gov (System for Award Management) in order to receive federal loan and/or grant financial assistance. This registration must be updated/renewed at least annually.

9. Business Operations:

The District will be required to operate the system under a well-established set of resolutions, rules and regulations. A budget must be established annually and adopted by the District after review by Rural Development. At no later than loan pre-closing, the District will be required to furnish a prior approved management plan to include, as a minimum, provisions for management, maintenance, meter reading, miscellaneous services, billing, collecting, delayed payment penalties, disconnect/reconnect fees, bookkeeping, making and delivering required reports and audits.

10. Conflict of Interest Policy:

Prior to obligation of funds, you will certify in writing that your organization has in place an up-to-date written policy on conflict of interest. The policy will include, at a minimum: (1) a requirement for those with a conflict/potential conflict to disclose the conflict/potential conflict, (2) a prohibition of interested members of the applicant's governing body from voting on any matter in which there is a conflict, and (3) a description of the specific process by which the governing body will manage identified or potential conflicts.

You must also submit a disclosure of planned or potential transactions related to the use of Federal funds that may constitute or present the appearance of personal or organizational conflict of interest. Sample conflict of interest policies may be found at the National Council of Nonprofits website, <https://www.councilofnonprofits.org/tools-resources/conflict-of-interest>, or in Internal Revenue Service Form 1023, Appendix A, "Sample Conflict of Interest Policy," at <http://www.irs.gov/pub/irs-pdf/i1023.pdf>. Though these examples reference non-profit corporations, the requirement applies to all types of Agency borrowers.

Disclosure must be in the form of a written letter signed and dated by the applicant's official. A negative disclosure of the same format is required if no conflicts are anticipated. Assistance in developing a conflict of interest policy is available through Agency-contracted technical assistance providers if desired.

11. Accounts, Records and Audits:

The District will be required to maintain adequate records and accounts and submit annual budgets and year-end reports (annual audits)/statistical and financial reports, quarterly and annually, in accordance with subsection 1780.47 of RUS Instruction 1780.

The District shall be required to submit a copy of its audit agreement for review and concurrence by Rural Development prior to pre-closing the loan.

The District shall obtain the assistance of its accountant to establish the District's accounting system. Rural Development review of the accounting system is required.

12. Accomplish Audits for Years in Which Federal Financial Assistance is Received:

The type of financial information that must be submitted is specified below:

Audits – An annual audit under the Single Audit Act is required if you expend \$750,000 or more in Federal financial assistance per fiscal year. The total Federal funds expended from all sources shall be used to determine Federal financial assistance expended. Expenditures of interim financing are considered Federal expenditures.

All audits are to be performed in accordance with 2 CFR Part 200, as adopted by USDA through 2 CFR Part 400. Further guidance on preparing an acceptable audit can be obtained from the Agency. It is not intended that audits required by this part be separate and apart from audits performed in accordance with State and local laws. To the extent feasible, the audit work should be done in conjunction with those audits.

The audit must be prepared by an independent licensed Certified Public Accountant, or a State or Federal auditor if allowed by State law, and must be submitted within 9 months of your fiscal year end.

13. Insurance and Bonding:

The following insurance and bonding will be required:

- A. Adequate Liability and Property Damage Insurance including vehicular coverage, if applicable, must be obtained and maintained by the District. The District should obtain amounts of coverage as recommended by its attorney, consulting engineer and/or insurance provider.



- B. Worker's Compensation - The District will carry worker's compensation insurance for employees in accordance with applicable state laws.
- C. Fidelity Bond - The District will provide Fidelity Bond Coverage for all persons who have access to funds. Coverage may be provided either for all individual positions or persons, or through "blanket" coverage providing protection for all appropriate employees and/or officials. The amount of coverage required for all RUS loans is \$56,400.
- D. Real Property Insurance - The District will obtain and maintain adequate fire and extended coverage on all structures including major items of equipment or machinery located in the structures.  
The amounts of coverage should be based on recommendations obtained by the District from its attorney, consulting engineer and/or insurance provider.  
Subsurface lift stations do not have to be covered except for the value of electrical and pumping equipment therein.
- E. Flood Insurance - The District will obtain and maintain adequate coverage on any facilities located in special flood and mudslide prone areas.

14. Planning and Performing Development:

- A. The engineer should not be authorized to commence work on final plans and specifications until a determination has been made that the project can be planned and constructed within the estimated cost shown in paragraph "26" of this letter. The engineer may then proceed to develop final plans and specifications to be completed no later than 210 days from this date, and prepare bid documents. The Area Director is prepared to furnish the necessary guide to follow so as to keep the project plans and documents within our guidelines and requirements. The project must be constructed by the design/bid/build method of construction. The project should not be advertised for construction bids until all easements and enforceable options have been obtained, and total funds are committed or available for the project.
- B. The following documents will be submitted to Rural Development for review and must be concurred in by Rural Development prior to advertisement for construction bids:
  - 1. Final plans, specifications and bid documents.
  - 2. Applicant's letter on efforts to encourage small business and minority-owned business participation.
  - 3. Legal Service Agreements.
  - 4. Engineering Agreements.

Revision in these documents will be subject to Rural Development concurrence. Any agreements, contracts, etc. not reviewed and approved by Rural Development will not be eligible for payment from project funds or revenues from facilities financed by this Agency.

Prior to receipt of an authorization to advertise for construction bids, the District will obtain advance clearance from Bond Counsel and/or Local Counsel regarding compliance with KRS 424 pertaining to publishing of the advertisement for construction bids in local newspapers and the period of time the notice is required to be published.

15. Bid Tabulation:

Immediately after bid opening, you must provide the Agency with the bid tabulation and your engineer's evaluation of bids and recommendations for contract awards. If the Agency agrees that the construction bids received are acceptable, adequate funds are available to cover the total project costs, and all the requirements of this letter have been satisfied, the Agency will authorize you to issue the Notice of Award.

A. Cost Overruns – If bids are higher than expected, or if unexpected construction problems are encountered, you must utilize all options to reduce cost overruns. Negotiations, redesign, use of bidding alternatives, rebidding or other means will be considered prior to commitment of subsequent funding by the Agency. Any requests for subsequent funding to cover cost overruns will be contingent on the availability of funds. Cost overruns exceeding 20% of the development cost at time of loan or grant approval or where the scope of the original purpose has changed will compete for funds with all other applications on hand as of that date.

B. Excess Funds – If bids are lower than anticipated at time of obligation, excess funds must be deobligated prior to start of construction except in the cases addressed in this paragraph. In cases where the original PER for the project included items that were not bid, or were bid as an alternate, the State Office official may modify the project to fully utilize obligated funds for those items. Amendments to the PER, ER, and letter of conditions may be needed for any work not included in the original project scope. In all cases, prior to start of construction, excess funds will be deobligated, with grant funds being deobligated first. Excess funds do not include contingency funds as described in this letter.

16. Contract Documents, Final Plans, and Specifications:

- A. The contract documents must consist of the EJCDC construction contract documents as indicated in RUS Bulletin 1780-26 or other Agency-approved forms of agreement.
- B. The contract documents, final plans, and specifications must comply with RUS Instruction 1780, Subpart C – Planning, Designing, Bidding, Contracting, Constructing and Inspections, and must be submitted to the Agency for concurrence prior to advertising for bids along with an updated cost estimate. The Agency may require another updated cost estimate if a significant amount of time elapses between the original submission and advertising for bids.
- C. The use of any procurement method other than competitive sealed bids must be requested in writing and approved by the Agency.

17. Contract Review:

Your attorney will certify that the executed contract documents, including performance and payment, if required, are adequate and that the persons executing these documents have been properly authorized to do so in accordance with RUS Instruction 1780.61 (b).

18. Civil Rights & Equal Opportunity:

You should be aware of and will be required to comply with other federal statute requirements including but not limited to:

A. Section 504 of the Rehabilitation Act of 1973:

Under Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), no handicapped individual in the United States shall, solely by reason of their handicap, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Rural Development financial assistance.

B. Civil Rights Act of 1964:

All borrowers are subject to, and facilities must be operated in accordance with, Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d et seq.) and Subpart E of Part 1901 of this Title, particularly as it relates to conducting and reporting of compliance reviews.

Instruments of conveyance for loans and/or grants subject to the Act must contain the covenant required by paragraph 1901.202(e) of this Title.

C. The Americans with Disabilities Act (ADA) of 1990:

This Act (42 U.S.C. 12101 et seq.) prohibits discrimination on the basis of disability in employment, state and local government services, public transportation, public accommodations, facilities, and telecommunications. Title II of the Act applies to facilities operated by state and local public entities that provide services, programs, and activities. Title III of the Act applies to facilities owned, leased, or operated by private entities that accommodate the public.

D. Age Discrimination Act of 1975:

This Act (42 U.S.C. 6101 et seq.) provides that no person in the United States shall, on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.

E. Limited English Proficiency (LEP) under Executive Order 13166:

LEP statutes and authorities prohibit exclusion from participation in, denial of benefits of, and discrimination under Federally-assisted and/or conducted programs on the ground of race, color, or national origin. Title VI of the Civil Rights Act of 1964 covers program access for LEP persons.

LEP persons are individuals who do not speak English as their primary language and who have a limited ability to read, speak, write, or understand English. These individuals may be entitled to language assistance, free of charge. You must take reasonable steps to ensure that LEP persons receive the language assistance necessary to have meaningful access to USDA programs, services, and information your organization provides. These protections are pursuant to Executive Order 13166 entitled, "Improving Access to Services by Persons with Limited English Proficiency" and further affirmed in the USDA Departmental Regulation 4330-005, "Prohibition Against National Origin Discrimination Affecting Persons with Limited English Proficiency in Programs and Activities Conducted by USDA."

Agency financial programs must be extended without regard to race, color, religion, sex, national origin, marital status, age, or physical or mental handicap. You must display posters (provided by the Agency) informing users of these

requirements, and the Agency will monitor your compliance with these requirements during compliance reviews.

19. Closing Instructions:

The Office of General Counsel, our Regional Attorney, will be required to write closing instructions in connection with this loan. Conditions listed therein must be met by the District.

20. Compliance with Special Laws and Regulations:

The District will be required to conform to any and all state and local laws and regulations affecting this type project.

21. Prior to Pre-Closing the Loan, the District Will Be Required to Adopt:

- A. Form RUS Bulletin 1780-27, "Loan Resolution (Public Bodies)."
- B. Form RD 400-1, "Equal Opportunity Agreement."
- C. Form RD 400-4, "Assurance Agreement."
- D. Form AD-1047, "Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transaction."
- E. Form RD 1910-11, "Applicant Certification Federal Collection Policies for Consumer or Commercial Debts."
- F. RD Instruction 1940-Q, Exhibit A-1, "Certification for Contracts, Grants and Loans."
- G. RUS Bulletin 1780-22, "Eligibility Certification."

22. Refinancing and Graduation Requirements:

The District is reminded that if at any time it shall appear to the Government that the District is able to refinance the amount of the RUS indebtedness then outstanding, in whole or in part, by obtaining a loan from commercial sources at reasonable rates and terms, upon the request of the Government, the District will apply for and accept such loan in sufficient amount to repay the Government.

23. Commercial Interim Financing:

The District will be required to use commercial interim financing for the project during construction for the RUS loan portion of the financing, if available at reasonable rates and terms.

Before the loan is closed, the District will be required to provide Rural Development with statements from the contractor, engineer and attorneys that they have been paid to date in accordance with their contract or other agreements and, in the case of the contractor, that he has paid his suppliers and sub-contractors.

24. Disbursement of Project Funds:

A construction account for the purpose of disbursement of project funds (RUS) will be established by the District prior to start of construction. The position of officials entrusted with the receipt and disbursement of RUS project funds will be covered by a "Fidelity Bond," with USDA Rural Development as Co-Obligee, in the amount of construction funds on hand at any one time during the construction phase.

For each "construction account" as established, if the amount of RUS loan and grant funds plus any applicant contributions or funds from other sources to be deposited into the account are expected to exceed \$250,000 at any time, the financial institution will secure the amount in excess of \$250,000 by pledging collateral with the Federal Reserve Bank in an amount not less than the excess in accordance with 7 CFR, 1902.7(a).

Agency funds will be disbursed into the construction account through an electronic transfer system. The borrower should complete Form SF-3881, "Electronic Funds Transfer Payment Enrollment Form," for each account where funds will be electronically received. The completed form(s) must be received by Rural Development at least thirty (30) days prior to the first advance of funds.

Monthly audits of the District's construction account records shall be made by Rural Development.

Borrowers receiving federal loan and/or grant funds by EFT will have funds directly deposited to a specified account at a financial institution with funds being available to the recipient on the date of payment.

Any applicant contribution will be the first funds expended, followed by other funding sources. Interim financing or Agency loan funds will be expended after all other funding sources unless an agreement is reached with all other funding sources on how funds are to be disbursed prior to start of construction or loan closing, whichever occurs first. Interim financing funds or Agency loan funds must be used prior to the use of Agency grant funds. The Grant funds must not be disbursed prior to loan funds except as specified in RUS Instruction 1780.45 (d). In the unlikely event the Agency mistakenly disburses funds, the funds will be remitted back to the Agency electronically.

During construction, the District shall disburse project funds in a manner consistent with subsection 1780.76 (e) of RUS Instruction 1780. Form RD 1924-18, "Partial Payment Estimate," or similar form approved by Rural Development, shall be used for the purpose of documenting periodic construction estimates, and shall be submitted to Rural Development for review and acceptance. Prior to disbursement of funds by the District, the District Council shall review and approve each payment estimate. All bills and vouchers must be approved by Rural Development prior to payment by the District. Form RD 440-11, "Estimate of Funds Needed for 30-Day Period Commencing \_\_\_\_\_," will be prepared by the District and submitted to Rural Development in order that a periodic advance of federal cash may be requested.

25. Disbursement of Grant Funds:

The RUS funds will be advanced as they are needed in the amount(s) necessary to cover the RUS proportionate share of obligations due and payable by the District.

Grant funds are to be deposited in an interest bearing account in accordance with 2 CFR part 200 and interest in excess of \$500 per year remitted to the Agency.



The funds should be disbursed by the recipient immediately upon receipt and there should be little interest accrual on the Federal funds. Recipients shall maintain advances of Federal funds in interest-bearing account, unless:

- a. The recipient receives less than \$120,000 in Federal awards per year.
- b. The best reasonably available interest-bearing account would not be expected to earn interest in excess of \$500 per year on Federal cash balances.
- c. The depository would require an average or minimum balance so high that it would not be feasible within the expected Federal and non-Federal cash resources.
- d. A foreign government or banking system prohibits or precludes interest-bearing accounts.

26. Project Budget:

Estimated expenditures are as follows:

Project Costs:

Development	\$ 1,044,000
Legal and Administrative	25,000
Engineering Fees	117,900
Interest	26,700
Contingencies	<u>104,400</u>
TOTAL PROJECT COST	\$ 1,318,000

Project Funding:

RUS Loan	\$ <u>1,318,000</u>
TOTAL FUNDING	\$ 1,318,000

Any changes in funding sources following obligation of Agency funds must be reported to the processing official. Project feasibility and funding will be reassessed if there is a significant change in project costs after bids are received. If actual project costs exceed the project cost estimates, an additional contribution by the Owner may be necessary. Prior to advertisement for construction bids, you must provide evidence of applicant contributions and approval of other funding sources. This evidence should include a copy of the commitment letter. Agency funds will not be used to pre-finance funds committed to the project from other sources.

Obligated loan or grant funds not needed to complete the proposed project will be deobligated prior to start of construction. Any reduction will be applied to grant funds first. An amended letter of conditions will be issued for any changes to the total project budget.

27. Construction Completion Timeframe:

All projects are required to be completed and all funds disbursed within five years of obligation. If funds are not disbursed within five years of obligation, you must submit a written waiver request with adequate justification of extenuating circumstances beyond your control for an extension of time. Any additional requests for waivers beyond the initial extension will be submitted through the State Office to the Assistant Administrator for concurrence decision.

28. Use of Remaining Project Funds:

The applicant contribution shall be considered as the first funds expended. After providing for all authorized costs, any remaining project funds will be considered to be RUS loan funds.

**29. Proposed Operating Budget:**

You will be required to submit to Rural Development a copy of your proposed annual operating budget that supports the proposed loan repayment prior to this agency giving you written authorization to proceed with the bidding phase. The operating budget should be based on a typical year cash flow, subject to completion of this project in the first full year of operation. Form RD 442-7, "Operating Budget," or similar form may be utilized for this purpose.

**30. Rates and Charges:**

Rates and charges for facilities and services rendered by the District must be at least adequate to meet cost of maintaining, repairing and operating the water system and meeting required principal and interest payments and the required deposits to debt service and/or depreciation reserve.

Water rates will be at least:

**5/8" Meter:**

First 0	gallons @	\$ 5.92. – per 1,000 gallons.
Next 15,000	gallons @	\$ 5.31. – per 1,000 gallons.
All Over 15,000	gallons @	\$ 3.82. – per 1,000 gallons.

**3/4" Meter:**

First 0	gallons @	\$ 8.89. – per 1,000 gallons.
Next 15,000	gallons @	\$ 5.31. – per 1,000 gallons.
All Over 15,000	gallons @	\$ 3.82. – per 1,000 gallons.

**1" Meter:**

First 0	gallons @	\$ 14.81. – per 1,000 gallons.
Next 15,000	gallons @	\$ 5.31. – per 1,000 gallons.
All Over 15,000	gallons @	\$ 3.82. – per 1,000 gallons.

**1 ½" Meter:**

First 0	gallons @	\$ 29.62. – per 1,000 gallons.
Next 15,000	gallons @	\$ 5.31. – per 1,000 gallons.
All Over 15,000	gallons @	\$ 3.82. – per 1,000 gallons.

**2" Meter:**

First 0	gallons @	\$ 47.39. – per 1,000 gallons.
Next 15,000	gallons @	\$ 5.31. – per 1,000 gallons.
All Over 15,000	gallons @	\$ 3.82. – per 1,000 gallons.

**3" Meter:**

First 0	gallons @	\$ 88.85. – per 1,000 gallons.
Next 15,000	gallons @	\$ 5.31. – per 1,000 gallons.
All Over 15,000	gallons @	\$ 3.82. – per 1,000 gallons.

**4" Meter:**

First 0 gallons @ \$ 148.09. – per 1,000 gallons.  
Next 15,000 gallons @ \$ 5.31. – per 1,000 gallons.  
All Over 15,000 gallons @ \$ 3.82. – per 1,000 gallons.

**6" Meter:**

First 0 gallons @ \$ 296.18. – per 1,000 gallons.  
Next 15,000 gallons @ \$ 5.31. – per 1,000 gallons.  
All Over 15,000 gallons @ \$ 3.82. – per 1,000 gallons.

Proposed Wholesale Rate - \$2.36 – per 1,000 gallons.

In addition there is a \$296.18/month/user charge for a 6" meter for a wholesale user.

**31. Water Purchase Contract:**

The District will submit a Water Purchase Contract for approval by Rural Development before advertising for construction bids. If the contract is not on Form RD 442-30, "Water Purchase Contract," the contract will require approval by our Regional Attorney. The contract must meet the requirements of subsection 1780.62 of RUS Instruction 1780.

**32. Vulnerability Assessment/Emergency Response Plan (VA/ERP):**

The Agency requires all financed water and wastewater systems to have a VA/ERP in place. Borrowers with existing systems must provide a certification that a VA/ERP has been completed prior to advertising for bids. The documents are not submitted to the Agency for VA/ERP requirements throughout the life of the loan.

**33. Floodplain Construction:**

The District will be required to pass and adopt a Resolution or amend its By-Laws whereby the District will deny any water service to any future customer wishing to build on or develop property located within a designated floodplain.

If a customer or developer requests service for construction in a designated floodplain, the customer or developer must provide evidence and a justification for approval by the District and Rural Development officials that there are no other alternatives to construction or development within the designated floodplain. The community must be a participant in the National Flood Insurance Program (NFIP) and the customer or developer must obtain the required permits prior to the tap on restrictions being waived.

**34. Water Withdrawal Permit:**

The District will be required to obtain satisfactory evidence that a revised water withdrawal permit has been secured from the Division of Water. The permit must be obtained prior to the commencement of construction on the water project.

**35. Division of Water (DOW) Health & Sanitary Certification:**

The Median Household Income (MHI) for the District's service area qualifies this project for the poverty interest rate. A certification from the Division of Water stating this project will remove a health or sanitary problem will be required. This certification must be obtained prior to loan pre-closing.

**36. Mitigation Measures:**

- A. The project shall be in compliance with all requirements noted in the Governor's Office for Local Development letter dated September 11, 2015 from Ms. Lee Nalley.
- B. The design and construction shall be in compliance with the requirements of the U.S. Fish and Wildlife Service by letter dated March 21, 2016, and signed by Virgil Lee Andrews, Jr., Field Supervisor.
- C. The line design and construction shall be accomplished in a way that will leave flood plains and farmland without effect after construction is complete. The Army Corps of Engineers Nationwide Permit No. 12 applies to all floodplain and wetland utility line construction.
- D. Any excavation by Contractor that uncovers a historical or archaeological artifact shall be immediately reported to Owner and a representative of Agency. Construction shall be temporarily halted until RD can consult with the State Historical Preservation Officer and issue further directions.
- E. The design and construction shall be in compliance with all local, state and federal environmental statutes, regulations and executive orders applicable to the project.
- F. Best Management Practices shall be incorporated into the project design, construction, and maintenance.

**37. System for Award Management:**

You will be required to maintain a Dun and Bradstreet Data Universal Numbering System (DUNS) number and maintain an active registration in the System for Award Management (SAM) database. Renewal can be done on-line at: <http://sam.gov>. This registration must be renewed and revalidated every twelve (12) months for as long as there are Agency funds to be expended.

To ensure the information is current, accurate and complete, and to prevent the SAM account expiration, the review and updates must be performed within 365 days of the activation date, commonly referred to as the expiration date. The registration process may take up to 10 business days. (See 2 CFR Part 25 and the "Help" section at <http://sam.gov>).

**38. Prepayment and Extra Payments:**

Prepayments of scheduled installments, or any portion thereof, may be made at any time at the option of borrower, with no penalty.

Security instruments, including bonding documents, must contain the following language regarding extra payments, unless prohibited by State statute:

*Prepayments of scheduled installments, or any portion thereof, may be made at any time at the option of the borrower. Refunds, extra payments and loan proceeds obtained from outside sources for the purpose of paying down the*

*Agency debt, shall, after payment of interest, be applied to the installments last to become due under this note and shall not affect the obligation of borrower to pay the remaining installments as scheduled in your security instruments.*

39. Security/Operational Inspections:

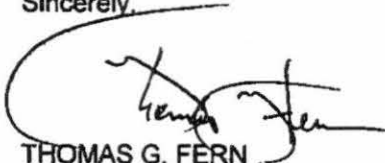
The Agency will inspect the facility and conduct a review of your operations and records management system and conflict of interest policy every three years for the life of the loan. You must participate in these inspections and provide the required information.

40. Final Approval Conditions:

Final approval of this assistance will depend on your willingness, with the assistance of all your co-workers, to meet the conditions of this letter in an orderly and systematic manner. Then too, final approval will depend on funds being available.

If you desire to proceed with your application, the Area Director will allot a reasonable portion of time to provide guidance in application processing.

Sincerely,



THOMAS G. FERN  
State Director

Enclosures

cc: Area Director - Columbia, Kentucky  
Area Manager - Elizabethtown, Kentucky  
Lincoln Trail ADD - Elizabethtown, Kentucky  
David Wilson - Radcliff, Kentucky  
Dirk Bedarf - Covington, Kentucky  
Cannon & Cannon, Inc. - Knoxville, Tennessee





United States Department of Agriculture

Rural Development March 1, 2017

Kentucky State Office

771 Corporate Drive,  
Suite 200  
Lexington, KY  
40503Voice 859.224.7300  
Fax 859.224.7425  
TTY 859.224.7422SUBJECT: Hardin County No. 1  
Water Main Replacement  
Contract Award ConcurrenceTO: Area Office  
Elizabethtown, Kentucky

Based on the bids received and the recommendation of the consulting engineer, Rural Development concurs in the award of subject contract to the low bidder, Cumberland Pipeline, LLC, in the amount of \$644,999.30.

If you have any questions, please contact Julie Anderson, State Engineer, at (859) 224-7348.

A handwritten signature in black ink, appearing to read "Julie Anderson", is written over a printed name and title. To the left of the signature is a small, stylized mark that looks like "for".

THOMAS G. FERN  
State Director  
Rural Development

cc: Cannon and Cannon  
Knoxville, TN

USDA is an equal opportunity provider and employer.

If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form (PDF), found online at [http://www.ascr.usda.gov/complaint\\_filing\\_cust.html](http://www.ascr.usda.gov/complaint_filing_cust.html), or at any USDA office, or call (866) 632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter to us by mail at U.S. Department of Agriculture, Director, Office of Adjudication, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, by fax (202) 690-7442 or email at [program.intake@usda.gov](mailto:program.intake@usda.gov).



## PRELIMINARY ENGINEERING REPORT

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# HWYS 1882 & 144 WATER TRANSMISSION MAIN REPLACEMENT

PRESENTED TO  
HARDIN COUNTY WATER DISTRICT NO. 1  
1400 ROGERSVILLE ROAD  
RADCLIFF, KY 40160

PREPARED BY  
Cannon & Cannon, Inc.  
8550 Kingston Pike  
Knoxville, TN 37919  
(865) 670.8555

CCI PROJECT NO: 00904-0004

JANUARY 2016

TEL 865.670.8555

FAX 865.670.8866 8550 Kingston Pike, Knoxville, TN 37919 [WWW.CANNON-CANNON.COM](http://WWW.CANNON-CANNON.COM)

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## EXHIBITS

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## APPENDICES

APPENDIX A	HCWD1 to MCWD INTERCONNECT HYDRAULIC ANALYSIS AND EVALUATION
APPENDIX B	KY DIVISION OF WATER APPROVAL OF CHLORAMINE CONVERSION



## PROJECT PLANNING

### LOCATION

The area under consideration is at the boundary between the Hardin County Water District No. 1 (HCWD1) and Meade County Water District (MCWD) distribution systems. The project would enable HCWD1 to provide enough water to MCWD to meet 100% of daily demand (up from 70% currently provided). MCWD desires to purchase 100% of their water needs from HCWD1 because HCWD1 will soon be disinfecting with Chloramine. The KY Division of Water will not allow a public water system to mix chloramine water with chlorinated water which MCWD currently also purchases from another source.

The proposed project area is located in Meade and Hardin Counties, Kentucky along Kentucky Highways 1882, 144, and 313. **Figure 1** below shows the general project area. **Exhibit 1** shows the project area and service area to scale on USGS topographic maps. **Exhibit 2** shows both Hardin County Water District No. 1 and Meade County Water District service areas.

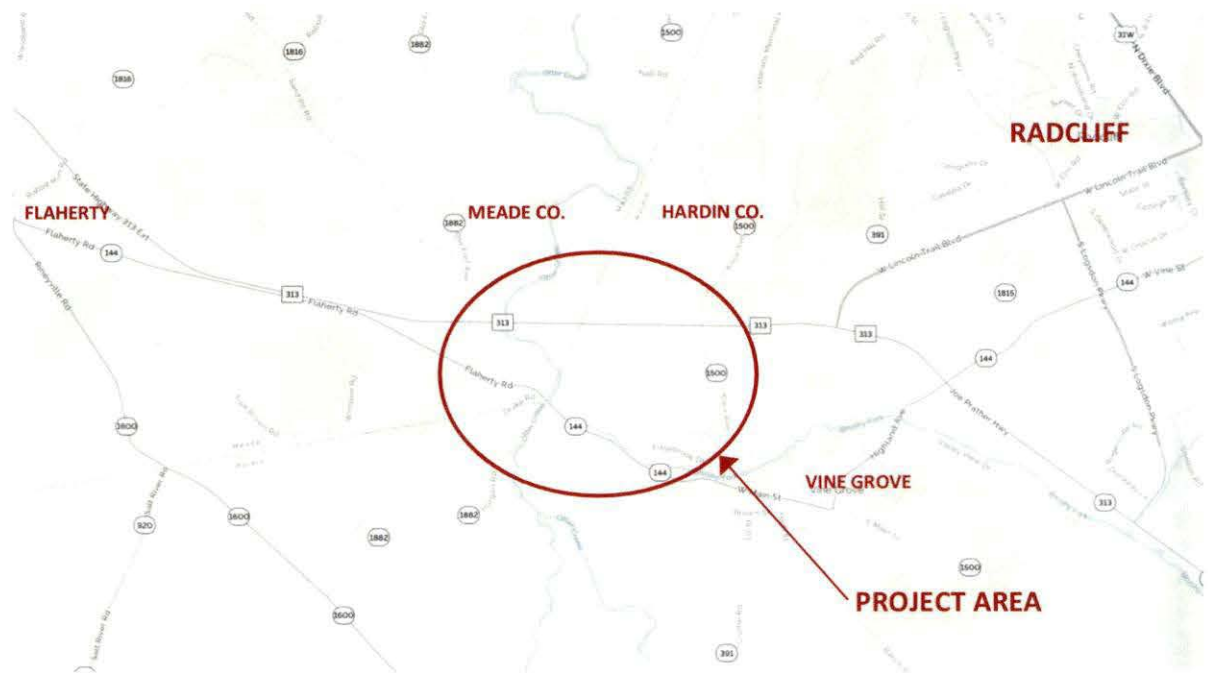


Figure 1 – Project Location



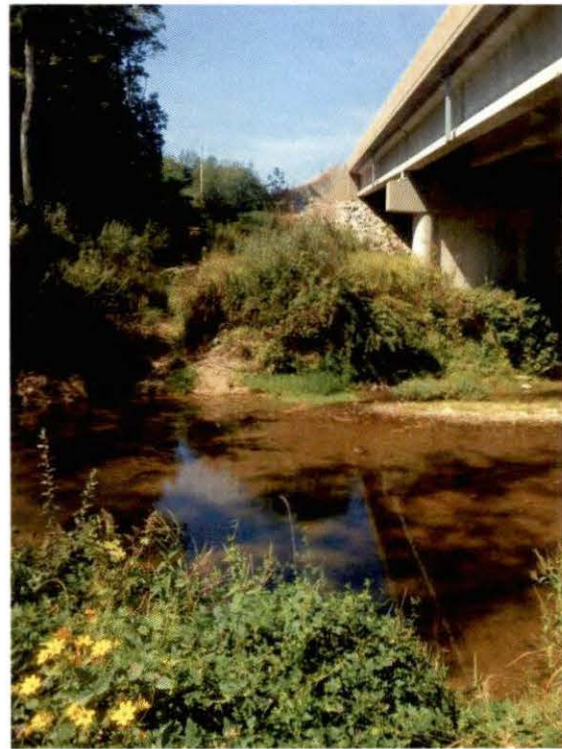
### **ENVIRONMENTAL RESOURCES PRESENT**

The proposed project would consist of linear excavation within cleared right-of-way of a state highway. Much of the proposed route is along the newly constructed Joe Prather Highway/KY 313. Vegetation to be disturbed consists solely of grasses. **Figure 2** shows a typical section of right-of-way where the water line would be installed. Best management practices will be followed for erosion prevention and sediment control of all excavations. The ROW will be restored to a condition equal to or better than that which existed prior to excavation. The contractor will not be allowed to open more than 200 LF of trench at any given time and will be required to keep restoration, seeding, and mulching operations close behind the active excavation.

All potential routes involve a crossing of Otter Creek. This crossing would be accomplished by boring and jacking a casing and carrier pipe beneath the stream bed to avoid disturbance to the stream bed or banks. **Figure 3** is a photograph of Otter Creek at the proposed crossing location.



*Figure 2 – Right of Way*



*Figure 3 – Otter Creek*

## POPULATION TRENDS

The service area for the proposed project is the existing MCWD service area. The MCWD service area consists of most of Meade County with the exception of Brandenburg and the Doe Valley Area. **Figure 4** shows the population trend for Meade County for the last 20 years. Data for the service area was calculated by subtracting U.S. Census data for Brandenburg from U.S. Census data for Meade County. MCWD currently serves over 4,000 customers (meters) within the geographic service area. A significant portion of the population within the service area currently relies on well water instead of public water supply. The population has grown by nearly 16% overall in the past 20 years although that rate has slowed more recently.

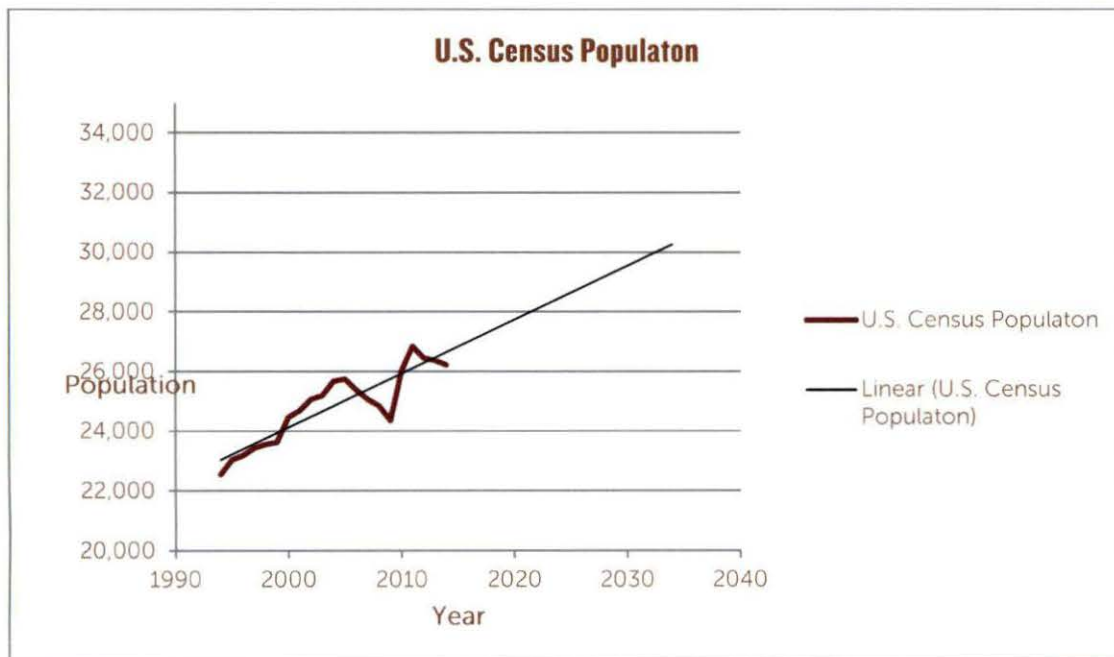


Figure 4 – Service Area Population Data

## COMMUNITY ENGAGEMENT

HCWD1 advertised a public meeting for the proposed water main extension. The general public was invited to attend and comment on such issues as economic and environmental impacts, service area, or alternatives to the project. HCWD1 and MCWD will each educate its customer base on the water quality and health benefits of disinfecting with chloramine as opposed to free chlorine, the driving force behind the project.



## EXISTING FACILITIES

### LOCATION MAP

Existing water lines in the project area are shown in **Exhibit 3**. The existing 12" and 16" water lines constitute the main transmission line from the Pirtle Springs Water Treatment Plant to both the existing wholesale point to MCWD and to the main population center of the HCWD1 service area.

### HISTORY

A new 16-inch ductile iron transmission main was constructed in 2002 (63,666 lf) and 2011 (10,903 lf). The transmission main is now 16-inch on either side of the project area with a 12-inch bottleneck in the project area. The treatment facility was rebuilt and upgraded in 2009 and has capacity to provide the additional flows and volume needed for the new MCWD wholesale connection.

The aging 12" PVC line has exhibited numerous line breaks since its installation in 1982. In addition, a large portion of this line is located in fields, residential lots, and along rear property lines where access for maintenance is difficult.

### CONDITION OF EXISTING FACILITIES

The current distribution system within the area of planned expansion is in excellent shape. The adjacent transmission mains are Ductile Iron and installed within the last 14 years. The water treatment plant was rebuilt and upgraded in 2009. The WTP is supplemented when necessary by purchased water. HCWD1's treatment and distribution operations remain in compliance with all applicable regulations. The most recent annual water audit shows that HCWD1's water loss exiting the system is 13.6%. Because of the excellent condition of the WTP and distribution system in this area, no major infrastructure replacement projects are planned for the next five years. A five year capital improvement budget of \$725,000 per year is set for the county water utility for ongoing repair and replacement of short lived assets.

HCWD1 retained HDR Engineering (who is also MCWD's engineer) to complete hydraulic modeling to determine if it were possible for HCWD1 to supply all of MCWD's water, and if so, where that volume could be provided and what upgrades were necessary.

HDR completed its study in January, 2015. It was determined that HCWD1 could supply MCWD 100% of its needs without adversely affecting the system but only if HCWD1 completed a new 16 inch transmission main and constructed a new MCWD interconnect / metering point along this new main (see **Exhibit 3**). HDR found that the required 16-inch upgrade will lower the discharge head at the WTP by 23 feet, resulting in increased pumping capacity and energy efficiency at the WTP. HDR's report is included as **Appendix A**.

HDR also proceeded with a design and Rural Development (RD) application for MCWD, to construct its own main and required pump station, to connect to HCWD1's new main. With the completion of MCWD's new main and pump station, as well as HCWD1's new main, there will be sufficient supply and distribution capacity in both systems for HCWD1 to sell MCWD 100% of water demand.

## NEED FOR PROJECT

Hardin County Water District No. 1 (HCWD1) owns and operates five utility systems. These include the original "County Water" system (1952), which is the oldest operating County Water District in Kentucky, the Ft. Knox Sanitary and Storm systems (2005), the Radcliff Wastewater System (2008) and the Ft. Knox Water System (2012). As these have different customer bases and rates, GFOA, PSC and Kentucky KRS require HCWD1 use fund accounting and maintain separate accounting statements, cash funds and financial records.

This application only involves and impacts the County Water System. None of the other funds or systems would use any of the Rural Development (RD) loan funds, nor would other funds be responsible to contribute to or assist in repayment of the RD debt service. HCWD1's annual audit and financial report also separates each fund's statements, but does also show consolidated amounts as an advisory note.

Since 1998, HCWD1 has purchased supplemental water from the Ft. Knox Water System. In 1995, the Government and HCWD1 entered into a Water Sales Agreement, which allowed HCWD1 to purchase up to 2.7 MG/d (million gallons per day). As part of the agreement, HCWD1 built a new pump station and 1.25 MG storage tank on Ft. Knox. Once these facilities were built, HCWD1 then closed its second water treatment plant (Muldraugh WTP), which at the time was outdated, deteriorating and in need of a complete rebuild.

Once that second plant was closed HCWD1 became dependent on buying a portion of its annual water demand. Its Pirtle Spring Water Treatment Plant was completely re-built in 2010, however the maximum capacity remained 3.1 MG/d. In 2014, HCWD1 purchased water every day of the year, ranging from 2,000 gallons to 894,000 gallons daily. For the year, purchase water represented about 2% of the County Water system's total customer demand. On certain emergency events (such as the 2009 ice storm and a 1999 ground water contamination event), HCWD1 has been able to purchase up to 5.2 MG/d, or supply 100% of its customer demand from this purchased water source.

That agreement had a renewable option each five years. In 2008, the Government advised HCWD1 that they would not renew this sales agreement for the third renewal anniversary. This was because the Government planned to privatize the Ft. Knox water system, and could not commit to continuing to supply water to off-base customers, or other utility systems.

Since 2008, the Government (Ft. Knox) has continued to sell water to HCWD1, with the understanding that HCWD1 would find a replacement source of water. As both HCWD1 and HCWD2 (Hardin County Water District No. 2, also located in Hardin County) had found there were no viable additional raw water sources in the region, they both began looking at other sources to meet future growth and demand. In 2000 the Lincoln Trail Regional Water Commission was established. That Commission completed a Regional Water Study including all the major water systems (HCWD1, HCWD2, City of Elizabethtown and Ft. Knox, but also considered needs of all other smaller systems in the region) and found the most cost effective and available source for future needs was the Louisville Water Company (LWC).

Both HCWD1 and HCWD2 then began negotiating with LWC for additional purchased water. In 2012 LWC and HCWD1 entered into a 40 year Water Purchase Agreement, whereby HCWD1 could purchase up to 3.5 MG/d with no required minimum purchase. This agreement was submitted to the Public Service Commission and was eventually approved (Case No. 2013-00251, order dated 14-September-2014).

HCWD1 then began on final design of a new LWC Interconnect facility, which would transport the LWC from southwest Jefferson County, under the Salt River, to an existing HCWD1 water main where it could then be pumped to the existing HCWD1 / Ft. Knox pump station and storage tank (as mentioned above). From that pump



station, water could be pumped into Radcliff and supplement all of HCWD1's customer demands, including wholesale demands. This supply can also be used in an emergency to supply HCWD2 and the City of Hardinsburg in Breckinridge County (HCWD1 also sells the City of Vine Grove 100% of its water supply).

As the LWC system uses a different disinfectant method (Chloramine), both HCWD1 and HCWD2 completed two joint studies to determine the best options to utilize LWC water into HCWD1 and HCWD2's existing systems. This empirical study included possibly re-chlorinating the LWC water to match the District's type treated water. After two years, and two studies were completed, both District's determined that they would convert their systems to Chloramine in order to be compatible with the LWC water. **There are water quality and health benefits to switching to this method. Chloramine disinfection produces lower levels of trihalomethanes (THMs) and haloacetic acids (HAAs), regulated disinfection byproducts, than chlorine disinfection. THMs and HAAs have been linked to cancer as well as reproductive and developmental issues.** Correspondence with Kentucky Division of Water (DOW) related to approval of the conversion to chloramine is included as **Appendix B**.

As HCWD1 currently sells Meade County Water District (MCWD) about 70% of their supply, and MCWD buys the balance of its supply from the City of Brandenburg, MCWD needed to decide how it would accept future Chloraminated water from HCWD1, and still purchase from the City. The KY Division of Water will not let a public water system mix both free chlorine and chloramine waters in the same distribution system. MCWD then asked HCWD1 if they could provide MCWD 100% of their supply. The result would be an **increase in demand of 150 Million Gallons a Year (MGY) or 2,500 equivalent dwelling units (EDUs) at 60,000 gallons per year**. HCWD1 retained HDR Engineering (who is also MCWD's engineer) to complete hydraulic modeling to determine if it were possible for HCWD1 to supply all of MCWD's water, and if so, where that could be provided.

HDR completed its study in January, 2015. It was determined that HCWD1 could supply MCWD 100% of its needs but only if HCWD1 completed a new 16 inch transmission main and moved its current main MCWD interconnect / metering point to another location along this new main. HDR also proceeded with a new design and Rural Development (RD) application for MCWD, to construct its own main and required pump station, to connect to HCWD1's new main.

HCWD1 retained Cannon & Cannon (CCI) to complete final design of this 16 inch main, and prepare a RD loan application for HCWD1. CCI had previously completed design and drawings for this same 16 inch main, as part of a previous expansion project for HCWD1, which phase 1 of that project was funded by a KIA Grant.

HCWD1 has not had a PSC approved rate increase since 2007. Two recent Purchased Water Adjustments were approved by the PSC, but these added less than 2% increased revenues to HCWD1. These increases were needed as the Government increased its wholesale rate to HCWD1 by over 70%. As the previous sales agreement had expired several years earlier, HCWD1 had no recourse, leverage or legal basis to protest this large rate increase from the Government.

As HCWD1 cannot currently produce 100% of its customer demand, increasing supply to MCWD will require increased purchased water expenses. There will be various other increased operating expenses starting in 2016 or early 2017, as a result of the increased sales to MCWD, the chloramine treatment expenses and operating the new LWC Interconnect Pump Station, as well as increased depreciation expense for all these major capital projects.

## **ALTERNATIVES CONSIDERED**

HDR's hydraulic analysis (Appendix B) determined that the existing 12-inch bottleneck must be upgraded to 16-inch pipe in order to provide additional wholesale flows to MCWD without adversely impacting HCWD1's system. All other required infrastructure and hydraulic capacity (source, pumping, distribution) is in place. Since the only required upgrade is the upsized transmission main, three possible routes were evaluated for the new 16-inch water main.

HCWD1 provides water service to two distinct areas of Hardin County – the City of Radcliff to the northeast and rural Hardin County areas to the southwest. These two areas are connected by almost 15 miles of 16 inch DIP water line along Highway 1882, Highway 144, and Highway 1500. Water is produced at the Pirtle Spring Water Treatment Plant located in the southwest region of the service area and is transmitted through the project area to elevated tanks in Radcliff. In addition, there is a pump station located on Highway 1882 that conveys water from the tanks in Radcliff to the southwestern area served by the Brizindine Tank when the high service pumps at the Pirtle Spring Water Treatment Plant are not running. There are also several master meter connections that serve Meade County Water District and the City of Vine Grove along the project route. It is the desire of HCWD1 to be able to transmit 4.5 MGD from the water treatment plant northeast to Radcliff through the proposed project.

Understanding these operational characteristics of the HCWD1 system, key elements in developing the best, long term design of this project revolve around determining three major items; 1) location of proposed transmission line for current and future growth; 2) ability to phase the project to meet budget requirements; and 3) meeting operational needs of the system for current and future demand. In addition to these design elements, a major extension of Joe Prather Highway (Highway 313) has recently been constructed in the area. This new road extends Highway 313 westward to meet Highway 144. Based on these key elements, three alternative routes were evaluated.

As part of the evaluation process, cost estimates for each alternative have been prepared. Based on our evaluation of material pricing and the importance of this transmission line in linking the two areas of the HCWD1 system, we recommend that Class 350 Ductile Iron Pipe be used for the 16" transmission line. The estimates presented in this report are based on using ductile iron for the transmission line.

### **ALTERNATIVE I**

This alternate consists of installing a 16" water main along Highway 1882 beginning at Highway 144 to the intersection of Joe Prather Highway (Highway 313). The 16" transmission line would then follow along the south right of way of Highway 313 until it reaches Highway 1500 where it will connect to the existing 16" line. A map detailing the locations of the proposed lines is shown in **Exhibit 3**.

There are several advantages to this route. This alternate would provide that all water mains would be along accessible public roads unlike the current 12" water main. The proposed route along the newly installed extension of Joe Prather Highway provides a water line in an area that can serve future growth in the District's service area along the road. The estimated cost of Alternative 1 is detailed in **Table 1** on page 8.



TABLE 1 | ESTIMATE OF CONSTRUCTION COST – ALTERNATIVE 1

ITEM NO	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE	TOTAL PRICE
1	16" DIP	8,400	LF	\$100	\$840,000
2	16" Butterfly Valve	4	EA	\$3,500	\$14,000
3	6" Gate Valve	1	EA	\$2,500	\$2,500
4	Air Release Valve	6	EA	\$2,500	\$15,000
5	Blow Off Assembly	2	EA	\$2,200	\$4,400
6	Fire Hydrant Assembly	2	EA	\$3,500	\$7,000
7	24" Steel Casing by bore with 16" DI Carrier	90	LF	\$350	\$31,500
8	Service Line	100	LF	\$25	\$2,500
9	Connect to Existing Service	5	EA	\$900	\$4,500
10	Connect to Existing 6" Line	2	EA	\$2,000	\$4,000
11	Connect to Existing 12" Line	1	EA	\$8,000	\$8,000
12	Connect to Exist 16" Line	2	EA	\$10,000	\$20,000
13	16" Creek Crossing	175	LF	\$350	\$61,250
14	DI Fittings	4000	LBS	\$4	\$16,000
15	Leak Detection Station	1	EA	\$10,000	\$10,000
<b>SUBTOTAL</b>					\$1,040,650
Contingency (15%)					\$156,098
Project Construction – Alternate 1					\$1,196,748

#### ALTERNATIVE 2

Alternate 2 is the shortest route evaluated. Alternate 2 follows Drake Road east from Highway 1882 and crosses Highway 144 just west of Ditto Lane. It then crosses Otter Creek and goes north along Ditto Lane until it reaches Joe Prather Highway. As with Alternate 1, the new 16" line would follow along the south right of way of Joe Prather Highway and connect to the existing 16" line at Highway 1500. This alternate is detailed on the map in Exhibit 3. The estimated cost of this alternate is shown in Table 2 on page 9.

TABLE 2 | ESTIMATE OF CONSTRUCTION COST – ALTERNATIVE 2

ITEM NO	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE	TOTAL PRICE
1	16" DIP	8,325	LF	\$100	\$832,500
2	16" Butterfly Valve	4	EA	\$3,500	\$14,000
3	Air Release Valve	6	EA	\$2,200	\$13,200
4	Blow Off Assembly	2	EA	\$2,200	\$4,400
5	Fire Hydrant Assembly	4	EA	\$3,500	\$14,000
6	24" Steel Casing by bore with 16" DI Carrier	90	LF	\$350	\$31,500
7	Service Line	100	LF	\$25	\$2,500
8	Connect to Existing Service	5	EA	\$900	\$4,500
9	Connect to Existing 6" Line	2	EA	\$2,000	\$4,000
10	Connect to Existing 12" Line	1	EA	\$8,000	\$8,000
11	Connect to Exist 16" Line	2	EA	\$10,000	\$20,000
12	16" Creek Crossing	175	LF	\$350	\$61,250
13	DI Fittings	4000	LBS	\$4	\$16,000
14	Leak Detection Station	1	EA	\$10,000	\$10,000
<b>SUBTOTAL</b>					\$1,035,850
Contingency (15%)					\$155,378
Project Construction – Alternate 2					\$1,191,228

While this is the lowest cost alternative, there will be a significant section of the new extension of Joe Prather Highway that would not be served by the project. In addition, installation along portions of Ditto Lane will be difficult due to the limited available right-of-way and other existing utilities. The project would still leave the District with a significant amount of cross-country line that will have limited access.

### ALTERNATIVE 3

The last alternate, as with Alternate 2, will follow Drake Road from Highway 1882 to Highway 144. The 16" transmission line would then follow Highway 144 until it reaches Creekvale Drive where it would then follow closely to the original 12" water line at the rear property lines on the south side of Edgebrook Drive to Highway 1500. From this point, it will turn north and follow the western side of Highway 1500 and connect to the existing 16" line. **Exhibit 3** identifies the proposed improvements for this alternative. There are several disadvantages to this alternate. The majority of the new construction will occur in areas that HCWD1 will not be able to acquire new customers. This will also leave the new extension of Joe Prather Highway without any water service where future growth is more likely. In addition, there will be several thousand feet of 16" water line that will be installed at the rear of properties that will have limited access. The cost of Alternate 3 is also the highest of the alternatives considered. **Table 3** detailing the cost of this alternative is shown on page 10.

TABLE 3 | ESTIMATE OF CONSTRUCTION COST – ALTERNATIVE 3

ITEM NO	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE	TOTAL PRICE
1	16" DIP	12,900	LF	\$100	\$1,290,000
2	16" Butterfly Valve	4	EA	\$3,500	\$14,000
3	Air Release Valve	5	EA	\$2,500	\$12,500
4	Blow Off Assembly	2	EA	\$2,200	\$4,400
5	Fire Hydrant Assembly	5	EA	\$3,500	\$17,500
6	24" Steel Casing by bore with 16" DI Carrier	90	LF	\$350	\$31,500
7	Service Line	100	LF	\$25	\$2,500
8	Connect to Existing Service	5	EA	\$900	\$4,500
9	Connect to Existing 6" Line	5	EA	\$2,000	\$10,000
10	Connect to Existing 12" Line	1	EA	\$8,000	\$8,000
11	Connect to Exist 16" Line	2	EA	\$10,000	\$20,000
12	16" Creek Crossing	190	LF	\$350	\$66,500
13	Interconnect w/ Master Meter	1	EA	\$5,000	\$5,000
14	DI Fittings	4000	LBS	\$4	\$16,000
15	Leak Detection Station	1	EA	\$10,000	\$10,000
<b>SUBTOTAL</b>					\$1,512,400
Contingency (15%)					\$226,860
Project Construction – Alternate 3					\$1,739,260



## SELECTION OF ALTERNATIVE

The existing 12" PVC transmission line from the intersection of Highways 1882 and 144 to the intersection of Highways 313 and 1500 is the only means for HCWD1 to convey water from the Pirtle Spring Water Treatment Plant to both MCWD and the Radcliff service area. A hydraulic analysis of this line along with the history of line breaks demonstrates that this line is inadequate to provide the volume and reliability required to sustain service and serve the anticipated growth of the water system. With the recent extension of Joe Prather Highway to intersect Highway 144 in Meade County, additional growth in the project area can be expected. Wholesale sales to MCWD are anticipated to increase from 0.72 to 1.4 million gallons per day (MGD). The hydraulic performance of each alternate is basically the same with less than 4 psi friction loss difference between the alternatives. Environmental impacts and O&M for each alternative are also comparable as each alternative is a linear water line installation of similar length. Water lines would be installed predominately in right-of-way in all three alternatives and a single crossing of Otter Creek is unavoidable. The estimated construction cost of each alternate is shown in Table 5 below.

**TABLE 4 | CONSTRUCTION COST  
SUMMARY OF ALTERNATIVES**

<b>ESTIMATED CONSTRUCTION COST</b>	
Alternate 1	\$1,196,748
Alternate 2	\$1,191,228
Alternate 3	\$1,739,260

Based on these conditions and review of the system operation with the staff, Alternate 1 is recommended to support the long term needs of the system. This alternate provides for installation of a new 16" line along the extension of Joe Prather Highway to the point where it intersects Highway 1882. Alternate 1 also offers the best accessibility for maintenance and future growth. Another advantage of Alternate 1 is that the route requires no easements as all construction will be within state right-of-way. This project also upgrades the existing 12" line along Highway 1882 to increase transmission capability. These improvements are expected to allow the Pirtle Springs Water Treatment Plant to increase output with the two current high service pumps operating.

## PROPOSED PROJECT

The proposed project follows the route shown in Exhibit 3 and generally stays 5 feet inside the state right of way line. Based on our evaluation of material pricing and the importance of this transmission line in linking the two areas of the HCWD1 system and MCWD, we recommend that Class 350 Ductile Iron Pipe be used for the 16" transmission line. The estimates presented in this report are based on using ductile iron for the transmission line. **Tables 5 and 6** below show total project cost and present worth life cycle cost analysis.

As there are no pumps, treatment facilities, electrical equipment, or normally moving parts included in this project, O&M costs will be minimal. Yearly O&M costs were calculated by assuming 1 man hour per valve (butterfly, gate, air release, and blow off) per year to turn and lubricate the valve. One man hour per quarter per leak detection station is allowed for listening for leaks. Finally, one man hour per quarter per fire hydrant and blow off assembly is included for visual inspection and testing. Total labor is therefore 31 hours per year at \$20/hour. Materials and parts needed to maintain valves and hydrants would consist mainly of grease and \$100/ year is allowed for this purpose. Total yearly O&M cost is \$720. O&M costs would be nearly identical for each of the three alternatives as there are similar quantities of valves, hydrants, and leak detection stations.

**TABLE 5 | ALTERNATIVE 1 TOTAL PROJECT COST**

	ESTIMATED COST
CONSTRUCTION	\$1,196,748
ENGINEERING	\$57,400
INSPECTION	\$60,500
TOTAL	\$1,314,648

**TABLE 6 | PRESENT WORTH LIFE CYCLE COST ANALYSIS**

ITEM	PRESENT WORTH
INSTALLATION COST OF WATER LINES INCLUDING ENGINEERING AND INSPECTION (\$) FINANCED AT 3.25% FOR 40 YEARS	\$1,790,703
WATER LINE O&M COST FIRST YEAR (\$/YEAR)	\$720
ANNUAL LABOR INFLATION RATE	1.4%
WATER LINE O&M COST (\$/40 YEARS)	\$28,800
# YEARS OF SERVICE	40
Additional supply/treatment/pumping (\$/YEAR)	\$237,824.00
Additional supply/treatment/pumping (\$/40 YEARS)	\$9,512,960.00
DISCOUNT RATE (%)	1.4%
PRESENT WORTH COST (\$)	\$11,332,463



All 4,000 plus customers in the MCWD system as well as many customers in the HCWD1 system will benefit from and be indirectly served by the transmission line upgrade. Flows in the transmission main out of Pirtle Spring WTP are expected to reach 3,500 gpm.

It is anticipated that an average of an additional 285 gpm will be supplied to wholesale customer MCWD. Additional wholesale volume is therefore 150 million gallons per year (MGY) or 2,500 equivalent dwelling units (EDUs) at 60,000 gallons per year. A total of 2,505 equivalent dwelling units are directly served by this improvement.

HCWD1 proposes an 18% increase in rates to ensure repayment ability of this loan. Increased wholesale volume will bring in \$354,542 in additional income per year under the proposed rate schedule. Additional income as a result of the project will be **\$14,181,680.00** over the 40 year term (present worth assuming water rates increase equal to discount rate). Present worth of benefits outweigh present worth of costs by nearly three million dollars.

The project related budget, considering only costs associated with the new 16-inch main and selling additional water to MCWD is shown below in **Table 7**. The annual budget for HCWD1, projected realistically for the first full year after project completion, is shown in **Table 8** on page 14.

TABLE 7 | PROJECT RELATED BUDGET

ITEM NO	DESCRIPTION	CURRENT RATES	PROPOSED RATES (18% INCREASE)
A	Operating Income		
	Increased Wholesale Sales	300,000	354,000
	Increased Meter Service Charges	0	\$542
	Total Increase in Operating Income	300,000	354,542
B	Operation and Maintenance Expenses		
	Increased Source of Supply Expense	1,376	1,376
	Increased Water Treatment Expense	22,708	22,708
	Administrative and General Expense (increased purchased water and depreciation)	257,677	257,677
	Total Increase in Operating Expenses	281,761	281,761
	Net Operating Income	21,251	72,781
E	Debt Repayment		
	RUS Interest	42,706	42,706
	RUS Principle	14,650	14,650
	Total Debt Repayment	57,356	57,356
F	*Balance Available for Coverage	1.14	2.03

\* Balance for coverage calculated as: (NI+depreciation+interest+amortization)/Total Debt Repayment



TABLE 8 | PROPOSED BUDGET FIRST FULL YEAR AFTER COMPLETION

ITEM NO	DESCRIPTION	CURRENT RATES	PROPOSED RATES (18% INCREASE)
A	Operating Income		
	Water Sales	2,271,600	2,680,488
	Wholesale Sales	1,073,000	1,266,140
	Customer Meter Service Charges	711,012	838,994
	Disconnect/Reconnect/ Late Charge Fees	203,700	218,368
	Storm Sewer Billing Contract Revenue	42,000	42,000
	Less Allowances and Deductions		
	Other Misc Revenues (Non-Sales)	112,900	112,900
	Total Operating Income	4,414,212	5,158,890
B	Operation and Maintenance Expenses		
	Source of Supply Expense	17,876	17,876
	Pumping Expense		
	Water Treatment Expense	1,084,087	1,084,087
	*Transmission and Distribution Expense	737,399	737,399
	Customer Accounts Expense	286,939	286,939
	Maintenance Expense	81,133	81,133
	Administrative and General Expense	2,245,281	2,245,281
	Total Operating Expenses	4,452,715	4,452,715
	Net Operating Income	(38,503)	706,175
C	Non-Operating Income		
	Interest on Deposits	7,800	7,800
	Total Non-Operating Income	7,800	7,800
D	Net Income	(30,703)	713,975
E	Debt Repayment		
	RUS Interest	42,706	42,706
	RUS Principle	14,650	14,650
	Non-RUS Interest	254,796	254,796
	Non-RUS Principle	705,000	705,000
	Total Debt Repayment	1,017,152	1,017,152
F	**Balance Available for Coverage	1.26	1.99

\*Includes \$725,000 annually for ongoing repair/replacement of short lived assets.

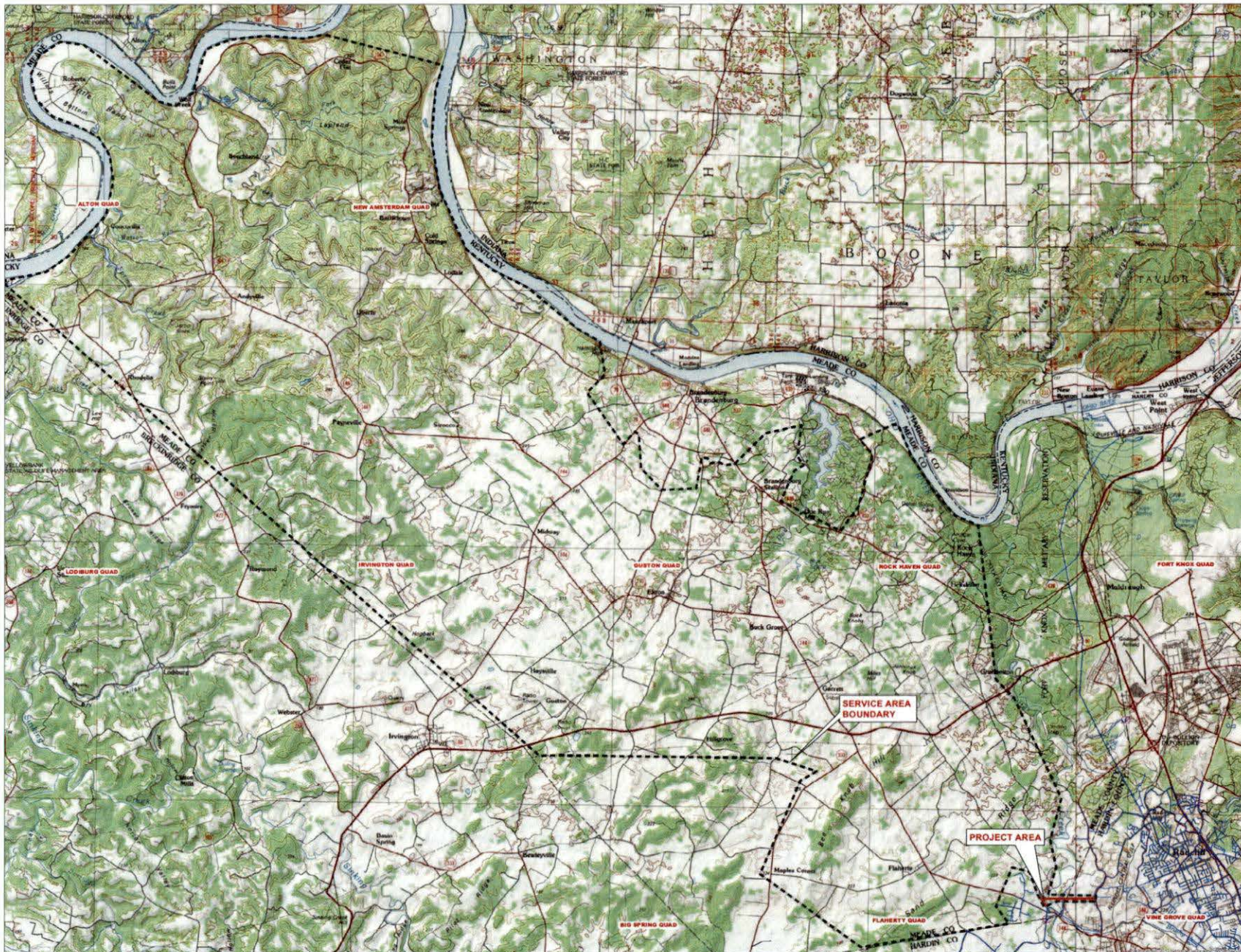
\*\* Balance for coverage calculated as: (NI+depreciation+interest+amortization)/Total Debt Repayment

### CONCLUSION AND RECOMMENDATION

The existing transmission main from Highways 1882 and 144 to Highways 313 and 1500 is undersized for anticipated HCWD1 and wholesale demands. Furthermore the line is problematic as it is prone to leaks and difficult to access for maintenance. CCI recommends upgrading the 12" transmission main to a 16" main along the route proposed in Alternative 1. This route offers the best accessibility for maintenance and future growth, and requires no easements. Cost for this alternative is reasonable and the present worth of benefits is greater than costs. Growth along the newly served corridor of Highway 313 could provide added benefits. Alternative 1 is a hydraulically, operationally, and financially sound solution to the transmission main needs in the southwest portion of the system and enables HCWD1 to provide 100% of water needs to MCWD without adversely affecting the distribution system.

## EXHIBITS





**Legend**

- Project Service Area
- Project Area
- Existing HCWD1 Water Mains

0 0.5 1 2 Miles  
Scale: 1" = 1 mile



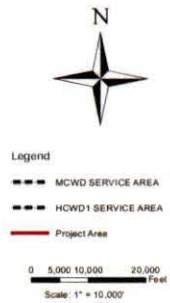
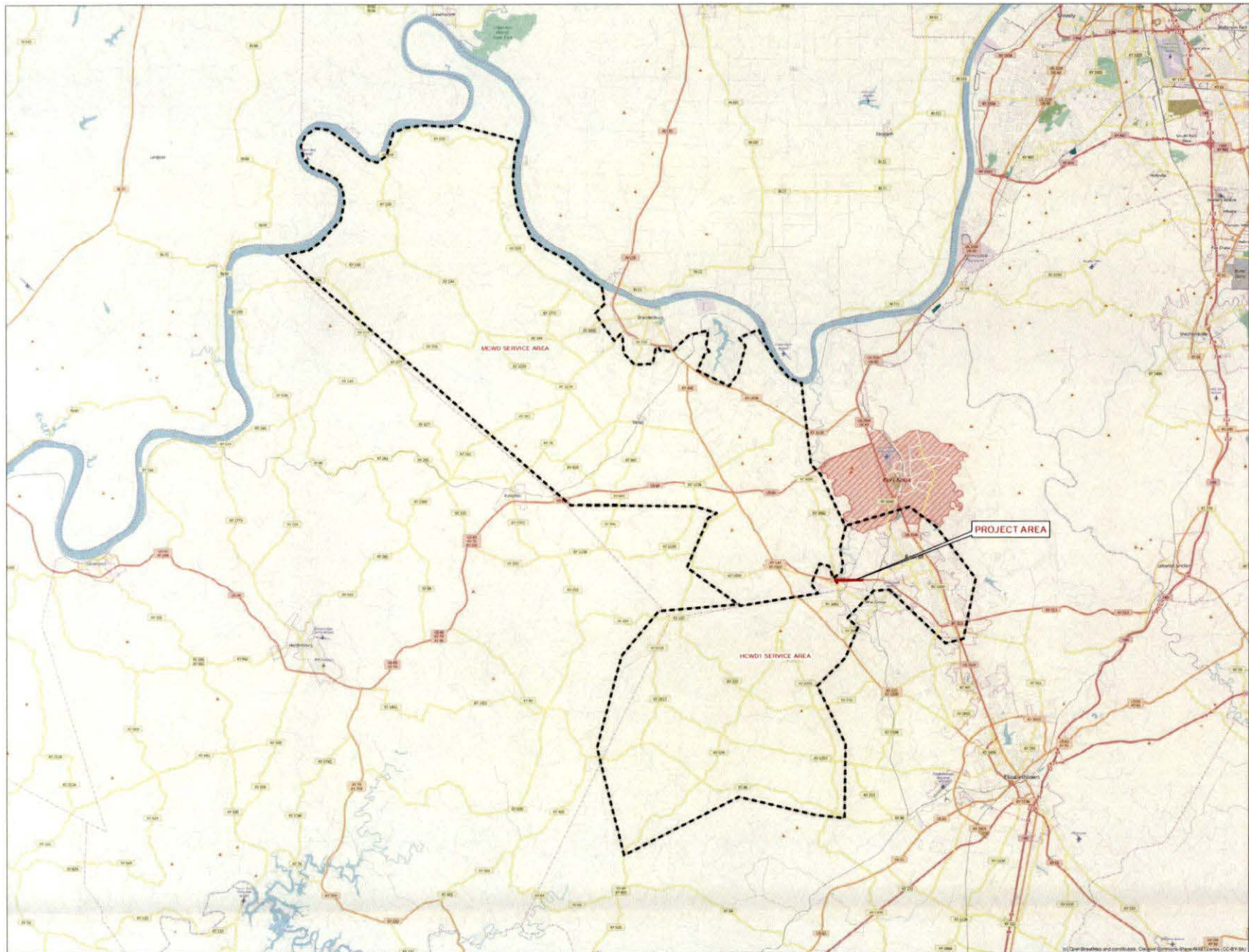
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Ph: 885.670.8555 | 8800 Kingston Pike  
www.cannon-cannon.com | Knoxville, TN 37919

**HWYS 1882 & 144 WATER TRANSMISSION  
MAIN REPLACEMENT**

**EXHIBIT 1 - PROJECT AREA AND SERVICE AREA**

**EX 1**

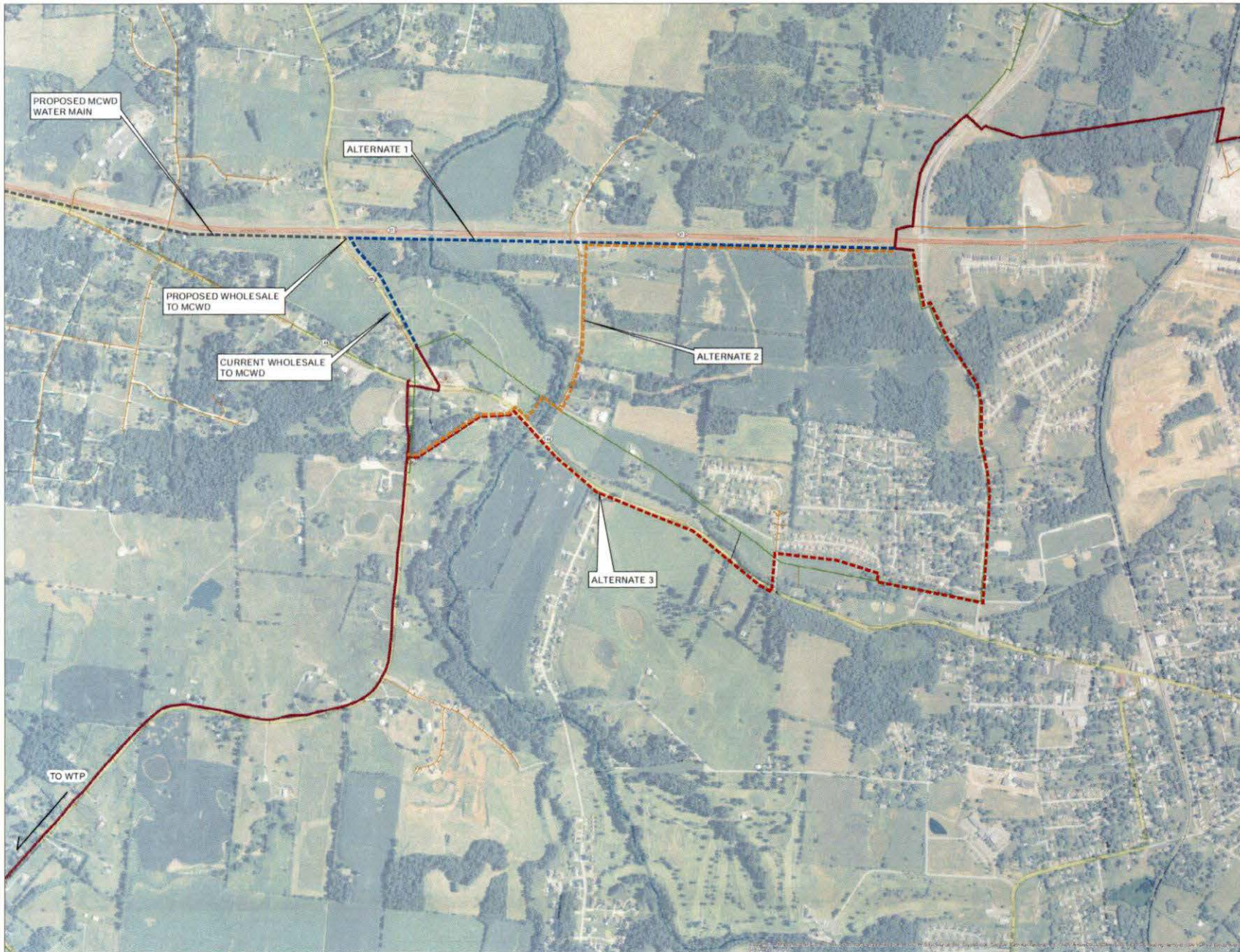




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www.cannon-cannon.com | Knoxville, TN 37919

HWYS 1882 & 144 WATER TRANSMISSION  
MAIN REPLACEMENT  
EXHIBIT 2 - HCWD1 AND MCWD SERVICE AREAS





0 250 500 1,000 Feet  
Scale: 1" = 500'

#### Legend

- MCWD Proposed Water Main
- Alternate 2
- Alternate 1
- Alternate 3
- HCWD1 Existing Water Mains  
Diameter (inches)
- 2
- 4
- 6
- 8
- 12
- 16



**CANNON & CANNON INC.**  
CONSULTING ENGINEERS - FIELD SURVEYORS  
14888 Kingsley Pike Knoxville, TN 37919  
423.885.6700

HWYS 1882 & 144 WATER TRANSMISSION  
MAIN REPLACEMENT

EXHIBIT 3 - EXISTING FACILITIES AND ALTERNATIVES

EX 3



## APPENDICES

## **APPENDIX A**

### **HDR'S HCWDI TO MCWD INTERCONNECT**

### **HYDRAULIC ANALYSIS AND EVALUATION**



## TECHNICAL MEMORANDUM

---

### **HCWD1 to MCWD Interconnect Hydraulic Analysis and Evaluation**

<b>PREPARED FOR:</b>	Hardin County Water District No. 1
<b>PREPARED BY:</b>	Kevin J. Brian, P.E./HDR Engineering
<b>DATE:</b>	January 9, 2015

#### **Purpose**

The purpose of this hydraulic analysis is to determine how much potable water (flowrate and volume) can be provided to Meade County Water District (MCWD) through its existing interconnects (KY 1600, KY 144 and KY 1882) and potential new interconnect along KY 313 (Joe Prather Highway) and KY 1882 for various scenarios.

#### **Scope of Services**

The scope of services to support this hydraulic analysis and interconnect evaluation includes:

- Conduct kick-off phone conference to discuss modeling scenarios, current average day demand (ADD) and max day demand (MDD), Pritchard PS pumping rates
- Update model with current demand data (global distribution) and future piping improvements
- Perform EPS (48 hour) for eight (8) modeling scenarios
- Provide tank level charts (Lincoln Trail and Brizendine)
- Provide flowrate/volume charts and/or tables for KY 1600, KY 144 and potential KY 313/ KY 1882 interconnects and Pirtle WTP
- Prepare technical memorandum summarizing the results
- Conduct follow-up phone conference to discuss TM and modeling results
- Advise HCWD1 on maximum MCWD needs

#### **Background Information and Modeling Directives**

A meeting was conducted via phone conference on October 10<sup>th</sup>, 2014 with HCWD1 staff to discuss the scope and scenarios to be modeled and other information needed from HCWD1 to begin the analysis. The following was discussed:

- A base run utilizing HCWD1's existing transmission system will be evaluated to establish flowrates at the existing MCWD interconnects

- All scenarios will be run with MCWD's Brandenburg station turned off since the purpose of the evaluation is to determine the maximum amount of water that could be provided to meet the demand of their entire system
- All scenarios will include the future KY 1882 and KY 144 16" transmission main improvements designed by Canon & Cannon in April 2010; Copies of these plans were provided by HCWD1
- PWTP has a treatment capacity of 3.1 MGD or 2,150 gpm. The high service pumps have a higher pumping capacity but will be limited to 2,150 gpm by a flow control valve
- Water supplied at the Fort Knox(FK) interconnect/Pritchard PS (PPS) will be limited 2.9 MGD or 2,000 gpm, which is the hydraulic capacity of the proposed LWC Interconnect BPS utilizing the existing 14" water main
- For system ADD use 2.77 MGD (1,924 gpm); this includes HCWD1 wholesale customers – MCWD (0.583 MGD/405 gpm) and VG ( 275 gpm)
- For system MDD use 3.62 MGD (2,513 gpm); this includes HCWD1 wholesale customers – MCWD (0.720 MGD/500 gpm) and VG ( 325 gpm)

#### **Update Model – Additional MCWD Demand and Future Piping Improvements**

HCWD1's current wholesale user agreement with MCWD allows 0.780 MGD (542 gpm) where the flowrate at each individual interconnect depends on whether PWTP is running or shutdown. Any increases in flowrates/volumes will need to be approved by HCWD1.

MCWD desires to obtain a future ADD of 0.9 MGD (625 gpm) and MDD of 1.4 MGD (1000 gpm). To provide these increased flowrates the demand in the model was increased as follows:

- $ADD = 1,924 + (625 - 405) = 2,144 \text{ gpm}$   
*Increase by 220 gpm*
- $MDD = 2,514 + (1000 - 500) = 3,014 \text{ gpm}$   
*Increase by 499 gpm*

A portion of the KY 1882 and KY 144 transmission main improvements had already been constructed and included in the model along KY 1882 from KY 920 to KY 144. The remainder of these improvements was added to the pipe network as follows:

- Added 4,700 lineal feet of 6-inch pipe along Drake Road and KY 144 (Vine Grove Rd)
- Added 10,800 lineal feet 16-inch DI from KY 1882 and 144 to KY 1500 and KY 313
- Deleted (closed) 11,900 lineal feet of existing 12-inch pipe to reflect the pipe being abandoned



### **Modeling Scenarios**

Regular and extended period simulations were run for the four (4) scenarios described below:

- Scenario #1 – PWTP running during ADD and supplemented with FK Interconnect/PPS
  - #1A – Gravity flow at interconnects
  - #1B – PS added on MCWD system with 12" WM
- Scenario #2 – PWTP running during MDD supplemented with FK Interconnect/PPS and with PS added on MCWD system
- Scenario #3 – PWTP shut down, KY 1882 BPS On filling Brizendine pressure zone (BPS), KY 1600 Interconnect closed
- Scenario #4 – PWTP shut down, KY 1882 BPS Off, KY 1600 Interconnect closed

For modeling Scenarios #3 and #4, the HCWD1 system will be only be supplied with water through the FK interconnect/PPS and be limited to 2.9 MGD or 2,000 gpm, which is the hydraulic capacity of the proposed LWC Interconnect BPS utilizing the existing 14" water main

Each scenario included the proposed 16-inch piping improvements. The amount of flow available at MCWD's interconnects at KY 1600, KY 144 and possible KY 313 via gravity and with pumping (MCWD system) was then evaluated.

A base run with the existing 12-inch main was run to establish existing flows at the MCWD interconnects.

The HCWD1 system was evaluated for each of these scenarios to determine adverse impacts on tank fill/drain patterns, lines with high velocity/headloss and low pressure areas.

### **Hydraulic Analysis Results and Conclusions**

Results of the analysis show that the future 16-inch TM in the model lowers the Pirtle high service pump discharge pressure by approximately 10 psi or 23' of head. This lower pressure will increase the HS pumping capacity but will also decreases the amount of gravity flow to the MCWD interconnects. For MCWD to obtain more flow into their system (Flaherty tank) a booster pump station will be required downstream of the any existing/possible interconnect. Results of the analysis are summarized in the table at the end the report.

Graphs of tank fill and drain patterns, pump station discharge rates; and pump station suction and discharge pressures for scenarios are provided as attachment.



### **Scenarios #1 and #2**

When the system demand exceeds PWTP production capacity of 3.1 MGD the additional demand can be supplemented with flow up to 2.9 MGD at the FK Interconnect/PPS. For these scenarios MCWD can be supplied with flowrates/volume up to 1,000 gpm or 1.4 MGD at the KY 313 interconnect location.

### **Scenarios #3 and #4 (when PWTP is shut down)**

HCWD1's system is supplied with flow from the FK Interconnect/PPS. For these scenarios the amount of flow available to MCWD is limited to 312 gpm as calculated below:

FK Interconnect/PPS	2,000 gpm
HCWD 1 MDD <u>(does not include MCWD)</u>	1688 gpm
Available Flow to MCWD	312 gpm

Should HCWD1 be able to increase its supply at the FK Interconnect/PPS the available flow could be increased from 312 gpm to 650 gpm. The KY 1882 BPS is not adversely impacted and can operate at a lower pumping capacity when KY 313 interconnect is providing (via pumping) up to 650 gpm depending on the time of day.

### **Summary**

HCWD1 has the hydraulic capacity and infrastructure (with future 16-inch piping) to provide MCWD between 650 to 1,000 gpm at the KY 313 Interconnect location without adversely impacting its system; the limitation of volume of water that can be provided to MCWD will be determined by how much water can be produced at PWTP and/or obtained at the FK Interconnect/PPS and if PWTP is shutdown.

Scenario Number	Scenario Description	System Demand (gpm)	Flow Rate (gpm) to MCWD				Comments
			Current 1600 Location	Current 144 Location	Possible 313 Location	Combined Max Available to MCWD	
Current Wholesale Agreement – PWTP Running			542	400		542	KY 1882 - 135 gpm
Current Wholesale Agreement – PWTP Shut Down			0	407		542	KY 1882 – 135gpm
Base Ex 12"	PWTP - Average Day	2,144	350-400	Pump Off	175-200	525 - 600	All gravity flow; Pirtle discharge at 175 to 180 psi
#1A	PWTP - Average Day	2,144	175-200	Pump Off	0	175 - 200	All gravity flow; Pirtle discharge at 165 to 1700 psi (10 psi lower)
#1B	PWTP - Average Day	2,144	0	Pump Off	1,000	1,000	PS added on MCWD with 12" WM; Suct 94 psi/Disc 143 psi; No adverse impacts to HCWD1 hydraulically
#2	PWTP - Max Day	2,913	0	Pump Off	1,000	1,000	Same as 1B
#3	PWTP/Shut Down - 1882 On	2,144	Pump Off	Pump Off	600 - 650	600 - 650	Filling BPZ - 250 to 400 gpm Suct -70 to 85 psi; Disc 140 to 150 psi
#4	PWTP/Shut Down - 1882 Off	2,144	Pump Off	Pump Off	600 - 650	600 - 650	

Notes: 1A – Gravity flow at interconnects; 1B – MCWD w/ PS at KY 313

## **APPENDIX B**

### **KY DIVISION OF WATER APPROVAL OF CHLORAMINE CONVERSION**

STEVEN L. BESHEAR  
GOVERNOR



LEONARD K. PETERS  
SECRETARY

ENERGY AND ENVIRONMENT CABINET  
DEPARTMENT FOR ENVIRONMENTAL PROTECTION  
DIVISION OF WATER  
200 FAIR OAKS LANE, 4TH FLOOR  
FRANKFORT, KENTUCKY 40601  
[www.kentucky.gov](http://www.kentucky.gov)

February 27, 2014

Mr. James Bruce  
Hardin Co Water District 1  
1400 Rogersville Rd  
Radcliff, KY 40160

RE: Hardin Co Water District 1  
County: Hardin  
AI#: 1673  
DW No: 0470393-14-002  
Activity ID: APE20140002  
Water Treatment System Improvements  
Preliminary Engineering Report

Dear Mr. Bruce:

We have received the preliminary engineering design report for the above referenced project. The preliminary engineering report proposes the Hardin County Water District No. 1 to convert the Pirtle Spring Water Treatment Plant (PSWTP) treatment process to produce chloraminated finished water from the current system that produces chlorinated finished water. To achieve this conversion to chloraminated treatment process at PSWTP an anhydrous ammonia feed system and a caustic soda feed system will be added to treatment process.

This is to advise that preliminary engineering report for the above referenced project is APPROVED with respect to sanitary features of design, as of the date of this approval letter, with following stipulations:

1. If the water system chooses to utilize other treatment options not stated in the preliminary engineering report, you are required to submit an addendum to the above report containing the details of the treatment process selected and receive approval before final engineering design is completed.
2. The proposed water system plant's raw water intake and any discharges from the proposed water treatment plant shall be in compliance with Kentucky Division of Water's Five Mile Policy.



Hardin Co Water District 1  
County: Hardin  
AI#: 1673  
DW No: 0470393-14-002  
Activity ID: APE20140002  
Water Treatment System Improvements  
Preliminary Engineering Report  
February 27, 2014  
Page 2 of 2

3. This approval has been issued under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this approval does not relieve the applicant from the responsibility of obtaining any other approvals, permits or licenses required by this Cabinet and other state, federal and local agencies.

This letter shall not be construed as final approval, as detailed plans and specifications must be submitted for review and approval when they become available. If final plans and specifications are not submitted within two years from the date of preliminary approval, this approval shall expire.

If you have any questions concerning this project, please contact Mr. Mohammed Mohiuddin, at (502) 564-8158, extension 4827.

Sincerely,



Mark Rasche, P.E.  
Supervisor Engineering Section  
Water Infrastructure Branch  
Division of Water

MR: MM  
Enclosures  
C: Louisville Water Co  
Hardin County Health Department



STEVEN L. BESHEAR  
GOVERNOR

LEONARD K. PETERS  
SECRETARY

ENERGY AND ENVIRONMENT CABINET  
DEPARTMENT FOR ENVIRONMENTAL PROTECTION  
DIVISION OF WATER  
200 FAIR OAKS LANE, 4TH FLOOR  
FRANKFORT, KENTUCKY 40601  
[www.kentucky.gov](http://www.kentucky.gov)

September 18, 2014

Mr. Daniel Clifford  
Hardin Co Water District 1  
1400 Rogersville Rd  
Radcliff, KY 40160

RE: Hardin Co Water District 1  
AI#: 1673, APE20140004  
PWSID # 0470393-14-004  
Pirtle Springs WTP Chloramine Conversion Project  
Hardin County, KY

Dear Mr. Clifford:

We have received the Plans and Specifications for the above referenced project. The project consists of:

- Construction of a new Ammonia and Caustic Soda building
- New chemical feed system for the Ammonia and Caustic Soda, including new chemical storage tanks, feed pumps, piping, scales, installing a bulk storage system
- Miscellaneous concrete work, and related electrical and plumbing work

This is to advise that plans and specifications covering the above referenced subject are APPROVED with respect to sanitary features of design as of this date with the following stipulations:

- a) The capacity of the treatment plant will remain 3.1 mgd.
- b) Compliance with the Surface Water Treatment Rules (SWTR) shall be maintained.
- c) Anhydrous ammonia and storage feed systems (including heaters where required) shall be enclosed and separated from other works areas and constructed of corrosion resistant materials.
- d) Pressurized ammonia feed lines should be restricted to the ammonia room.
- e) An emergency air exhaust system shall be provided in the ammonia storage room.
- f) The ammonia room shall have a ventilating fan with a capacity which provides one complete air change per minute when the room is occupied.
- g) The ventilating fan shall take suction as far as practical from the door and air inlet, with the point of discharge so located as not to contaminate air inlets to any rooms or structures.
- h) Air inlets shall be through corrosion resistant louvers near the ceiling.
- i) Separate switches for the ventilating fan and for the lights shall be located outside of the ammonia room and at the inspection window. Outside switches shall be protected from vandalism. A signal light indicating ventilating fan operation shall be provided at each entrance when the fan can be controlled from more than one point.

- j) Vents from feeders and storage shall be screened and shall discharge to the outside atmosphere, above grade.
- k) The ammonia room location should be located away from entrances, windows, louvers, walkways, etc.,
- l) Where provided, the floor drains shall discharge to the outside of the building and shall not be connected to other internal or external drainage systems.
- m) Leak detection systems shall be provided in all areas through which ammonia is piped.
- n) Special vacuum breaker/regulator provisions must be made to avoid potentially violent results of backflow of water into cylinders or storage tanks.
- o) Carrier water systems of soft or pre-softened water may be used to transport ammonia to the application point and to assist in mixing.
- p) The ammonia injector should use a vacuum eductor or should consist of a perforated tube fitted with a closely fitting flexible rubber tubing seal punctured with a number of small slits to delay fouling by lime or other scale deposits.
- q) Provision should be made for the periodic removal of lime or other scale deposits from injectors and carrier piping.

When this project is completed, the owner shall submit a written certification to the Division of Water that the above referenced water supply facilities have been constructed and tested in accordance with the approved plans and specifications and the above stipulations. Such a certification shall be signed by a licensed professional engineer.

This approval has been issued under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this approval does not relieve the applicant from the responsibility of obtaining any other permits or licenses required by this Cabinet and other state, federal and local agencies.

Unless construction on this project commences within two years from the date of this approval letter, Hardin County Water District No 1 shall re-submit the original plans and specifications for a new comprehensive review.

If you have any questions concerning this project, please contact Mr. Mohammed Mohiuddin at 502-564-3410 extension 4827.

Sincerely,



Mark Rasche, P.E.  
Supervisor, Engineering Section  
Water Infrastructure Branch  
Division of Water

MR: MM  
Enclosures

C: Kentucky Engineering Group, PLLC  
Hardin County Health Department  
Public Service Commission (by e-mail only)  
Division of Plumbing (by e-mail only)



February 23, 2017

Ms. Linda Lockett,  
Area Specialist  
Rural Development  
250 Sportsman Lake Road  
Elizabethtown, Kentucky 42701

RE: Final Engineering Report  
Hardin County Water District No. 1  
Highways 1882 & 144 Water Transmission Main Replacement

Dear Ms. Lockett:

As you are aware, construction bids for the above referenced project were received and opened on February 10, 2017. A copy of the bid tabulation is attached for your reference.

The lowest responsive, responsible bid is Cumberland Pipeline, LLC - \$644,999.30. At their February 21, 2017 regular board meeting, Hardin County Water District No. 1 (HCWD1) awarded the contract, including alternate 1, to Cumberland Pipeline, LLC for \$644,999.30.

Since the total as-bid development cost is significantly less than available funding, HCWD1 plans to add the next phase of this transmission main replacement to the contract via change order. The change order would add 5,600 linear feet of 6 inch water line and complete the replacement of the existing aged transmission line allowing it to be taken out of service. Preliminary discussions with Cumberland Pipeline indicate they are willing to perform the additional work for existing as-bid unit prices. Estimated cost for the change order, based on existing as-bid prices, is \$411,000 bringing the total for development to \$1,055,999.

Additional engineering will be required to design the next phase of the water line and to file amended permits. The construction contract time will be lengthened by approximately two months increasing the required effort for Construction Administration and Resident Project Representative (RPR). An additional \$60,000 will be added to the existing engineering contract via amendment.

The next phase requires several easements for the water line, and funds of \$10,000 have been added to the Land and Rights budget item.

The budget from the 8-12-2016 Letter of Conditions (LOC) and the proposed revised budget are tabulated on page 2. The total for both budgets is \$1,318,000. Funding source for the project is 100% RUS Loan in the amount of \$1,318,000.

**TABLE 1** EXISTING AND PROPOSED BUDGETS

ITEM	8/12/16 LOC AMOUNT	REVISED AMOUNT
Development	\$ 1,044,000	\$ 1,055,999
Land and Rights	---	\$10,000
Legal	\$ 25,000	\$ 25,000
Engineering	\$ 117,900	\$ 177,900
Interest	\$ 26,700	\$ 26,700
Contingencies	\$ 104,400	\$ 22,401
<b>TOTAL</b>	<b>\$ 1,318,000</b>	<b>\$ 1,318,000</b>

Should you have any questions regarding this, or if additional information is required, please do not hesitate to contact me at 865-323-5957 or sfischer@cannon-cannon.com. Thank you.

Sincerely,  
Cannon & Cannon, Inc.



Seth Fischer, P.E.  
Project Manager

cc: Mr. Jim Bruce, General Manager – HCWD1  
Mr. Daniel Clifford, Engineering Manager – HCWD1  
CCI File 00904-0004

February 14, 2017

Mr. Daniel Clifford, Engineering Manager  
Hardin County Water District No. 1  
1400 Rogersville Road  
Radcliff, KY 40160

RE: Recommendation of Award  
Hardin County Water District No. 1  
Hwy 1882 & Hwy 144 Water Transmission Main Replacement

Dear Mr. Bruce:

The referenced project was bid on February 10, 2017. Twelve (12) construction companies submitted bids. A detailed Bid Tabulation is attached and a bid summary follows.

BIDDER	BID
Cumberland Pipeline, LLC	\$ 644,999.30
Twin States Utilities	\$ 649,325.00
United Pipeline, Inc.	\$ 724,625.00
Salmon Construction	\$ 729,389.00
Rame Contracting	\$ 758,476.25
Cleary Construction	\$ 783,885.00
Frederick and May Construction	\$ 788,412.50
Phillips Brothers Construction, LLC	\$ 828,082.00
*Dynamic Construction, LLC	\$ 918,045.50
Flo-Line Contracting	\$ 966,610.00
Norris Bros Excavating	\$ 975,408.72
Garney Construction	\$ 1,342,125.00

The basis of award established in the bidding documents defines the winning bid as the lowest, responsive, base bid from a qualified bidder.

We should point out that Salmon Construction had some missing forms in their bid package. The missing forms have no impact on the outcome of the ranking and they are not the apparent low bidder.

We have examined all of the bids, and have completed our review of the bid documents, qualifications, and references and find them in order. As mentioned earlier a tabulation of the bids is attached for your use.



As a result of this investigation, and provided that the balance of the project funds are available for the project, and your Board concurs with our recommendations, please request that your Board take the following action:

Approve awarding and entering into a contract with Cumberland Pipeline, LLC, from Russell Springs, KY, in the amount of \$ 644,999.30 for the construction of – Hwy 1882 & Hwy 144 Water Transmission Main Replacement including Alternate 1.

Subject to the following conditions prior to entering into the Agreement:

- Concurrence in Award from Rural Development (RD)
- Approval of Award from Public Service Commission (PSC)

Please advise us of the Board's action and we will notify each contractor of the tentative award and will transmit the contract documents to them for execution and attachment of bonds and insurance.

If you have any questions, please do not hesitate to contact me at 865-670-8555 or sfischer@cannon-cannon.com.

Sincerely,

CANNON & CANNON, INC.



Seth Fischer, P.E.  
Project Manager

cc: Jim Bruce, HCWD1  
CCI File 00904-0004



# BID TABULATIONS

Project Name: Hwy 1882 and Hwy 144 Water Transmission Main Replacement

Bid Opening Date: February 10, 2017

Average Bid \$ 842,448.61  
Range \$ 697,125.70  
%Low/High 48.1%  
%Low/2nd 98.3%

Client: Harlan County Water District No. 1  
1400 Rogersville Road  
Radcliff, KY 40160

Bids Tabulated: February 13, 2017

Item No. and Description	Unit	Quantity	Cumberland Pipeline, LLC		Twin States Utilities		United Pipeline Inc		Salmon Construction		Rame Contracting		Cleary Construction	
			Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total
1 Mobilization, General Requirements, Bonds and Insurance	LS	1	\$64,500.00	\$64,500.00	\$15,000.00	\$15,000.00	\$13,000.00	\$13,000.00	\$45,000.00	\$45,000.00	\$33,100.00	\$33,100.00	\$17,500.00	\$17,500.00
2 Connect to 16" WM Sta 0+00 Line A	EA	1	\$1,215.00	\$1,215.00	\$1,400.00	\$1,400.00	\$2,000.00	\$2,000.00	\$1,500.00	\$1,500.00	\$770.00	\$770.00	\$1,500.00	\$1,500.00
3 Connect to 16" WM Sta 80+19 Line A	EA	1	\$1,215.00	\$1,215.00	\$1,400.00	\$1,400.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$1,300.00	\$1,300.00	\$1,500.00	\$1,500.00
4 6" x 6" Tapping Sleeve and MJ Gate Valve	EA	1	\$1,796.00	\$1,796.00	\$3,000.00	\$3,000.00	\$2,200.00	\$2,200.00	\$2,500.00	\$2,500.00	\$3,170.00	\$3,170.00	\$2,400.00	\$2,400.00
5 16" DI Pipe Class 350	LF	5900	\$47.13	\$278,067.00	\$52.00	\$306,800.00	\$60.00	\$354,000.00	\$56.54	\$333,586.00	\$57.75	\$340,725.00	\$61.00	\$359,900.00
6 16" DI Pipe Class 350 Restrained	LF	2100	\$65.83	\$138,243.00	\$66.00	\$138,600.00	\$90.00	\$189,000.00	\$70.00	\$147,000.00	\$71.75	\$150,675.00	\$89.00	\$186,900.00
7 16" DI Pipe CI 350 Direct Bore	LF	40	\$85.55	\$3,422.00	\$156.00	\$6,240.00	\$120.00	\$4,800.00	\$150.00	\$6,000.00	\$350.00	\$14,000.00	\$78.00	\$3,120.00
8 6" DI Pipe CI 350 Restrained	LF	30	\$32.70	\$981.00	\$35.00	\$1,050.00	\$30.00	\$900.00	\$30.00	\$900.00	\$49.50	\$1,485.00	\$35.00	\$1,050.00
9 24" Steel Casing by bore with 16" DI Carrier	LF	100	\$565.14	\$56,514.00	\$490.00	\$49,000.00	\$475.00	\$47,500.00	\$420.00	\$42,000.00	\$553.50	\$55,350.00	\$712.00	\$71,200.00
10 24" Steel Casing Open Cut	LF	90	\$162.35	\$14,611.50	\$150.00	\$13,500.00	\$110.00	\$9,900.00	\$200.00	\$18,000.00	\$155.25	\$13,972.50	\$80.00	\$8,100.00
11 24" PVC Casing	LF	45	\$78.50	\$3,532.50	\$130.00	\$5,850.00	\$145.00	\$6,525.00	\$190.00	\$8,550.00	\$83.75	\$3,768.75	\$94.00	\$4,230.00
12 16" Butterfly Valve	EA	5	\$2,180.00	\$10,900.00	\$3,000.00	\$15,000.00	\$3,000.00	\$15,000.00	\$2,875.00	\$14,375.00	\$18,375.00	\$91,875.00	\$2,900.00	\$14,500.00
13 6" Gate Valve	EA	1	\$740.00	\$740.00	\$900.00	\$900.00	\$1,000.00	\$1,000.00	\$1,635.00	\$1,635.00	\$2,000.00	\$2,000.00	\$875.00	\$875.00
14 Air/Vacuum Release Valve	EA	7	\$1,972.00	\$13,804.00	\$3,200.00	\$22,400.00	\$2,500.00	\$17,500.00	\$3,500.00	\$24,500.00	\$3,300.00	\$23,100.00	\$2,380.00	\$16,660.00
15 Leak Detection Station	EA	1	\$3,195.00	\$3,195.00	\$2,000.00	\$2,000.00	\$3,000.00	\$3,000.00	\$6,000.00	\$6,000.00	\$5,700.00	\$5,700.00	\$4,200.00	\$4,200.00
16 2" PVC Service Casing	LF	180	\$15.85	\$2,853.00	\$20.00	\$3,600.00	\$50.00	\$9,000.00	\$20.00	\$3,600.00	\$117.00	\$21,060.00	\$54.00	\$9,720.00
17 3/4" CL 200 HDPE Service Line	LF	350	\$5.31	\$1,858.50	\$12.00	\$4,200.00	\$10.00	\$3,500.00	\$10.00	\$3,500.00	\$7.50	\$2,625.00	\$13.00	\$4,550.00
18 Reconnect Existing Service	EA	5	\$905.00	\$4,525.00	\$350.00	\$1,750.00	\$400.00	\$2,000.00	\$1,100.00	\$5,500.00	\$1,150.00	\$5,750.00	\$720.00	\$3,600.00
19 Meter Setting (relocate meter)	EA	1	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$500.00	\$500.00	\$2,000.00	\$2,000.00	\$1,400.00	\$1,400.00	\$710.00	\$710.00
20 Bituminous Pavement Replacement	LF	50	\$95.00	\$4,750.00	\$80.00	\$3,000.00	\$85.00	\$4,250.00	\$100.00	\$5,000.00	\$80.00	\$4,000.00	\$58.00	\$2,900.00
21 Traffic Control	LS	1	\$2,800.00	\$2,800.00	\$5,000.00	\$5,000.00	\$1,025.00	\$1,025.00	\$5,000.00	\$5,000.00	\$1,500.00	\$1,500.00	\$5,800.00	\$5,800.00
22 Erosion Prevention and Sediment Control	LS	1	\$1,150.00	\$1,150.00	\$10,000.00	\$10,000.00	\$1,200.00	\$1,200.00	\$15,000.00	\$15,000.00	\$2,500.00	\$2,500.00	\$7,000.00	\$7,000.00
Subtotal				\$611,672.50		\$610,690.00		\$689,800.00		\$691,346.00		\$706,266.25		\$727,915.00
Alternate 1 - Sheet W1.08														
Item No. and Description	Unit	Quantity	Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total
23 Connect to 6" WM Sta 0+00 Line B	EA	1	\$858.00	\$858.00	\$1,300.00	\$1,300.00	\$1,500.00	\$1,500.00	\$3,000.00	\$3,000.00	\$1,300.00	\$1,300.00	\$1,200.00	\$1,200.00
24 6" PVC Pipe PC 235 DR 18	LF	1275	\$16.39	\$20,997.25	\$18.00	\$22,725.00	\$13.00	\$16,575.00	\$18.00	\$22,400.00	\$18.00	\$22,950.00	\$26.00	\$33,150.00
25 6" Gate Valve	EA	1	\$746.00	\$746.00	\$900.00	\$900.00	\$1,000.00	\$1,000.00	\$1,143.00	\$1,143.00	\$2,000.00	\$2,000.00	\$1,200.00	\$1,200.00
26 Air/Vacuum Release Valve	EA	1	\$1,972.00	\$1,972.00	\$2,900.00	\$2,900.00	\$2,500.00	\$2,500.00	\$1,600.00	\$1,600.00	\$3,300.00	\$3,300.00	\$3,000.00	\$3,000.00
27 2" PVC Service Casing	LF	105	\$15.95	\$1,674.75	\$20.00	\$2,100.00	\$50.00	\$5,250.00	\$20.00	\$2,100.00	\$122.00	\$12,810.00	\$60.00	\$6,300.00
28 3/4" CL 200 HDPE Service Line	LF	180	\$5.31	\$955.80	\$12.00	\$2,160.00	\$10.00	\$1,800.00	\$10.00	\$1,800.00	\$7.50	\$1,350.00	\$17.00	\$3,060.00
29 Reconnect Existing Service	EA	3	\$900.00	\$2,700.00	\$350.00	\$1,050.00	\$400.00	\$1,200.00	\$1,000.00	\$3,000.00	\$1,150.00	\$3,450.00	\$920.00	\$2,760.00
30 Fire Hydrant Assembly	EA	1	\$3,523.00	\$3,523.00	\$4,000.00	\$4,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,050.00	\$5,050.00	\$5,300.00	\$5,300.00
Alternate Total				\$33,326.80		\$38,635.00		\$34,825.00		\$38,043.00		\$52,210.00		\$55,970.00
TOTAL BID PRICE - Total Unit Price for Item Nos. 1 through 30 including Alternate 1				\$644,999.30		\$649,325.00		\$724,625.00		\$729,389.00		\$758,476.25		\$783,885.00
			LOW BID		2nd		3rd		4th		5th		6th	

To the best of my knowledge, I certify this Bid Tabulation correctly reflects the Bids opened on February 10, 2017, which includes corrections for mathematical errors.

*Seth A. Fischer*  
Seth A. Fischer, P.E. KY P.E. License # - 32187

**BID TABULATIONS**

Project Name: Hwy 1882 and Hwy 144 Water Transmission Main Replacement

Bid Opening Date: February 10, 2017

Average Bid \$ 842,448.61  
Range \$ 697,125.70  
%Low/High 48.1%  
%Low/2nd 99.3%

Client: Harlan County Water District No. 1  
1400 Rogersville Road  
Radcliff, KY 40160

Bids Tabulated: February 13, 2017

Item No. and Description...	Unit	Quantity	Frederick and May Construction		Phillips Brothers Construction, LLC		Dynamic Construction, LLC		Flo-Line Contracting		Norris Bros Excavating		Garney Construction	
			Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total
1 Mobilization, General Requirements, Bonds and Insurance	LS	1	\$30,000.00	\$30,000.00	\$140,200.00	\$140,200.00	\$42,900.00	\$42,900.00	\$90,000.00	\$90,000.00	\$34,920.00	\$34,920.00	\$45,000.00	\$45,000.00
2 Connect to 16" WM Sta 0+00 Line A	EA	1	\$6,500.00	\$6,500.00	\$540.00	\$540.00	\$1,300.00	\$1,300.00	\$1,100.00	\$1,100.00	\$3,395.00	\$3,395.00	\$1,900.00	\$1,900.00
3 Connect to 16" WM Sta 80+19 Line A	EA	1	\$6,500.00	\$6,500.00	\$1,110.00	\$1,110.00	\$1,700.00	\$1,700.00	\$1,000.00	\$1,000.00	\$3,395.00	\$3,395.00	\$2,800.00	\$2,800.00
4 6" x 6" Tapping Sleeve and MJ Gate Valve	EA	1	\$3,500.00	\$3,500.00	\$2,220.00	\$2,220.00	\$3,570.00	\$3,570.00	\$2,300.00	\$2,300.00	\$3,395.00	\$3,395.00	\$5,000.00	\$5,000.00
5 16" DI Pipe Class 350	LF	5900	\$65.00	\$383,500.00	\$54.60	\$322,140.00	\$69.00	\$407,100.00	\$81.50	\$480,850.00	\$76.63	\$452,117.00	\$100.00	\$590,000.00
6 16" DI Pipe Class 350 Restrained	LF	2100	\$82.00	\$172,200.00	\$83.00	\$174,300.00	\$86.60	\$181,860.00	\$99.00	\$207,900.00	\$97.00	\$203,700.00	\$128.00	\$268,800.00
7 16" DI Pipe CI 350 Direct Bore	LF	40	\$200.00	\$8,000.00	\$206.00	\$8,240.00	\$270.00	\$10,800.00	\$160.00	\$6,400.00	\$475.30	\$19,012.00	\$820.00	\$32,800.00
8 6" DI Pipe CI 350 Restrained	LF	30	\$30.00	\$900.00	\$41.00	\$1,230.00	\$53.80	\$1,614.00	\$60.00	\$1,800.00	\$57.23	\$1,716.90	\$120.00	\$3,600.00
9 24" Steel Casing by bore with 16" DI Carrier	LF	100	\$445.00	\$44,500.00	\$543.00	\$54,300.00	\$920.00	\$92,000.00	\$350.00	\$35,000.00	\$533.50	\$53,350.00	\$1,100.00	\$110,000.00
10 24" Steel Casing Open Cut	LF	90	\$190.00	\$17,100.00	\$352.00	\$31,680.00	\$147.60	\$13,284.00	\$185.00	\$16,650.00	\$407.40	\$36,666.00	\$530.00	\$47,700.00
11 24" PVC Casing	LF	45	\$145.00	\$6,525.00	\$89.00	\$3,905.00	\$133.40	\$6,003.00	\$80.00	\$3,600.00	\$32.98	\$1,484.10	\$310.00	\$13,950.00
12 16" Butterfly Valve	EA	5	\$4,200.00	\$21,000.00	\$2,300.00	\$11,500.00	\$4,100.00	\$20,500.00	\$3,800.00	\$19,000.00	\$6,305.00	\$31,525.00	\$4,000.00	\$20,000.00
13 6" Gate Valve	EA	1	\$1,200.00	\$1,200.00	\$1,100.00	\$1,100.00	\$1,550.00	\$1,550.00	\$900.00	\$900.00	\$776.00	\$776.00	\$3,200.00	\$3,200.00
14 Air/Vacuum Release Valve	EA	7	\$2,100.00	\$14,700.00	\$2,174.00	\$15,218.00	\$3,430.00	\$24,010.00	\$3,200.00	\$22,400.00	\$3,325.16	\$23,276.12	\$5,000.00	\$35,000.00
15 Leak Detection Station	EA	1	\$2,700.00	\$2,700.00	\$3,230.00	\$3,230.00	\$3,450.00	\$3,450.00	\$2,800.00	\$2,800.00	\$3,395.00	\$3,395.00	\$7,500.00	\$7,500.00
16 2" PVC Service Casing	LF	180	\$31.00	\$5,580.00	\$35.00	\$6,300.00	\$23.10	\$4,158.00	\$50.00	\$9,000.00	\$19.40	\$3,492.00	\$40.00	\$7,200.00
17 3/4" CL 200 HDPE Service Line	LF	350	\$7.00	\$2,450.00	\$5.00	\$1,750.00	\$15.70	\$5,495.00	\$12.00	\$4,200.00	\$15.52	\$5,432.00	\$50.00	\$17,500.00
18 Reconnect Existing Service	EA	5	\$750.00	\$3,750.00	\$1,145.00	\$5,725.00	\$980.00	\$4,900.00	\$400.00	\$2,000.00	\$824.50	\$4,122.50	\$2,500.00	\$12,500.00
19 Meter Setting (relocate meter)	EA	1	\$1,000.00	\$1,000.00	\$1,145.00	\$1,145.00	\$1,300.00	\$1,300.00	\$800.00	\$800.00	\$824.50	\$824.50	\$2,500.00	\$2,500.00
20 Bituminous Pavement Replacement	LF	50	\$40.00	\$2,000.00	\$60.00	\$3,000.00	\$50.00	\$2,500.00	\$200.00	\$10,000.00	\$43.65	\$2,182.50	\$340.00	\$17,000.00
21 Traffic Control	LS	1	\$10,000.00	\$10,000.00	\$1,000.00	\$1,000.00	\$5,000.00	\$5,000.00	\$2,000.00	\$2,000.00	\$4,365.00	\$4,365.00	\$4,000.00	\$4,000.00
22 Erosion Prevention and Sediment Control	LS	1	\$8,000.00	\$8,000.00	\$27,119.00	\$27,119.00	\$20,000.00	\$20,000.00	\$5,000.00	\$5,000.00	\$14,065.00	\$14,065.00	\$26,100.00	\$26,100.00
Subtotal				\$748,005.00		\$792,752.00		\$854,994.00		\$924,000.00		\$906,606.62		\$1,274,050.00
Alternate 1 - Sheet W1.08														
Item No. and Description...	Unit	Quantity	Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total
23 Connect to 6" WM Sta 0+00 Line B	EA	1	\$1,800.00	\$1,800.00	\$740.00	\$740.00	\$830.00	\$830.00	\$800.00	\$800.00	\$2,134.00	\$2,134.00	\$2,300.00	\$2,300.00
24 6" PVC Pipe PC 235 DR 18	LF	1275	\$19.50	\$24,862.50	\$15.40	\$19,635.00	\$35.20	\$44,880.00	\$20.00	\$25,500.00	\$40.74	\$51,943.50	\$25.00	\$31,875.00
25 6" Gate Valve	EA	1	\$1,250.00	\$1,250.00	\$1,080.00	\$1,080.00	\$1,550.00	\$1,550.00	\$900.00	\$900.00	\$776.00	\$776.00	\$3,200.00	\$3,200.00
26 Air/Vacuum Release Valve	EA	1	\$1,900.00	\$1,900.00	\$2,400.00	\$2,400.00	\$3,430.00	\$3,430.00	\$2,800.00	\$2,800.00	\$3,346.50	\$3,346.50	\$4,000.00	\$4,000.00
27 2" PVC Service Casing	LF	105	\$31.00	\$3,255.00	\$35.00	\$3,675.00	\$23.10	\$2,425.50	\$50.00	\$5,250.00	\$19.40	\$2,037.00	\$40.00	\$4,200.00
28 3/4" CL 200 HDPE Service Line	LF	180	\$8.00	\$1,440.00	\$5.00	\$900.00	\$15.70	\$2,826.00	\$12.00	\$2,160.00	\$15.52	\$2,793.60	\$50.00	\$9,000.00
29 Reconnect Existing Service	EA	3	\$600.00	\$1,800.00	\$1,240.00	\$3,720.00	\$780.00	\$2,340.00	\$400.00	\$1,200.00	\$824.50	\$2,473.50	\$2,500.00	\$7,500.00
30 Fire Hydrant Assembly	EA	1	\$4,100.00	\$4,100.00	\$3,180.00	\$3,180.00	\$4,770.00	\$4,770.00	\$4,000.00	\$4,000.00	\$3,298.00	\$3,298.00	\$6,000.00	\$6,000.00
Alternate Total				\$40,407.50		\$35,330.00		\$63,051.50		\$42,610.00		\$68,802.10		\$68,075.00
TOTAL BID PRICE - Total Unit Price for Item Nos. 1 through 30 including Alternate 1				\$788,412.50		\$828,082.00		\$918,045.50		\$966,610.00		\$975,408.72		\$1,342,125.00
				7th		8th		9th		10th		11th		12th





# BID TABULATIONS

Project Name: Hwy 1882 and Hwy 144 Water Transmission Main Replacement

Bid Opening Date: February 10, 2017

Average Bid \$ 842,448.61  
Range \$ 697,125.70  
%Low/High 48.1%  
%Low/2nd 99.3%

Client: Hardin County Water District No. 1  
1400 Rogersville Road  
Radcliff, KY 40160

Bids Tabulated: February 13, 2017

Item No. and Description	Unit	Quantity	Engineer's Estimate		Average Unit Prices		Median Bid	
			Unit Price	Total	Unit Price	Total	Unit Price	Total
1 Mobilization, General Requirements, Bonds and Insurance	LS	1	\$70,000.00	\$70,000.00	\$47,593.33	\$47,593.33	\$38,910.00	\$38,910.00
2 Connect to 16" WM Sta 0+00 Line A	EA	1	\$5,000.00	\$5,000.00	\$1,926.67	\$1,926.67	\$1,450.00	\$1,450.00
3 Connect to 16" WM Sta 80+19 Line A	EA	1	\$5,000.00	\$5,000.00	\$2,118.33	\$2,118.33	\$1,450.00	\$1,450.00
4 6" x 6" Tapping Sleeve and MJ Gate Valve	EA	1	\$5,000.00	\$5,000.00	\$2,920.92	\$2,920.92	\$2,750.00	\$2,750.00
5 16" DI Pipe Class 350	LF	5900	\$90.00	\$531,000.00	\$65.10	\$384,065.42	\$60.50	\$356,950.00
6 16" DI Pipe Class 350 Restrained	LF	2100	\$110.00	\$231,000.00	\$85.68	\$179,931.50	\$84.80	\$178,080.00
7 16" DI Pipe CI 350 Direct Bore	LF	40	\$300.00	\$12,000.00	\$255.07	\$10,202.83	\$178.00	\$7,120.00
8 6" DI Pipe CI 350 Restrained	LF	30	\$70.00	\$2,100.00	\$47.02	\$1,410.58	\$38.00	\$1,140.00
9 24" Steel Casing by bore with 16" DI Carrier	LF	100	\$350.00	\$35,000.00	\$592.26	\$59,226.17	\$538.25	\$53,825.00
10 24" Steel Casing Open Cut	LF	90	\$210.00	\$18,900.00	\$198.30	\$17,847.00	\$152.63	\$13,736.25
11 24" PVC Casing	LF	45	\$150.00	\$6,750.00	\$120.97	\$5,443.61	\$112.00	\$5,040.00
12 16" Butterfly Valve	EA	5	\$7,200.00	\$36,000.00	\$3,526.92	\$17,634.58	\$3,331.50	\$16,657.50
13 6" Gate Valve	EA	1	\$3,000.00	\$3,000.00	\$1,323.00	\$1,323.00	\$1,050.00	\$1,050.00
14 Air/Vacuum Release Valve	EA	7	\$2,000.00	\$14,000.00	\$3,006.76	\$21,047.34	\$3,200.00	\$22,400.00
15 Leak Detection Station	EA	1	\$2,500.00	\$2,500.00	\$3,930.83	\$3,930.83	\$3,312.50	\$3,312.50
16 2" PVC Service Casing	LF	180	\$25.00	\$4,500.00	\$39.61	\$7,130.25	\$33.00	\$5,940.00
17 3/4" CL 200 HDPE Service Line	LF	350	\$20.00	\$7,000.00	\$13.59	\$4,755.04	\$11.00	\$3,850.00
18 Reconnect Existing Service	EA	5	\$1,000.00	\$5,000.00	\$935.38	\$4,676.88	\$864.75	\$4,323.75
19 Meter Setting (relocate meter)	EA	1	\$1,500.00	\$1,500.00	\$1,181.63	\$1,181.63	\$1,000.00	\$1,000.00
20 Bituminous Pavement Replacement	LF	50	\$50.00	\$2,500.00	\$100.97	\$5,048.54	\$70.00	\$3,500.00
21 Traffic Control	LS	1	\$10,000.00	\$10,000.00	\$3,957.50	\$3,957.50	\$4,182.50	\$4,182.50
22 Erosion Prevention and Sediment Control	LS	1	\$15,000.00	\$15,000.00	\$11,427.83	\$11,427.83	\$9,000.00	\$9,000.00
Subtotal				\$1,022,750.00	Subtotal	\$794,799.78	Subtotal	\$735,667.50
Alternate 1 - Sheet W1.08								
Item No. and Description	Unit	Quantity	Unit Price	Total				
23 Connect to 6" WM Sta 0+00 Line B	EA	1	\$2,000.00	\$2,000.00	\$1,480.17	\$1,480.17	\$1,300.00	\$1,300.00
24 6" PVC Pipe PC 235 DR 18	LF	1275	\$40.00	\$51,000.00	\$22.02	\$28,074.44	\$19.25	\$24,543.75
25 6" Gate Valve	EA	1	\$2,000.00	\$2,000.00	\$1,312.08	\$1,312.08	\$1,111.50	\$1,111.50
26 Air/Vacuum Release Valve	EA	1	\$2,000.00	\$2,000.00	\$2,762.38	\$2,762.38	\$2,850.00	\$2,850.00
27 2" PVC Service Casing	LF	105	\$25.00	\$2,625.00	\$40.54	\$4,256.44	\$33.00	\$3,465.00
28 3/4" CL 200 HDPE Service Line	LF	180	\$20.00	\$3,600.00	\$14.00	\$2,520.45	\$11.00	\$1,980.00
29 Reconnect Existing Service	EA	3	\$1,000.00	\$3,000.00	\$922.04	\$2,766.13	\$862.25	\$2,586.75
30 Fire Hydrant Assembly	EA	1	\$4,000.00	\$4,000.00	\$4,435.08	\$4,435.08	\$4,435.00	\$4,435.00
Alternate Total				\$70,225.00	Alternate Total	\$47,607.16	Alternate Total	\$42,272.00
TOTAL BID PRICE - Total Unit Price for Item Nos. 1 thorough 30 including Alternate 1				\$1,092,975.00		\$842,406.94		\$777,939.50

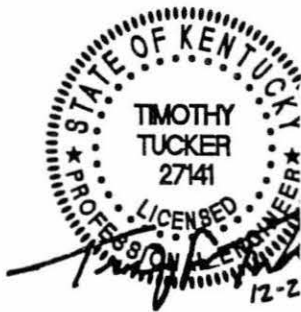
# UNDER SEPARATE COVER

Project Manual for

## Hwy 1882 & Hwy 144 Water Transmission Main Replacement Hardin County, Kentucky

Owner:

**Hardin County Water District No. 1**  
**1400 Rogersville Road**  
**Radcliff, Kentucky 40160**  
**[www.HCWD.com](http://www.HCWD.com)**



# Hardin County Water District No. 1

*Serving Radcliff and Hardin County for Over 60 Years*

1400 Rogersville Road  
Radcliff, KY. 40160

---

March 20, 2017

Hon. Talina Mathews  
Executive Director  
Kentucky Public Service Commission  
P.O. Box 615  
Frankfort, KY 40602

**SUBJECT:      Certified Statement from an Authorized Utility Official  
                 Hwy 1882 & Hwy 144 Water Transmission Main Replacement Project  
                 Hardin County Water District No. 1**

Dear Director Mathews;

As the General Manager of Hardin County Water District No. 1, I hereby certify and testify that I am the authorized utility official able to provide this certification statement testifying to the following;

1.      The proposed plans and specifications for the water transmission/distribution project have been designed to meet the applicable minimum construction and operating requirements set out in 807 KAR 5:066, Section 4(3) and (4), Section 5(1), Sections 6 and 7, Section 8(1) through (3), Section 9(1) and Section 10.
2.      All other state approvals and permits have been obtained. Permits and approvals obtained which include:
  - a.      Division of Water Construction
  - b.      Floodplain Construction
  - c.      401 Water Quality Certification (Approval - permit not needed)
  - d.      Section 404 USACE (Approval - permit not needed)
  - e.      KY Transportation Cabinet
3.      The proposed rates (18% increase) match the proposed rates in the PER and as required by Rural Development in the Letter of Conditions and will produce the total revenue requirements recommended in the engineering reports.
4.      The anticipated beginning of construction is April 24, 2017 and the anticipated end of construction is October 21, 2017.

Should you need more information, please do not hesitate to contact myself, or our attorney Mr. David Wilson II, at the contact information listed herein.

Sincerely,



Jim Bruce  
General Manager

Cf;      Mr. David Wilson II, Esq., Attorney for Hardin County Water District No. 1



**The News Enterprise**

408 W. Dixie Avenue

Elizabethtown, KY 42701

Phone: (270) 769-1200

Fax: (270) 765-0914

**AFFIDAVIT OF PUBLICATION**

I, Nancy Turner, do swear that the advertisement for Hardin County Water

District #1, RE: Public Notice – Proposed Increase in Water Rates did

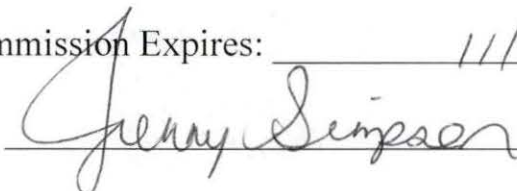
appear in the March 12<sup>th</sup> 2017 issue(s) of The News Enterprise.

Dated this 13<sup>th</sup> day of March 2017

  
\_\_\_\_\_  
Signature

Subscribed and sworn to before me this 13<sup>th</sup> day of March 2017

My Commission Expires: 11/10/17

Notary:   
\_\_\_\_\_



**PUBLIC NOTICE  
PROPOSED INCREASE IN WATER RATES  
HARDIN COUNTY WATER DISTRICT No. 1  
1400 Rogersville Rd  
Radcliff, KY 40160**

**Phone: 270-351-3222 – [www.HCWD.com](http://www.HCWD.com)**

Notice is hereby given pursuant to KRS 278.023 and 807 KAR 5:069, Section 3, that the Hardin County Water District No. 1 (District) plans to file an Application with the Kentucky Public Service Commission (PSC) seeking a Certificate of Public Convenience And Necessity authorizing construction of additions and improvements to its water system and authorizing the issuance of certain securities pursuant to the provisions of KRS 278.023 and 807 KAR 5:069; and approval of revised water service rates as follows:

CHARGE/RATE TYPE	CURRENT RATE	PROPOSED RATE	DOLLAR CHANGE IMPACT	PERCENT CHANGE IMPACT
<b><u>Customer Meter Charges:</u></b>				+ 18%
5/8 Inch >	\$5.02	\$5.92	\$0.90	
3/4 inch >	\$7.53	\$8.89	\$1.36	
1 inch >	\$12.55	\$14.81	\$2.26	
1.5 Inch >	\$25.10	\$29.62	\$4.52	
2 Inch >	\$40.16	\$47.39	\$7.23	
3 inch >	\$75.30	\$88.85	\$13.55	
4 inch >	\$125.50	\$148.09	\$22.59	
6 inch >	\$251.00	\$296.18	\$45.18	
(Any active account is charged a monthly Customer Meter Charge in addition to a volume charge. If there was zero usage for the month, the Customer Meter Charge is still charged)				
<b><u>Residential / Commercial Volume Charge:</u></b>				
Zero to 15,000 Gallons >	\$4.50 / thousand	\$5.31 / thousand	\$0.81	
Above 15,000 Gallons >	\$3.24 / thousand	\$3.82 / thousand	\$0.58	
<b><u>Wholesale Rate Volume Charge:</u></b>				
All volume billed for period > (A Wholesale customer also pays the Customer Meter Charge for each of the meters installed to provide service. The District has two active Wholesale Customers)	\$2.00 / thousand	\$2.36 / thousand	\$0.36	
<b><u>Private Fire Line or Hydrant Charges:</u></b>				
1.5 Inch >	\$0.84	\$0.76	\$0.12	
2 Inch >	\$1.37	\$1.62	\$0.25	
3 Inch >	\$4.00	\$4.72	\$0.72	
4 Inch >	\$8.51	\$10.04	\$1.53	
6 Inch >	\$24.70	\$29.15	\$4.45	
8 Inch >	\$52.67	\$62.15	\$9.48	
(These fees are charged monthly to any customer who has a dedicated fire sprinkler line or fire hydrant located on their private property or building which is not metered. It is charged based on diameter of line or hydrant. There are currently 60 customers that pay this charge monthly)				
<b><u>Typical Monthly Residential Water Bill:</u></b>				
Average Monthly Bill, 5/8 inch meter > (Includes Customer Meter Charge. Average customer using 4,400 gallons. Approximately 78% of District customers use this amount or less monthly)	\$24.82	\$29.28	\$4.46	
<b><u>Typical Monthly Commercial Water Bill:</u></b>				
Average Monthly Bill, 1 inch meter > (Includes Customer Meter Charge. Average customer using 6,900 gallons. Approximately 8% of District customers are a commercial customer and use this amount or less monthly)	\$43.60	\$51.45	\$7.85	

The District proposes to place the rates into effect for all water used after May 1, 2017. The District's last general water rate increase was in September, 2007. The proposed rates are required under terms of an agreement (Letter of Conditions dated August 12, 2016) between the District and the U.S. Department of Agriculture, Rural Development ("RD") under which RD will lend the District up to \$1,318,000. This RD loan will be used to construct an 8,400 linear foot 16 inch ductile iron transmission main and approximately 6,000 lineal feet of 6 inch water lines along KY 1500, KY 144 and Drake road to allow for the existing 12 inch PVC main to be retired and maintain service to existing customers. This will be the fourth and last in a series of projects since 1992 to provide a continuous 16 inch diameter transmission main from the Pirtle Spring Water Treatment Plant to the District's main Lincoln Trail elevated water storage tank in Radcliff. KRS 278.023 does not grant the PSC any discretionary authority to modify or reject any portion of the agreement between RD and the District or to defer the issuance of all necessary orders to implement the terms of the agreement. Interested persons may examine the application and other related documents at: 1) the District office at 1400 Rogersville Road, Radcliff, Kentucky 40160 (Monday through Friday, 8 AM to 4:30 PM); 2) on the District website at: [www.HCWD.com](http://www.HCWD.com); 3) the Public Service Commission at 211 Sower Boulevard (Monday through Friday, 8AM to 4:30PM), Frankfort, Kentucky 40601, or 4) the PSC website at: [psc.ky.gov](http://psc.ky.gov). Comments regarding the application may be submitted to the Public Service Commission through its website at: [psc.ky.gov/Home/Contact](http://psc.ky.gov/Home/Contact) or by mail to Public Service Commissioner, PO Box 615, Frankfort, Kentucky 40602. You may contact the Public Service Commission at 502-564- 3940. For any questions or additional information contact Mr. Jim Bruce, General Manager. By order of the Board of Commissioners, William Gossett, Chairman.

Project Manual for

**Hwy 1882 & Hwy 144 Water Transmission Main Replacement  
Hardin County, Kentucky**

Owner:

**Hardin County Water District No. 1  
1400 Rogersville Road  
Radcliff, Kentucky 40160  
[www.HCWD.com](http://www.HCWD.com)**



**CCI Project No. 00904-0004**

**December 2016**

**Set No. \_\_\_\_\_**





Project Manual for  
**Hwy 1882 & Hwy 144 Water Transmission Main Replacement  
Hardin County, Kentucky**

Owner:  
**Hardin County Water District No. 1  
1400 Rogersville Road  
Radcliff, Kentucky 40160  
[www.HCWD.com](http://www.HCWD.com)**

**CCI Project No. 00904-0004**

**December 2016**

**Set No. \_\_\_\_\_**

## SECTION 00 01 10 TABLE OF CONTENTS

The following Table of Contents outlines the list of the **Hwy 1882 & Hwy 144 Water Transmission Main Replacement, Hardin County, Kentucky**, Contract Documents. The CONTRACTOR is advised that this Project Manual, the Contract Drawings, and any and all addenda and/or change orders related thereto are hereby defined in whole as the “Contract Documents” and no separation of same will be considered.

This Project Manual follows the 2004 MASTERFORMAT Document Identifying System. Nonapplicable division and section references have been omitted.

Conflicts between any parts of the Contract Documents shall be brought to the OWNER’s attention prior to the receiving of bids.

The CONTRACTOR is responsible for verifying that all documents have been received.

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**SECTION 00 01 15**  
**LIST OF DRAWINGS**

The following List of Drawings outlines the construction drawings included in the **Hwy 1882 & Hwy 144 Water Transmission Main Replacement, Hardin County, Kentucky**, Contract Documents. The CONTRACTOR is advised that this Project Manual, the drawings, and any and all or change orders related thereto, are hereby defined in whole as the “Contract Documents” and no separation of same will be considered.

Conflicts between any parts of the Contract Documents shall be brought to the OWNER’s attention prior to commencing construction.

The CONTRACTOR is responsible for verifying that all documents have been received.

<u>Sheet No.</u>	<u>Description</u>	<u>Revision Date</u>
C0.01	Cover Sheet	12-21-2016
W1.01	Line A Sta. 0+00 to Sta. 7+00	12-21-2016
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W2.01	Water Details	12-21-2016
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W2.03	Slope Installation Earth Anchor Detail	12-21-2016

END OF SECTION 00 01 15

## DIVISION 0: BIDDING AND CONTRACT REQUIREMENTS

**SECTION 00 11 13**  
**Hardin County Water District No. 1**  
**Radcliff, Kentucky**  
**HWY 1882 & Hwy 144 Water Transmission Main Replacement**

**ADVERTISEMENT FOR BIDS**  
**EJCDC C-111 (2013)**

Sealed Bids for the construction of the **Hwy 1882 & Hwy 144 Water Transmission Main Replacement** will be received by **Hardin County Water District No. 1**, at 1400 Rogersville Road, Radcliff, Kentucky 40160, until **10:00 AM (local time) on February 10, 2017**, at which time the Bids received will be **publicly** opened and read. The Project consists of constructing **8,050 linear feet (LF) of 16-inch ductile iron water line, 1,280 LF of 6-inch PVC water line, and all associated valves, services, and appurtenances.**

Bids will be received for a single prime Contract. Bids shall be on a **unit price basis**, with **deductive** alternate bid items as indicated in the bid form.

The Issuing Office for the Bidding Documents is: **Lynn Imaging, 11460 Bluegrass Pkwy, Louisville, KY 40299, 502-499-8400. Bidding Documents will be available for order online at <https://www.lynnimaging.com/distribution>.** For ordering assistance please call 800-888-0693. Prospective Bidders may examine the Bidding Documents at the Issuing Office on Mondays through Fridays between the hours of **8:00 AM and 5:00 PM**, and may obtain copies of the Bidding Documents from the Issuing Office as described below.

Bidding Documents also may be examined at the following locations:

Cannon & Cannon, Inc. (Engineer)  
8550 Kingston Pike  
Knoxville, Tennessee 37919  
865-670-8555

Hardin County Water District No. 1 (Owner)  
1400 Rogersville Road  
Radcliff, Kentucky 40160  
270-351-3222

Lynn Imaging (Plan Room/Issuing Office)  
11460 Bluegrass Pkwy  
Louisville, KY 40299  
502-499-8400  
<http://www.lynnimaging.com>

Bidding Documents may be obtained from the Issuing Office during the hours indicated above. Bidding Documents are available for download (as portable document format (PDF) files) for a non-refundable charge of **\$50.00**. Alternatively, printed Bidding Documents may be obtained from the Issuing Office either via in-person pick-up or via mail, upon Issuing Office's receipt of payment for the Bidding Documents. The non-refundable cost of printed Bidding Documents is **\$75.00** per set, payable to Lynn Imaging, plus a non-refundable shipping charge. Upon Issuing Office's receipt of payment, printed



Bidding Documents will be sent via the prospective Bidder's delivery method of choice; the shipping charge will depend on the shipping method chosen. The date that the Bidding Documents are transmitted by the Issuing Office will be considered the prospective Bidder's date of receipt of the Bidding Documents. Partial sets of Bidding Documents will not be available from the Issuing Office. Neither Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including Addenda if any, obtained from sources other than the Issuing Office.

A pre-bid conference will be held at **2:00 PM** local time on **Thursday January 26, 2016** at the **Hardin County Water District No. 1 Service Center 1400 Rogersville Rd, Radcliff, KY 40160**. Attendance at the pre-bid conference is **mandatory**.

Bid security shall be furnished in the amount of five percent of the total bid amount in accordance with the Instructions to Bidders.

The successful Bidder will be required to furnish a satisfactory Performance Bond and Payment Bond each in the amount of 100 percent of the Bid.

The bidder awarded the contract shall complete this project to Substantial Completion within 150 calendar days. Final Completion shall be within 180 calendar days. Liquidated damages will be assessed at \$500.00 per calendar day.

The Award will be made to the lowest, responsive, responsible bidder.

The OWNER reserves the right to reject any and all bids and to waive any informalities or technicalities therein.

Owner: HARDIN COUNTY WATER DISTRICT NO. 1

By: Mr. James S. Bruce

Title: General Manager

Date: January 15, 2017

END OF SECTION 00 11 13

## SECTION 00 21 13 - INSTRUCTIONS TO BIDDERS

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## **ARTICLE 1 – DEFINED TERMS**

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

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

## **ARTICLE 2 – COPIES OF BIDDING DOCUMENTS**

2.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office in the number and format stated in the advertisement or invitation to bid.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

## **ARTICLE 3 – QUALIFICATIONS OF BIDDERS**

3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within 5 days of Owner's request, Bidder shall submit (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:

A. Evidence of Bidder's authority to do business in the state where the Project is located.

B. Bidder's state or other contractor license number, if applicable.

C. Subcontractor and Supplier qualification information.

3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

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

4.01 *Site and Other Areas*

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

#### 4.02 Existing Site Conditions

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

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

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

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

- B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.
- C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or



unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

#### 4.03 *Site Visit and Testing by Bidders*

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

#### 4.04 ~~Owner's~~ *Safety Program*

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

#### 4.05 *Other Work at the Site*

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

### **ARTICLE 5 – BIDDER'S REPRESENTATIONS**

#### 5.01 It is the responsibility of each Bidder before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;

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

## ARTICLE 6 – PRE-BID CONFERENCE

- 6.01 A pre-Bid conference will be held at the time and location stated in the invitation or advertisement to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are ~~encouraged~~ **required** to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

## **ARTICLE 7 – INTERPRETATIONS AND ADDENDA**

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

## **ARTICLE 8 – BID SECURITY**

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of **Five (5)** percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Contract or ~~61~~ **91** days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within seven days after the Bid opening.

## **ARTICLE 9 – CONTRACT TIMES**

- 9.01 The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

## **ARTICLE 10 – LIQUIDATED DAMAGES**

- 10.01 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

## **ARTICLE 11 – SUBSTITUTE AND "OR-EQUAL" ITEMS**

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

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

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

## **ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS**

- 12.01 ~~A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.~~
- 12.02 ~~Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.~~
- 12.03 **If required by the bid documents,** The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work.
- If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of



the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

- 12.05 **Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.**
- 12.06 **The Contractor shall not award work to Subcontractor(s) in excess of the limits stated in SC 7.06.**

#### **ARTICLE 13 – PREPARATION OF BID**

- 13.01 The Bid Form is included with the Bidding Documents.
  - A. All blanks on the Bid Form shall be completed in ink **or typed** and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
  - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
- 13.02 A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation shall be shown.
- 13.03 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 13.04 A Bid by an individual shall show the Bidder’s name and official address.
- 13.05 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.06 All names shall be printed in ink below the signatures.
- 13.07 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.08 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.09 The Bid shall contain evidence of Bidder’s authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder’s state contractor license number, if any, shall also be shown on the Bid Form.

#### **ARTICLE 14 – BASIS OF BID**

- 14.01 ***Computed Total Base Bid***
  - A. **Bidders shall submit a unit price Bid on a computed total of the base bid including all alternates basis. The price for all base bid items and alternate items shall be included in the computed total bid. Bidder shall include a separate price for each alternative**

described in the Contract Documents and as provided for in the Bid. If the total bid (base bid including all alternates) is within project funds available, this will determine the low bidder. In the case of a cost overrun, the price for each alternate will be the amount deducted from the price of the each Bidders total bid. Deduction of alternates could change the low bidder. Consideration of deductive alternatives will be made prior to the Notice of Award.

- B. The “Bid Price” (sometimes referred to as the extended price) for each unit price Bid item will be the product of the “Estimated Quantity” (which Owner or its representative has set forth in the Bid Form) for the item and the corresponding “Bid Unit Price” offered by the Bidder. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions. The total of all unit price Bid items will be the sum of these “Bid Prices”; such total will be used by Owner for Bid comparison purposes. In comparison of the Bids, alternates will be deducted, as necessary, in the same order of priority as listed on the bid form. Deduction of alternates could change the low bidder. Alternates will be deducted in order they are listed in the bid form until the lowest total bid is within project funds.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

#### **ARTICLE 15 – SUBMITTAL OF BID**

- 15.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 7 of the Bid Form.
- 15.02 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation “BID ENCLOSED.” A mailed Bid shall be addressed to **Hardin County Water District No. 1, ATTN: Daniel Clifford, 1400 Rogersville Rd, Radcliff, Kentucky 40160.**
- 15.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

#### **ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID**

- 16.01 A Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

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

#### **ARTICLE 17 – OPENING OF BIDS**

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

#### **ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

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

#### **ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT**

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.
- 19.02 **If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest computed total bid or the computed total bid minus any alternates.**
- 19.03 Evaluation of Bids
- A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
  - B. **In comparison of the Bids, deductive alternates will be applied in the same order of priority as listed in the Bid Form. For comparison purposes, selected alternate prices will be deducted from all Bidders total bid and recalculated until such a time the apparent low bidder is within available funds. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these instructions, the award may be made to the said Successful Bidder on its computed total bid and any combination of its deductive alternate Bids which the Owner determines funds will be available for at the time of award.**
- 19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers

proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

- 19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

#### **ARTICLE 20 – BONDS AND INSURANCE**

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

#### **ARTICLE 21 – SIGNING OF AGREEMENT**

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

#### **ARTICLE 22 – NOT USED**

#### **ARTICLE 23 – NOT USED**

#### **ARTICLE 24 – WAGE RATE REQUIREMENTS**

- 24.01 If the contract price is in excess of \$100,000, provisions of the Contract Work Hours and Safety Standards Act at 29 CFR 5.5(b) apply.

**END SECTION 00 21 13**



## 00 31 13 - QUALIFICATIONS STATEMENT

THE INFORMATION SUPPLIED IN THIS DOCUMENT IS CONFIDENTIAL TO THE EXTENT  
PERMITTED BY LAWS AND REGULATIONS

**1. SUBMITTED BY:**

Official Name of Firm:

\_\_\_\_\_

Address:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**2. SUBMITTED TO:**

\_\_\_\_\_

**3. SUBMITTED FOR:**

\_\_\_\_\_

Owner:

\_\_\_\_\_

Project Name:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**TYPE OF WORK:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**4. CONTRACTOR'S CONTACT INFORMATION**

Contact Person:

\_\_\_\_\_

Title:

\_\_\_\_\_

Phone:

\_\_\_\_\_

Email:

\_\_\_\_\_

**5. AFFILIATED COMPANIES:**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**6. TYPE OF ORGANIZATION:**

☐ SOLE PROPRIETORSHIP

Name of Owner: \_\_\_\_\_

Doing Business As: \_\_\_\_\_

Date of Organization: \_\_\_\_\_

☐ PARTNERSHIP

Date of Organization: \_\_\_\_\_

Type of Partnership: \_\_\_\_\_

Name of General Partner(s): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

☐ CORPORATION

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

Date of Organization: \_\_\_\_\_

Executive Officers:

- President: \_\_\_\_\_

- Vice President(s): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- Treasurer: \_\_\_\_\_

- Secretary: \_\_\_\_\_

☐ LIMITED LIABILITY COMPANY

State of Organization:

\_\_\_\_\_

Date of Organization:

\_\_\_\_\_

Members:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

☐ JOINT VENTURE

Sate of Organization:

\_\_\_\_\_

Date of Organization:

\_\_\_\_\_

Form of Organization:

\_\_\_\_\_

Joint Venture Managing Partner

- Name:

\_\_\_\_\_

- Address:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Joint Venture Managing Partner

- Name:

\_\_\_\_\_

- Address:

\_\_\_\_\_

\_\_\_\_\_

Joint Venture Managing Partner

- Name:

\_\_\_\_\_

- Address:

\_\_\_\_\_

\_\_\_\_\_

**7. LICENSING**

Jurisdiction: \_\_\_\_\_

Type of License: \_\_\_\_\_

License Number: \_\_\_\_\_

Jurisdiction: \_\_\_\_\_

Type of License: \_\_\_\_\_

License Number: \_\_\_\_\_

**8. CERTIFICATIONS**

**CERTIFIED BY:**

Disadvantage Business Enterprise: \_\_\_\_\_

Minority Business Enterprise: \_\_\_\_\_

Woman Owned Enterprise: \_\_\_\_\_

Small Business Enterprise: \_\_\_\_\_

Other (\_\_\_\_\_): \_\_\_\_\_

**9. BONDING INFORMATION**

Bonding Company: \_\_\_\_\_

Address: \_\_\_\_\_

Bonding Agent: \_\_\_\_\_

Address: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Phone: \_\_\_\_\_

Aggregate Bonding Capacity: \_\_\_\_\_

Available Bonding Capacity as of date of this submittal: \_\_\_\_\_

EJCDC® C-451, Qualifications Statement.

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## 10. FINANCIAL INFORMATION

Financial Institution: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Account Manager: \_\_\_\_\_

Phone: \_\_\_\_\_

INCLUDE AS AN ATTACHMENT AN AUDITED BALANCE SHEET FOR EACH OF THE  
LAST 3 YEARS

## 11. CONSTRUCTION EXPERIENCE:

Current Experience:

List on **Schedule A** all uncompleted projects currently under contract (If Joint Venture list each participant's projects separately).

Previous Experience:

List on **Schedule B** all projects completed within the last 5 Years (If Joint Venture list each participant's projects separately).

Has firm listed in Section 1 ever failed to complete a construction contract awarded to it?

☐ YES ☐ NO

If YES, attach as an Attachment details including Project Owner's contact information.

Has any Corporate Officer, Partner, Joint Venture participant or Proprietor ever failed to complete a construction contract awarded to them in their name or when acting as a principal of another entity?

☐ YES ☐ NO

If YES, attach as an Attachment details including Project Owner's contact information.

Are there any judgments, claims, disputes or litigation pending or outstanding involving the firm listed in Section 1 or any of its officers (or any of its partners if a partnership or any of the individual entities if a joint venture)?

☐ YES ☐ NO

If YES, attach as an Attachment details including Project Owner's contact information.

**12. SAFETY PROGRAM:**

Name of Contractor's Safety Officer: \_\_\_\_\_

Include the following as attachments:

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) OSHA No. 500- Log & Summary of Occupational Injuries & Illnesses for the past 5 years.

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all OSHA Citations & Notifications of Penalty (monetary or other) received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE.

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all safety citations or violations under any state all received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE.

Provide the following for the firm listed in Section V (and for each proposed Subcontractor furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) the following (attach additional sheets as necessary):

Workers' compensation Experience Modification Rate (EMR) for the last 5 years:

YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____

Total Recordable Frequency Rate (TRFR) for the last 5 years:

YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____

Total number of man-hours worked for the last 5 Years:

YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____

Provide Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) Days Away From Work, Days of Restricted Work Activity or Job Transfer (DART) incidence rate for the particular industry or type of Work to be performed by Contractor and each of Contractor's proposed Subcontractors and Suppliers) for the last 5 years:

YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____

**13. EQUIPMENT:**

MAJOR EQUIPMENT:

List on **Schedule C** all pieces of major equipment available for use on Owner's Project.

I HEREBY CERTIFY THAT THE INFORMATION SUBMITTED HERewith, INCLUDING ANY ATTACHMENTS, IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NAME OF ORGANIZATION: \_\_\_\_\_

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

DATED: \_\_\_\_\_

NOTARY ATTEST:

SUBSCRIBED AND SWORN TO BEFORE ME

THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_

NOTARY PUBLIC - STATE OF \_\_\_\_\_

MY COMMISSION EXPIRES: \_\_\_\_\_

REQUIRED ATTACHMENTS

1. Schedule A (Current Experience).
2. Schedule B (Previous Experience).
3. Schedule C (Major Equipment).
4. Audited balance sheet for each of the last 3 years for firm named in Section 1.
5. Evidence of authority for individuals listed in Section 7 to bind organization to an agreement.
6. Resumes of officers and key individuals (including Safety Officer) of firm named in Section 1.
7. Required safety program submittals listed in Section 13.
8. Additional items as pertinent.

## SCHEDULE A

### CURRENT EXPERIENCE

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				



## SCHEDULE B

PREVIOUS EXPERIENCE (Include ALL Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

## SCHEDULE B

PREVIOUS EXPERIENCE (Include ALL Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

### SCHEDULE C - LIST OF MAJOR EQUIPMENT AVAILABLE

[illegible]

**SECTION 00 41 13 BID FORM**

**Hwy 1882 and Hwy 144 Water Transmission Main Replacement**

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## ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

**Hardin County Water District No. 1  
1400 Rogersville Rd  
Radcliff, KY 40160**

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

## ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for ~~60~~ **120** days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

## ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.

Addendum, Date

_____	_____
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

~~D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.~~

E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of

such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. 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.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

#### **ARTICLE 4 – BIDDER'S CERTIFICATION**

##### **4.01 Bidder certifies that:**

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
  - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
  - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

**ARTICLE 5 – BASIS OF BID**

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1	Mobilization, General Requirements, Bonds and Insurance	LS	1		
2	Connect to 16" WM Sta 0+00 Line A	EA	1		
3	Connect to 16" WM Sta 80+19 Line A	EA	1		
4	6"x6" Tapping Sleeve and MJ Gate Valve	EA	1		
5	16" DI Pipe Class 350	LF	6,800		
6	16" DI Pipe CI 350 Restrained	LF	1,200		
7	16" DI Pipe CI 350 Direct Bore	LF	40		
8	6" DI Pipe CI 350 Restrained	LF	30		
9	24" Steel Casing by bore with 16" Steel carrier (Stream Crossing)	LF	100		
10	24" Steel Casing Open Cut	LF	90		
11	24" PVC Casing	LF	45		
12	16" Butterfly Valve	EA	5		
13	6" Gate Valve	EA	1		
14	Air/Vacuum Release Valve	EA	7		
15	Leak Detection Station	EA	1		
16	2" PVC Service Casing	LF	180		
17	¾" CL 200 HDPE Service line	LF	350		
18	Reconnect Existing Service	EA	5		
19	Meter Setting (relocate meter)	EA	1		
20	Bituminous Pavement Replacement	LF	50		
21	Traffic Control	LS	1		
22	Erosion Prevention and Sediment Control	LS	1		
<b>Sub-total of All Unit Price Bid Items</b>					<b>\$</b>

Alternate 1 – SHEET W1.08					
Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
23	Connect to 6" WM Sta 0+00 Line B	EA	1		
24	6" PVC Pipe PC 235 DR 18	LF	1275		
25	6" Gate Valve	EA	1		
26	Air/ Vacuum Release Valve	EA	1		
27	2" PVC Service Casing	LF	105		
28	¾" CL 200 HDPE Service line	LF	180		
29	Reconnect Existing Service	EA	3		
30	Fire Hydrant Assembly	EA	1		
<b>Sub-total of All Alternate 1 Unit Price Bid Items</b>					\$

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

**TOTAL BID PRICE - Total Unit Price Bid for Item Nos. 1 through 30 including Alternate 1**

\_\_\_\_\_ Dollars \_\_\_\_\_ Cents

(\$ \_\_\_\_\_)

**Deductive Total of Alternate 1 – Sheet W1.08 Item Nos. 23-30. Subtract:**

\_\_\_\_\_ Dollars \_\_\_\_\_ Cents

(\$ \_\_\_\_\_)

Alternate 1 (Sheet W1.08) will be deducted if necessary for lowest total bid to be within project funds. Deduction of alternate could change the low bidder.

## **ARTICLE 6 – TIME OF COMPLETION**

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

## **ARTICLE 7 – ATTACHMENTS TO THIS BID**

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security;
  - B. List of Proposed Subcontractors;
  - C. List of Proposed Suppliers;
  - D. List of Project References;
  - E. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
  - F. Contractor's License No.: \_\_\_\_\_
  - G. Required Bidder Qualification Statement (Section 00 31 13) with supporting data; and
  - H. **If Bid amount exceeds \$10,000, signed Compliance Statement (RD 400-6). Refer to specific equal opportunity requirements set forth in the Supplemental General Conditions. Section 00 45 11.**
  - I. **If Bid amount exceeds \$25,000, signed Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transactions (AD-1048) Section 00 45 13.**
  - J. **If Bid amount exceeds \$100,000, signed RD Instruction 1940-Q, Exhibit A-1, Certification for Contracts, Grants, and Loans. Section 00 45 15.**

## **ARTICLE 8 – DEFINED TERMS**

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



## ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By:

*[Signature]*

*[Printed name]*

*(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)*

Attest:

*[Signature]*

*[Printed name]*

Title:

Submittal Date:

Address for giving notices:

Telephone Number:

Fax Number:

Contact Name and e-mail address:

Bidder's License No.:

*(where applicable)*

**NOTE TO USER:** *Use in those states or other jurisdictions where applicable or required.*

# Bid Bond

00 43 13

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER (*Name and Address*):

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

OWNER (*Name and Address*): Hardin County Water District No. 1  
1400 Rogersville Rd  
Radcliff, KY 40160

## BID

Bid Due Date: February 10, 2017

Description (*Project Name— Include Location*): Hwy 1882 and Hwy 144 Water Transmission Main Replacement  
Hardin County, KY

## BOND

Bond Number:

Date:

Penal sum \_\_\_\_\_ \$ \_\_\_\_\_  
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

### BIDDER

### SURETY

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

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

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

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Addresses are to be used for giving any required notice.*

*Provide execution by any additional parties, such as joint venturers, if necessary.*

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
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 of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from the 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 the 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.

**COMPLIANCE STATEMENT**

This statement relates to a proposed contract with Hardin County Water District No. 1

*(Name of borrower or grantee)*

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

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

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

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

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

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

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

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

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

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

Date \_\_\_\_\_

\_\_\_\_\_  
*(Signature of Bidder or Prospective Contractor)*

\_\_\_\_\_  
*Address (including Zip Code)*





## United States Department of Agriculture

AD 1048

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

The following statement is made in accordance with the Privacy Act of 1974 (5 U.S.C. § 552(a), as amended). This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, and 2 C.F.R. §§ 180.300, 180.355, Participants' responsibilities. The regulations were amended and published on August 31, 2005, in 70 Fed. Reg. 51865-51880. Copies of the regulations may be obtained by contacting the Department of Agriculture agency offering the proposed covered transaction.

According to the Paperwork Reduction Act of 1995 an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0505-0027. The time required to complete this information collection is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The provisions of appropriate criminal and civil fraud privacy, and other statutes may be applicable to the information provided.

***(Read Instructions On Page Two Before Completing Certification)***

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

ORGANIZATION NAME

PR/AWARD NUMBER OR PROJECT NAME

NAME(S) AND TITLE(S) OF AUTHORIZED REPRESENTATIVE(S)

SIGNATURE(S)

DATE

The U.S. Department of Agriculture (USDA) prohibits discrimination in all of its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Assistant Secretary for Civil Rights, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, S.W., Stop 9410, Washington, DC 20250-9410, or call toll-free at (866) 632-9992 (English) or (800) 877-8339 (TDD) or (866) 377-8642 (English Federal-relay) or (800) 845-6136 (Spanish Federal-relay). USDA is an equal opportunity provider and employer.

**Instructions for Certification**

- (1) By signing and submitting this form, the prospective lower tier participant is providing the certification set out on page 1 in accordance with these instructions.
- (2) The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension or debarment.
- (3) The prospective lower tier participant shall provide immediate written notice to the person(s) to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- (4) The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549, at 2 C.F.R. Parts 180 and 417. You may contact the department or agency to which this proposal is being submitted for assistance in obtaining a copy of those regulations.
- (5) The prospective lower tier participant agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
- (6) The prospective lower tier participant further agrees by submitting this form that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- (7) A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the System for Award Management (SAM) database.
- (8) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- (9) Except for transactions authorized under paragraph (5) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

CERTIFICATION FOR CONTRACTS, GRANTS AND LOANS

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

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

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

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

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

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(name)

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(date)

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(title)

oOo

(08-21-91) PN 171

### **Instructions for Certification**

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

Form AD-1048 (1/92)

00 51 00 - NOTICE OF AWARD

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Date of Issuance:

Owner: Hardin County Water District No. 1

Owner's Contract No.: N/A

Engineer: Cannon & Cannon, Inc.

Engineer's Project No.:00904-0004

Project: Hwy 1882 & Hwy 144 Water  
Transmission Main Replacement

Contract Name: N/A

Bidder:

Bidder's Address:

**TO BIDDER:**

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

---

*[describe Work, alternates, or sections of Work awarded]*

The Contract Price of the awarded Contract is: \$ [ ] *[note if subject to unit prices, or cost-plus]*

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

☐ a set of the Drawings will be delivered separately from the other Contract Documents.

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

1. Deliver to Owner 5 counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security *[e.g., performance and payment bonds]* and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

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

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

---

Owner: Hardin County Water District No. 1

Authorized Signature

By:

Title:

Copy: Engineer



THIS AGREEMENT is by and between Hardin County Water District No. 1 (“Owner”) and  
 (“Contractor”).

1. Substantial Completion: Contractor shall pay Owner **\$500** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
  2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner **\$500** for each day that expires after such time until the Work is completed and ready for final payment.
  3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.
  4. ~~Milestones: Contractor shall pay Owner \$\_\_\_\_\_ for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for achievement of Milestone 1, until Milestone 1 is achieved.~~
- ~~B. Bonus: Contractor and Owner further recognize the Owner will realize financial and other benefits if the Work is completed prior to the time specified for Substantial Completion. Accordingly, Owner and Contractor agree that as a bonus for early completion, Owner shall pay Contractor \$\_\_\_\_\_ for each day prior to the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract) that the Work is substantially complete. The maximum value of the bonus shall be limited to \$\_\_\_\_\_.~~

4.04 [DELETED]

## ARTICLE 5 – CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:
- A. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item) **as indicated in paragraph 5.01.B**. The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.
  - B. ESTIMATED TOTAL OF ALL UNIT PRICE WORK:  
  
\_\_\_\_\_

## ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

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

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the **15th** day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the

requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract
  - a. 95 percent of Work completed (with the balance being retainage); ~~If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and~~
  - b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion **of the entire construction to be provided under the Contract Documents**, Owner shall pay an amount sufficient to increase total payments to Contractor to 95 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 95 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

#### **ARTICLE 7 – INTEREST –Not Applicable**

#### **ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS**

- 8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
  - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, 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 Laws and Regulations that may affect cost, progress, and performance of the Work.
  - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
  - E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and

observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

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

## ARTICLE 9 – CONTRACT DOCUMENTS

### 9.01 *Contents*

- A. The Contract Documents consist of the following:
  - 1. This Agreement (pages 1 to 7, inclusive).
  - 2. Performance bond (pages \_\_\_ to \_\_\_, inclusive).
  - 3. Payment bond (pages \_\_\_ to \_\_\_, inclusive).
  - 4. Other bonds.
    - a. \_\_\_ (pages \_\_\_ to \_\_\_, inclusive).
  - 5. General Conditions (pages \_\_\_ to \_\_\_, inclusive).
  - 6. Supplementary Conditions (pages \_\_\_ to 15, inclusive).
  - 7. Specifications as listed in the table of contents of the Project Manual.
  - 8. the Drawings listed in **Section 00 01 15. on the attached sheet index.**
  - 9. Addenda (numbers \_\_\_ to \_\_\_, inclusive).
  - 10. Exhibits to this Agreement (enumerated as follows):
    - a. Contractor's Bid (pages \_\_\_ to \_\_\_, inclusive).
  - 11. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
    - a. Notice to Proceed.
    - b. Work Change Directives.

- c. Change Orders.
  - d. Field Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

## **ARTICLE 10 – MISCELLANEOUS**

### **10.01 Terms**

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

### **10.02 Assignment of Contract**

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

### **10.03 Successors and Assigns**

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

### **10.04 Severability**

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

### **10.05 Contractor's Certifications**

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
  - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

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

#### 10.06 *Other Provisions*

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



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

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

1.

OWNER:

CONTRACTOR:

\_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_

By: \_\_\_\_\_

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

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

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

Attest: \_\_\_\_\_

Attest: \_\_\_\_\_

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

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

Address for giving notices:

Address for giving notices:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

License No.: \_\_\_\_\_  
*(where applicable)*

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

**NOTE TO USER:** Use in those states or other jurisdictions where applicable or required.

## CERTIFICATE OF OWNER'S ATTORNEY AND AGENCY CONCURRENCE

## CERTIFICATE OF OWNER'S ATTORNEY

PROJECT NAME: \_\_\_\_\_

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

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

---

 Name

---

 Date

## AGENCY CONCURRENCE

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

---

 Agency Representative

---

 Date

---

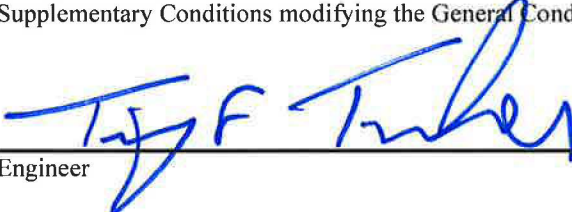
 Name

## ENGINEER'S CERTIFICATION ON FINAL PLANS AND SPECIFICATIONS

PROJECT NAME: Hwy 1882 & Hwy 144 Water Transmission Main Replacement

The final Drawings and Specifications, other assembled Construction Contract Documents, bidding-related documents (or request for proposals or other construction procurement documents), and any other Final Design Phase deliverables, comply with all requirements of the US Department of Agriculture, Rural Utilities Service, to the best of my knowledge and professional judgement.

If the EJCDC documents have been used, all modifications required by Kentucky Bulletin 1780-1 have been made in accordance with the terms of the license agreement, which states in part that the Engineer "must plainly show all changes to the Standard EJCDC text, using "Track Changes" (redline/strikeout), highlighting, or other means of clearly indicating additions and deletions." Such other means may include attachments indicating changes (e.g. Supplementary Conditions modifying the General Conditions).

 12/21/2016  
\_\_\_\_\_  
Engineer Date  
Timothy F. Tucker, P.E., Vice President  
\_\_\_\_\_  
Name and Title

**NOTICE TO PROCEED**

---

Owner:	Hardin County Water District No. 1	Owner's Contract No.:	N/A
Contractor:		Contractor's Project No.:	
Engineer:	Cannon & Cannon, Inc.	Engineer's Project No.:	00904-0004
Project:	Hwy 1882 & Hwy 144 Water Transmission Main Replacement	Contract Name:	Hwy 1882 & Hwy 144 Water Transmission Main Replacement
		Effective Date of Contract:	

---

**TO CONTRACTOR:**

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [REDACTED], 20[REDACTED]. [see Paragraph 4.01 of the General Conditions]

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

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

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

---

Owner:

Authorized Signature

By:

Title:

Date Issued:

Copy: Engineer

**PERFORMANCE BOND**

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):* Hardin County Water District No. 1  
1400 Rogersville Road  
Radcliff, KY 40160

**CONSTRUCTION CONTRACT**

Effective Date of the Agreement:

Amount:

Description *(name and location):* Hwy 1882 & Hwy 144 Water Transmission Main Replacement  
Hardin County, KY

**BOND**

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

**CONTRACTOR AS PRINCIPAL**

**SURETY**

\_\_\_\_\_  
Contractor's Name and Corporate Seal *(seal)*

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

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

By: \_\_\_\_\_  
Signature *(attach power of attorney)*

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

**Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.**

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

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence,

to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

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

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price 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, successors, and assigns.



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

11. Any proceeding, legal or equitable, under this Bond 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 a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

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

#### 14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims

for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

**PAYMENT BOND**

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):* Hardin County Water District No. 1  
1400 Rogersville Rd  
Radcliff, KY 40160

**CONSTRUCTION CONTRACT**

Effective Date of the Agreement:

Amount:

Description *(name and location):*

**BOND**

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

**CONTRACTOR AS PRINCIPAL**

**SURETY**

\_\_\_\_\_  
*(seal)*

Contractor's Name and Corporate Seal

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

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
*(seal)*

Surety's Name and Corporate Seal

By: \_\_\_\_\_  
Signature *(attach power of attorney)*

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

**Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.**

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
  - 5.1 Claimants who do not have a direct contract with the Contractor,
    - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
    - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
  - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
  - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
  - 7.2 Pay or arrange for payment of any undisputed amounts.
  - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. **Definitions**
- 16.1 **Claim:** A written statement by the Claimant including at a minimum:
1. The name of the Claimant;
  2. The name of the person for whom the labor was done, or materials or equipment furnished;
  3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
  4. A brief description of the labor, materials, or equipment furnished;
  5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
  6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
  7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
- 16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.
18. Modifications to this Bond are as follows:

**SECTION 00 62 16**  
**CERTIFICATES OF INSURANCE FORM**

Insurance Certificates as specified in Section 00 72 00 GENERAL CONDITIONS and in Section 00 73 00 SUPPLEMENTARY CONDITIONS shall be inserted behind this page. Sample forms are provided to show amounts requested by Section 00 73 00.

END OF SECTION 00 62 16

# ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

## PRODUCER

XYZ Center of Insurance  
PO Box XXXX  
City, State Zip

**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.**

## INSURERS AFFORDING COVERAGE

NAIC #

## INSURED

Contractor's Name  
Address  
City, State Zip

INSURER A: A B C Company

INSURER B: D E F Company

INSURER C:

INSURER D:

INSURER E:

## COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR ADD'L LTR INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
	<b>GENERAL LIABILITY</b> <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> INCLUDES XCU COVERAGES GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC	XXXOOO	00-00-00	00-00-00	EACH OCCURRENCE \$ 2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 2,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
	<b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS		00-00-00	00-00-00	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ 1,000,000 BODILY INJURY (Per accident) \$ 1,000,000 PROPERTY DAMAGE (Per accident) \$ 1,000,000
	<b>GARAGE LIABILITY</b> <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC \$ AUTO ONLY: AGG \$
	<b>EXCESS/UMBRELLA LIABILITY</b> <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE DEDUCTIBLE RETENTION \$		00-00-00	00-00-00	EACH OCCURRENCE \$ 2,000,000 AGGREGATE \$ 2,000,000 \$ \$ \$
	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below				WC STATU-TORY LIMITS OTH-ER AS REQUIRED E.L. EACH ACCIDENT \$ BY PROJECT E.L. DISEASE - EA EMPLOYEE \$ STATE E.L. DISEASE - POLICY LIMIT \$ STATUTES
	<b>OTHER</b> "ALL RISK" BUILDER'S RISK				MINIMUM OF CONTRACT AMOUNT

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

RE: Project Title

ADDITIONAL INSURED:

Owner's Name  
Engineer's Name

## CERTIFICATE HOLDER

Owner's Name  
Address  
City, State Zip

## CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL  MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT.

AUTHORIZED REPRESENTATIVE



# ACORD<sup>TM</sup> CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

## PRODUCER

XYZ Center of Insurance  
PO Box XXXX  
City, State Zip

**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.**

## INSURED

Owner's Name  
Address  
City, State Zip

## INSURERS AFFORDING COVERAGE

## NAIC #

INSURER A: A B C Company

INSURER B: D E F Company

INSURER C:

INSURER D:

INSURER E:

## COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR ADD'L LTR	INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
		<b>GENERAL LIABILITY</b> <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> OWNER'S & CONT. PROT. GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC	XXXXOO	00-00-00	00-00-00	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$1,000,000 PRODUCTS - COMP/OP AGG \$	
		<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS				COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$	
		<b>GARAGE LIABILITY</b> <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC \$ AUTO ONLY: AGG \$	
		<b>EXCESS/UMBRELLA LIABILITY</b> <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE DEDUCTIBLE RETENTION \$				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$	
		<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below				WC STATU-TORY LIMITS OTH-ER E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$	
		OTHER					

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

RE: Project Title

## CERTIFICATE HOLDER

Owner's Name  
Address  
City, State Zip

## CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL [REDACTED] MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT. [REDACTED]

AUTHORIZED REPRESENTATIVE



Contractor's Application for Payment No. \_\_\_\_\_

	Application Period:	Application Date:
To (Owner):	From (Contractor):	Via (Engineer):
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

Application For Payment  
Change Order Summary

Approved Change Orders			1. ORIGINAL CONTRACT PRICE.....	\$ _____
Number	Additions	Deductions	2. Net change by Change Orders.....	\$ _____
			3. Current Contract Price (Line 1 ± 2).....	\$ _____
			4. TOTAL COMPLETED AND STORED TO DATE	
			(Column F total on Progress Estimates).....	\$ _____
			5. RETAINAGE:	
			a. X _____ Work Completed.....	\$ _____
			b. X _____ Stored Material.....	\$ _____
			c. Total Retainage (Line 5.a + Line 5.b).....	\$ _____
			6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5.c).....	\$ _____
			7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application).....	\$ _____
			8. AMOUNT DUE THIS APPLICATION.....	\$ _____
			9. BALANCE TO FINISH, PLUS RETAINAGE	
			(Column G total on Progress Estimates + Line 5.c above).....	\$ _____
TOTALS				
NET CHANGE BY				
CHANGE ORDERS				

**Contractor's Certification**

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

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

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

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

**Contractor Signature**

By:	Date:
-----	-------

Payment of: \$ \_\_\_\_\_

(Line 8 or other - attach explanation of the other amount)

is recommended by: \_\_\_\_\_

(Engineer) (Date)

Payment of: \$ \_\_\_\_\_

(Line 8 or other - attach explanation of the other amount)

is approved by: \_\_\_\_\_

(Owner) (Date)

Approved by: \_\_\_\_\_

Funding or Financing Entity (if applicable) (Date)

### Progress Estimate - Unit Price Work

## Contractor's Application

[illegible]

## Stored Material Summary

## Contractor's Application

[illegible]

**CERTIFICATE OF SUBSTANTIAL COMPLETION**

Owner:	Hardin County Water District No. 1	Owner's Contract No.:	N/A
Contractor:		Contractor's Project No.:	
Engineer:	Cannon & Cannon, Inc.	Engineer's Project No.:	00904-0004
Project:	Hwy 1882 & Hwy 144 Water Transmisison Replacement	Main Contract Name:	

**This [preliminary] [final] Certificate of Substantial Completion applies to:**

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

**Date of Substantial Completion**

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

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

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]*

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

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

The following documents are attached to and made a part of this Certificate: *[punch list; others]*

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

EXECUTED BY ENGINEER:		RECEIVED:	RECEIVED:
By: _____ (Authorized signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)	
Title: _____	Title: _____	Title: _____	
Date: _____	Date: _____	Date: _____	

**SECTION 00 65 19.13**  
**AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS**

To Owner: <i>(Name and address)</i>	Hardin County Water District 1 1400 Rogersville Rd. Radcliff, KY 40160	CCI Project No.:	00904-0004
		Contract For:	Hwy 1882 & Hwy 144 Water Trans. Main
Project: <i>(Name and address)</i>	Hwy 1882 & Hwy 144 Water Transmission Main Replacement Hardin Co., KY	Contract Dated:	<i>(Date)</i>

The CONTRACTOR hereby certifies that to the best of the CONTRACTOR's knowledge, information, and belief, except as listed below, all obligations for all materials and equipment furnished, for all work, labor and services performed, and for all known indebtedness and claims against the undersigned for damages arising in any manner in connection with the performance of the Work referenced above for which **(Owner)** or its property might in any way be held responsible have been paid in full or upon receipt of Final Payment in accordance with Paragraph 14.07 of the General Conditions will be paid in full or otherwise satisfied; and hereby unconditionally waives, releases and relinquishes all of its rights and covenants to commence an action for or to file any type of lien against **(Owner)** or its property for such labor, equipment, and/or materials so furnished by the CONTRACTOR.

The CONTRACTOR further agrees to reimburse and does hold harmless and fully indemnify OWNER and its successors and assigns for any losses or expenses should any such claim, lien, or right to a lien be asserted by the CONTRACTOR or by any person or entity acting for or claiming by, through or under the CONTRACTOR, including, without implied limitation, attorney's fees incurred in the defense thereof.

The CONTRACTOR further attests that with respect to this Contract all required taxes have been set aside and have been paid or will be paid when due, and all employer contributions required to be paid under labor agreements have been paid or will be paid when due.

Exceptions:

Contractor: <i>(Name and address)</i>	Name Address City, State, Zip	Subscribed and sworn to before me on this date:	_____
By:	_____ <i>(Signature of authorized representative)</i>	Notary Public:	_____
	_____ <i>(Printed name and title)</i>	My Commission expires:	_____

END OF SECTION 00 65 19.13



**SECTION 00 65 19.16**  
**CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS**

To Owner: <i>(Name and address)</i>	Hardin County Water District 1 1400 Rogersville Rd. Radcliff, KY 40160	CCI Project No.:	00904-0004
		Contract For:	Hwy 1882 & Hwy 144 Water Trans. Main
Project: <i>(Name and address)</i>	Hwy 1882 & Hwy 144 Water Transmission Main Replacement Hardin Co., KY	Contract Dated:	

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed blow, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of material and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

Exceptions:

Contractor:  
*(Name and address)*

Subscribed and sworn to  
before me on this date: \_\_\_\_\_

By: \_\_\_\_\_  
*(Signature of authorized representative)*

Notary Public: \_\_\_\_\_

\_\_\_\_\_  
*(Printed name and title)*

My Commission expires: \_\_\_\_\_

END OF SECTION 00 65 19.16

**SECTION 00 65 19.19**  
**CONSENT OF SURETY TO FINAL PAYMENT**

To Owner: (Name and address)	Hardin County Water District 1 1400 Rogersville Rd. Radcliff, KY 40160	CCI Project No.:	00904-0004
		Contract For:	Hwy 1882 & Hwy 144 Water Trans. Main
Project: (Name and address)	Hwy 1882 & Hwy 144 Water Transmission Main Replacement Hardin Co., KY	Contract Dated:	

In accordance with the provisions of the above-named contract between the Owner and the Contractor, the following named surety:

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

on the Payment Bond of the following named Contractor:

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

hereby approves of final payment to the Contractor, and further agrees that said final payment to the Contractor shall not relieve the surety company named herein of any of its obligations to the following named Owner: as set forth in said surety company's bond:

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

IN WITNESS WHEREOF, the surety company has hereunto set its hand and seal this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_.

END OF SECTION 00 65 19.19

**00 72 00**  
**STANDARD GENERAL CONDITIONS**  
**OF THE CONSTRUCTION CONTRACT**

Prepared by



Issued and Published Jointly by



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# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

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

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

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

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



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

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

## 1.02 Terminology

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

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

## **ARTICLE 2 – PRELIMINARY MATTERS**

### **2.01 *Delivery of Bonds and Evidence of Insurance***

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

### **2.02 *Copies of Documents***

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

### **2.03 *Before Starting Construction***

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
  1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
  2. a preliminary Schedule of Submittals; and

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

#### 2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

#### 2.05 *Initial Acceptance of Schedules*

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

#### 2.06 *Electronic Transmittals*

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

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

### **ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE**

#### **3.01 *Intent***

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

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

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

#### **3.03 *Reporting and Resolving Discrepancies***

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

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

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

B. *Resolving Discrepancies:*

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

3.04 *Requirements of the Contract Documents*

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

### 3.05 *Reuse of Documents*

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

## **ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK**

### 4.01 *Commencement of Contract Times; Notice to Proceed*

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

### 4.02 *Starting the Work*

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

### 4.03 *Reference Points*

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

### 4.04 *Progress Schedule*

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



2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

#### 4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
  1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
  2. abnormal weather conditions;
  3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
  4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

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

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

### **5.01 *Availability of Lands***

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

### **5.02 *Use of Site and Other Areas***

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

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

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

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

### 5.03 *Subsurface and Physical Conditions*

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

#### 5.04 *Differing Subsurface or Physical Conditions*

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

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

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

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

#### 5.05 *Underground Facilities*

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

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

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

5.06 *Hazardous Environmental Conditions at Site*

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



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

## ARTICLE 6 – BONDS AND INSURANCE

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

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

### 6.02 *Insurance—General Provisions*

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

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

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

#### 6.03 *Contractor's Insurance*

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

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

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

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

#### 6.04 *Owner's Liability Insurance*

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

#### 6.05 *Property Insurance*

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

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



#### 6.06 *Waiver of Rights*

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

#### 6.07 *Receipt and Application of Property Insurance Proceeds*

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

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

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

## **ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES**

### **7.01   *Supervision and Superintendence***

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

### **7.02   *Labor; Working Hours***

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

### **7.03   *Services, Materials, and Equipment***

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

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

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

#### 7.04 "Or Equals"

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

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

#### 7.05 *Substitutes*

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

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

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

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

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

O. Nothing in the Contract Documents:

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

7.07 *Patent Fees and Royalties*

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

7.08 *Permits*

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



#### 7.09 *Taxes*

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

#### 7.10 *Laws and Regulations*

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

#### 7.11 *Record Documents*

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

#### 7.12 *Safety and Protection*

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

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

#### 7.13 *Safety Representative*

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

#### 7.14 *Hazard Communication Programs*

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

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

#### 7.15 *Emergencies*

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

#### 7.16 *Shop Drawings, Samples, and Other Submittals*

##### A. *Shop Drawing and Sample Submittal Requirements:*

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

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

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

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

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

2. *Samples:*

- a. Contractor shall submit the number of Samples required in the Specifications.
- b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

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

E. *Resubmittal Procedures:*

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

7.17 *Contractor's General Warranty and Guarantee*

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

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

#### 7.18 *Indemnification*

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

#### 7.19 *Delegation of Professional Design Services*

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

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

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

## **ARTICLE 8 – OTHER WORK AT THE SITE**

### **8.01 *Other Work***

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



## 8.02 *Coordination*

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

## 8.03 *Legal Relationships*

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

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

## **ARTICLE 9 – OWNER'S RESPONSIBILITIES**

### **9.01    *Communications to Contractor***

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

### **9.02    *Replacement of Engineer***

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

### **9.03    *Furnish Data***

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

### **9.04    *Pay When Due***

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

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

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

### **9.06    *Insurance***

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

### **9.07    *Change Orders***

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

9.08 *Inspections, Tests, and Approvals*

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

9.09 *Limitations on Owner's Responsibilities*

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

9.10 *Undisclosed Hazardous Environmental Condition*

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

9.11 *Evidence of Financial Arrangements*

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

9.12 *Safety Programs*

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

**ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION**

10.01 *Owner's Representative*

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

10.02 *Visits to Site*

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

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

10.03 *Project Representative*

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

10.04 *Rejecting Defective Work*

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

10.05 *Shop Drawings, Change Orders and Payments*

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

10.06 *Determinations for Unit Price Work*

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

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

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

10.08 *Limitations on Engineer's Authority and Responsibilities*

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

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

#### 10.09 *Compliance with Safety Program*

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

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

#### 11.01 *Amending and Supplementing Contract Documents*

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

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

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

#### 11.02 *Owner-Authorized Changes in the Work*

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

#### 11.03 *Unauthorized Changes in the Work*

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

#### 11.04 *Change of Contract Price*

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

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

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

#### 11.05 *Change of Contract Times*

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

#### 11.06 *Change Proposals*

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



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

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

#### 11.07 *Execution of Change Orders*

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

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

#### 11.08 *Notification to Surety*

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

### ARTICLE 12 – CLAIMS

#### 12.01 *Claims*

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

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

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

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

### **13.01 Cost of the Work**

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

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

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

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

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

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

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

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

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

## 13.02 Allowances

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

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

### 13.03 *Unit Price Work*

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

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

### **14.01 *Access to Work***

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

### **14.02 *Tests, Inspections, and Approvals***

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

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

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



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

#### 14.03 *Defective Work*

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

#### 14.04 *Acceptance of Defective Work*

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

#### 14.05 *Uncovering Work*

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

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

#### 14.06 *Owner May Stop the Work*

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

#### 14.07 *Owner May Correct Defective Work*

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

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

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

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

### **15.01 Progress Payments**

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

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

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

D. *Payment Becomes Due:*

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

E. *Reductions in Payment by Owner:*

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

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

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

#### 15.02 *Contractor's Warranty of Title*

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

#### 15.03 *Substantial Completion*

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

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

#### 15.04 *Partial Use or Occupancy*

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

#### 15.05 *Final Inspection*

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

#### 15.06 *Final Payment*

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



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

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

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

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

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

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

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

#### 15.07 *Waiver of Claims*

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

#### 15.08 *Correction Period*

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

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

## **ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION**

### **16.01 *Owner May Suspend Work***

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

### **16.02 *Owner May Terminate for Cause***

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

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

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

#### 16.03 *Owner May Terminate For Convenience*

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

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

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

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

## **ARTICLE 17 – FINAL RESOLUTION OF DISPUTES**

### **17.01 *Methods and Procedures***

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

## **ARTICLE 18 – MISCELLANEOUS**

### **18.01 *Giving Notice***

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

### **18.02 *Computation of Times***

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

### **18.03 *Cumulative Remedies***

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

18.04 *Limitation of Damages*

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

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Headings*

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

## **SECTION 00 73 00**

### **SUPPLEMENTARY CONDITIONS**

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

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

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#### **ARTICLE 1 – DEFINITIONS AND TERMINOLOGY**

##### *SC-1.01 Defined Terms*

- A. SC 1.01.A.3 Add the following language at the end of last sentence of Paragraph 1.01.A.3:  
The Application for Payment form to be used on this project is EJCDC C-620 (2013), or RD Form 1927-7.
- B. SC 1.01.A.8 Add the following language at the end of last sentence of Paragraph 1.01.A.8:  
The Change Order form to be used on this Project is EJCDC C-941 or RD Form 1927-7. Agency approval is required before Change Orders are effective or eligible for payment.
- C. SC 1.01.A.26 Add the following sentence to the end of paragraph 1.01.A.26. “When requested by OWNER, the Notice of Award may be issued by ENGINEER.”
- D. SC 1.01.A.27 Add the following sentence to the end of paragraph 1.01.A.27. “When requested by OWNER, the Notice to Proceed may be issued by ENGINEER.”
- E. SC 1.01.A.38 Add the following language at the end of the last sentence of paragraph 1.01.A.38. “Specifications shall include but not be limited to the information contained in the Project Manual, notes contained on the construction drawings, and reference to other standards and specifications contained in Contract Documents.”
- F. SC 1.01.A.48 Add the following language at the end of the last sentence of Paragraph 1.01.A.48:  
A Work Change Directive cannot change Contract Price or Contract Times without a subsequent Change Order.
- G. SC 1.01.A.49 Add the following new Paragraph after Paragraph 1.01.A.48:  
49. Abnormal Weather Conditions – Conditions of extreme or unusual weather for a given region, elevation, or season as determined by Engineer. Extreme or unusual weather that is typical for a given region, elevation, or season should not be considered Abnormal Weather Conditions.
- H. SC 1.01.A.50 Add the following new Paragraph after Paragraph 1.01.A.49:

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

- I. SC 1.01.A.51 Add the following new paragraph after paragraph 1.01.A.48:

51. Project Manual – The volume of written construction documents, including the Bidding Documents, sample forms, and the Contract Documents, such as the General Requirements of the Construction Contract and the technical Specifications.

## **ARTICLE 2 – PRELIMINARY MATTERS**

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

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

## **ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE**

- A. SC-3.05.B. Amend the last sentence of paragraph 3.05.B by striking the word “copies” and inserting in its place “one original signed copy.

## **ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK**

- A. SC-4.01.A. Amend the last sentence of Paragraph 4.01.A by striking out the following words:

In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

- B. SC 4.05.C.2 Amend Paragraph 4.05.C.2 by striking out the following text: “abnormal weather conditions;” and inserting the following text:

Abnormal Weather Conditions;

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

- A. SC 5.01.A. Amend the first sentence of paragraph 5.01.A by striking the word “Site” and inserting in its place “lands upon which the Work is to be performed and such other lands as are designated for the use of the CONTRACTOR.”

- B. SC 5.01.C. Add the following new paragraph immediately after paragraph 5.01.C:

D. Access to area outside the Project Rights-of-way may be required to access the Project. The CONTRACTOR shall work with each individual landowner to make necessary arrangements to gain access to the Project Right-of-way. The CONTRACTOR



shall provide releases from the landowners in a form acceptable to the ENGINEER and OWNER, substantiating that the CONTRACTOR has satisfied all requirements for damages and other arrangements. Easements may not be used until the OWNER approves all releases in writing.

- B. SC 5.03 Delete Paragraphs 5.03.A and 5.03.B in their entirety and insert the following:
- A. No reports of explorations or tests of subsurface conditions at or adjacent to the Site, or drawings of physical conditions relating to existing surface or subsurface structures at the Site, are known to Owner.
- C. SC 5.06 Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following:
- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.
- B. Not Used.

## ARTICLE 6 – BONDS AND INSURANCE

- A. SC 6.03 Add the following new paragraph immediately after Paragraph 6.03.J:
- K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions – In accordance with the Laws of the State.
2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

Each Occurrence	\$ <u>2,000,000</u>
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Damages to Rented Premises (Ea. occurrence)	\$ <u>100,000</u>
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Medical Expense (any one person)	\$ <u>5,000</u>
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Personal and Adv Injury	\$ <u>2,000,000</u>
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General Aggregate	\$ <u>2,000,000</u>
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Products – Comp/OP Aggregate	\$ <u>2,000,000</u>
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3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:

Each person	\$ <u>1,000,000</u>
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Each accident	\$ <u>1,000,000</u>
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Property Damage:

Each accident	\$ 1,000,000
[or]	
Combined Single Limit of	\$ 1,000,000
4. Excess or Umbrella Liability:	
Per Occurrence	\$ 2,000,000
General Aggregate	\$ 2,000,000

- B. SC 6.04 Delete paragraph 6.04 in its entirety and insert the following in its place:

*6.04 OWNERS and CONTRACTORS Protective (OCP) Insurance*

- A. The CONTRACTOR shall be responsible for purchasing and maintaining the Owners and Contractors Protective (OCP) Insurance to protect the OWNER against claims which may arise from operations under the Contract Documents.
- B. This insurance shall be in the form of a separate policy written in the name of the OWNER.
- C. The limits of liability for the insurance required by Paragraph 5.05 of the General Conditions shall provide coverage for not less than the following amounts:
  - 1. General Liability
    - a. General Aggregate \$1,000,000
    - b. Each occurrence \$1,000,000

- C. SC 6.06.B. Delete paragraph 6.06.B in its entirety

- D. SC 6.06.C. Delete paragraph 6.06.C in its entirety

## ARTICLE 7 – CONTRACTOR’S RESPONSIBILITIES

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

- D. CONTRACTOR will assume full responsibility for all OWNER Furnished Materials upon receipt from OWNER’s warehouse, material vendor/suppliers, or on site. All possible methods shall be taken to ensure the care and protection of all materials from damage during handling, storage, or from weather. Materials damaged due to negligence and/or improper handling will be charged to the CONTRACTOR at the OWNER’s present stock value. No charge will be made for material items returned to the OWNER which, in the opinion of the OWNER or the ENGINEER, were not damaged in removal and handling even though the materials may not be reusable for reasons of obsolescence or deterioration. Do not place removed materials or equipment where it will be damaged by or cause damage to vehicular traffic, livestock, persons and property. Immediately remove from the job site.

- B. SC-7.04.A. Amend the third sentence of Paragraph 7.04.A by striking out the following words:  
Unless the specification or description contains or is followed by words reading that no like, equivalent, or 'or-equal' item is permitted.
- C. SC 7.04.A.1 Amend the last sentence of Paragraph a.3 by striking out "and;" and adding a period at the end of the Paragraph.
- D. SC 7.04.A.1 Delete paragraph 7.04.A.1.a.4 in its entirety and insert the following in its place:  
[Deleted]
- E. SC 7.06.A Amend Paragraph 7.06.A by adding the following text to the end of the Paragraph:  
The Contractor shall not award work valued at more than fifty percent of the Contract Price to Subcontractor(s).
- F. SC 7.06.B Delete paragraph 7.06.B in its entirety and insert the following in its place:  
[Deleted]
- G. SC 7.06.E Amend the second sentence of Paragraph 7.06.E by striking out "Owner may also require Contractor to retain specific replacements; provided, however, that".
- H. SC7.08.A Add the following language at the end of the last sentence of paragraph 7.08.A:  
"CONTRACTOR is advised they are responsible for filing the appropriate notification from with the State regarding storm water runoff compliance."
- I. SC7.09 Add the following new paragraph immediately after 7.09.A:  
B. OWNER is exempt from payment of sales and compensating use taxes of the State of Kentucky and of cities and counties thereof on all materials to be incorporated into the Work.  
  
1. OWNER will furnish the required certificates of tax exemption to CONTRACTOR for use in the purchase of supplies and materials to be incorporated into the Work.  
  
2. OWNER's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by CONTRACTOR, or to supplies or materials not incorporated into the Work.
- J. SC7.16 Add the following new paragraphs immediately after Paragraph 7.16.E:  
  
F. CONTRACTOR shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than two submittals. ENGINEER will record ENGINEER's time for reviewing subsequent submittals of Shop Drawings, samples or other items required approval and CONTRACOTR shall reimburse OWNER for ENGINEER's charges for such time.  
  
G. In the event that CONTRACTOR requests a substitution for a previously approved item, CONTRACTOR shall reimburse OWNER for ENGINEER's charges for such time unless the need for such substitution is beyond the control of CONTRACTOR.

## **ARTICLE 8 – OTHER WORK AT THE SITE – NO AMENDMENTS**

## **ARTICLE 9 – OWNER’S RESPONSIBILITIES – NO AMENDMENTS**

## **ARTICLE 10 – ENGINEER’S STATUS DURING CONSTRUCTION**

- A. SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.A:
- B. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.
1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.
  2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.
  3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.
  4. Liaison:
    - a. Serve as Engineer’s liaison with Contractor. Working principally through Contractor’s authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
    - b. Assist Engineer in serving as Owner’s liaison with Contractor when Contractor’s operations affect Owner’s on-Site operations.
    - c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
  5. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
  6. Shop Drawings and Samples:
    - a. Record date of receipt of Samples and Contractor-approved Shop Drawings.
    - b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.

- c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.
- 7. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.
- 8. Review of Work and Rejection of Defective Work:
  - a. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
  - b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
- 9. Inspections, Tests, and System Start-ups:
  - a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.
  - b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.
- 10. Records:
  - a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
  - b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
  - c. Maintain records for use in preparing Project documentation.

11. Reports:
  - a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.
  - b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
  - c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.
12. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.
13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.
14. Completion:
  - a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.
  - b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.
  - c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.
- C. The RPR shall not:
  1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
  2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
  3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.
5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
8. Authorize Owner to occupy the Project in whole or in part.

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

- A. SC 11.07.C Add the following new Paragraph after Paragraph 11.07.B:

All Contract Change Orders must be concurred in by Agency before they are effective or can be eligible for reimbursement.

- B. SC 11.09 Add the following new paragraph immediately following paragraph 11.08:

##### **11.09 Owner's Change in Work**

1. Without invalidating the Agreement, OWNER may, at any time execute appropriate Change Orders for additions and/or deletions in the Work of up to twenty-five (25) percent of the total Contract amount, without a change in the contract unit prices bid.

#### **ARTICLE 12 – CLAIMS**

- A. SC 12.01.D.1 Add the following language at the end of Paragraph 12.01.D.1:

All mediation or court action shall be held in Hardin County, KY.

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

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

*[Deleted]*

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

E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:

1. if the Bid price of a particular item of Unit Price Work amounts to 10 percent or more of the Contract Price and the variation in the quantity of that particular item

of Unit Price Work performed by CONTRACTOR differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and,

2. if there is no corresponding adjustment with respect to any other item of Work; and,
3. if CONTRACTOR believes that CONTRACTOR has incurred additional expense as a result thereof or if OWNER believes the quantity variation entitles OWNER to an adjustment in the unit price, either OWNER or CONTRACTOR may make a Claim for an adjustment in the Contract Price in accordance with Article 10 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

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

- A. SC 14.02.B Delete paragraph 14.02.B in its entirety
- B. SC 14.02.G Add the following new paragraph immediately after paragraph 14.02.F:
  - G. The OWNER will pay for all testing and inspecting specifically requested by the ENGINEER over and above those described in the Contract Documents. When tests requested by the ENGINEER indicate noncompliance with the Contract Documents, all testing and subsequent re-testing occasioned by the noncompliance shall be performed by the same testing laboratory and the costs thereof shall be paid by the CONTRACTOR.

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

- A. SC 15.01.B Amend the second sentence of Paragraph 15.01.B.1 by striking out the following text: “a bill of sale, invoice, or other.”
- D. SC 15.01.B.3 Add the following language at the end of paragraph 15.01.B.3:

No payments will be made that would deplete the retainage, place in escrow any funds that are required for retainage, or invest the retainage for the benefit of the Contractor.
- E. SC 15.01.B.4 Add the following new Paragraph after Paragraph 15.01.B.3:

The Application for Payment form to be used on this Project is EJCDC C-620 unless another form is agreed upon by the Engineer, Owner, and Agency. The Agency must approve all Applications for Payment before payment is made.
- F. SC 15.01.D.1 Delete Paragraph 15.01.D.1 in its entirety and insert the following in its place:

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



- G. SC 15.02.A Amend Paragraph 15.02.A by striking out the following text: “no later than seven days after the time of payment by Owner” and insert “no later than the time of payment by Owner.”
- H. SC 15.08.E Add the following new paragraph immediately after paragraph 15.08.E:
  - F. Specific and special warranties specified in the Contract Documents are in addition to, and not in lieu of, the CONTRACTOR’s general warranty. CONTRACTOR shall not be relieved of general warranty obligations by the specification of specific products or procedures.

## **ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION – NO AMENDMENTS**

## **ARTICLE 17 – FINAL RESOLUTION OF DISPUTES**

- I. SC 17.01 Delete Paragraph 17.01 in its entirety and insert the following in its place:

### *17.01 Methods and Procedures*

- A. All claims, disputes and other matters in question between Owner and Contractor arising out of, or relating to the Project or the Contract Documents or their breach, except for claims which have been waived by the making or acceptance of final payment, shall be submitted to mediation. The mediation will be conducted in accordance with the Construction Industry Dispute Resolution Procedures of the American Arbitration Association in effect on the date when the parties submit the matter to mediation, subject to the limitations of this paragraph.
  - 1. A demand for mediation of any claim, dispute or other matter that must be referred to Engineer pursuant to Paragraph 11.06 shall not be made until the earlier of:
    - (a) the date on which Engineer has rendered a decision, or
    - (b) the date on which the claimed is deemed denied due to no action having been taken by Engineer before that date.
  - 2. Any demand for mediation of a claim, dispute or other matter referred to the ENGINEER for decision pursuant to paragraph 11.06 must be made within the time limits stipulated in Paragraph 11.06.E. If Engineer renders a decision after mediation proceedings have been initiated, such decision may be entered as evidence but shall not supersede the mediation proceedings, except where the decision is acceptable to the parties concerned.
  - 3. Notice of the demand for mediation shall be filed in writing with the other party and with the American Arbitration Association and a copy shall be sent to Engineer for information. The initial case set-up fees for both parties shall be borne in the entirety by the requesting party. When the adverse party has received notice of the demand for mediation, the expenses of the mediation from that point shall be distributed and borne by the parties in accordance with the Construction Industry Dispute Resolution Procedures.
  - 4. A demand for mediation shall be made within the period specified in Paragraph 11.06, and in no event shall any such demand be made after the date when

institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.

5. No mediation arising out of or relating to the Project or the Contract Documents shall include by consolidation, joinder, or in any other manner, any other person or entity (including Engineer and Engineer's agents, employees or consultants) who is not a party to this Contract except by the written agreement of Owner, Contractor, and the other person(s), entity or entities to be included or joined.
  6. The Owner will select the location for any mediation conducted for this Project.
  7. The Contractor shall carry on the Work and maintain the progress schedule for the Project at all times during the resolution of any matters submitted to mediation.
  8. Any settlement agreement facilitated by the mediation will be final and binding, with documentation of the agreement being prepared by the mediator and executed by both parties at the close of the mediation. Any settlement agreement entered by the Owner and Contractor is subject to and may be enforced under the law of the jurisdiction where the Project is located.
- B. Should the Owner and Contractor be unable to agree to resolve a claim or dispute by mediation, both parties, by written agreement, may submit the claim, dispute or other matter to binding arbitration, which shall be conducted in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association in effect on the date when the parties submit the matter for arbitration, subject to the following limitations:
1. The location for the arbitration shall be the same political subdivision where the Project is located.
  2. The arbitration shall not include by consolidation, joinder, or in any other manner, any other person or entity (including Engineer and Engineer's agents, employees or consultants) who is not a party to this Contract except by the written agreement of the Owner, Contractor and the other person(s), entity or entities to be included or joined.
  3. The Contractor shall carry on the Work and maintain the progress schedule for the Project at all times during the resolution of the matters submitted to arbitration.
  4. The arbitration award will be written, final and binding, and signed by the majority of the arbitrators (if there are more than one), with certified copies to be delivered to each of the parties and to Engineer. Judgment may be rendered upon the award by the Federal Court or the highest State Court having appropriate jurisdiction over either of the parties.
- C. Should the Owner and Contractor be unable to agree to resolve a claim or dispute by mediation, and unable to agree to submit the claim or dispute to binding arbitration, both parties agree that the matter shall be litigated in the lowest level court of law of competent jurisdiction where the project is located and neither party will move for a change of venue to any other location. Should the project be incomplete at the onset of any litigation, the Contractor shall carry on the work and maintain the progress schedule during any court proceedings, unless otherwise mutually agreed in writing.

## ARTICLE 18 – MISCELLANEOUS

- A. SC 18.03.A Add the following new paragraph immediately after paragraph 18.03.A:

“B. Whenever reference is made to ‘claims, losses and damages,’ it shall include in each case, but not be limited to, all fees and charges of consultants to the OWNER, as well as attorneys, all court costs and other professionals concerned.”

- B. SC 18.09 Add the following new paragraph after Paragraph 18.08:

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

## SC 19 ADD ARTICLE 19 TITLED “FEDERAL REQUIREMENTS”

- A. SC 19.01 Add the following language as Paragraph 19.01 with the title “Agency Not a Party”:

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

- B. SC 19.02 Add the following sections after Article 19.01 with the title “Contract Approval”:

A. Owner and Contractor will furnish Owner’s attorney such evidence as required so that the Owner’s attorney can complete and execute the following “Certificate of Owner’s Attorney” (Exhibit F) before Owner submits the executed Contract Documents to Agency for approval.

B. Concurrence by Agency in the award of the Contract is required before the Contract is effective.

- C. SC 19.03 Add the following language after Article 19.02.B with the title “Conflict of Interest”:

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

- D. SC 19.04 Add the following language after Article 19.03.A with the title “Gratuities”:

A. If Owner finds after a notice and hearing that Contractor, or any of Contractor’s agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of Owner or Agency in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, Owner may, by written notice to Contractor, terminate this Contract. Owner may also pursue other

rights and remedies that the law or this Contract provides. However, the existence of the facts on which Owner bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract.

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

E. SC 19.05 Add the following language after Article 19.04.B with the title “Audit and Access to Records”:

A. Owner, Agency, the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the Contractor which are pertinent to the Agreement, for the purpose of making audits, examinations, excerpts, and transcriptions. Engineer shall maintain all required records for three years after final payment is made and all other pending matters are closed.

F. SC 19.06 Add the following language after Article 19.05.A with the title “Small, Minority and Women’s Businesses”:

A. If Contractor intends to let any subcontracts for a portion of the work, Contractor shall take affirmative steps to assure that small, minority and women’s businesses are used when possible as sources of supplies, equipment, construction, and services. Affirmative steps shall consist of: (1) including qualified small, minority and women’s businesses on solicitation lists; (2) assuring that small, minority and women’s businesses are solicited whenever they are potential sources; (3) dividing total requirements when economically feasible, into small tasks or quantities to permit maximum participation of small, minority, and women’s businesses; (4) establishing delivery schedules, where the requirements of the work permit, which will encourage participation by small, minority and women’s businesses; (5) using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce; (6) requiring each party to a subcontract to take the affirmative steps of this section; and (7) Contractor is encouraged to procure goods and services from labor surplus area firms.

G. SC 19.07 Add the following after Article 19.06.A with the title “Anti-Kickback”:

A. Contractor shall comply with the Copeland Anti-Kickback Act (18 USC 874 and 40 USC 276c) as supplemented by Department of Labor regulations (29 CFR Part 3, “Contractors and Subcontractors on Public Buildings or Public Works Financed in Whole or in Part by Loans or Grants of the United States”). The Act provides that Contractor or subcontractor shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public facilities, to give up any part of the compensation to which they are otherwise entitled. Owner shall report all suspected or reported violations to Agency.

H. SC 19.08 Add the following after Article 19.07.A with the title “Clean Air and Pollution Control Acts”:

A. If this Contract exceeds \$100,000, compliance with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h) and 42 USC 7401et. seq.), section 508 of the Clean Water Act (33 U.S.C. 1368) and Federal Water Pollution Control Act (33 USC 1251 et seq.), Executive Order 11738, and Environmental Protection Agency regulations is required. Contractor will report violations to the Agency and the Regional Office of the EPA.

I. SC 19.09 Add the following after Article 19.08 with the title “State Energy Policy”:

A. Contractor shall comply with the Energy Policy and Conservation Act (P.L. 94-163). Mandatory standards and policies relating to energy efficiency, contained in any applicable State Energy Conservation Plan, shall be utilized.

J. SC 19.10 Add the following after Article 19.09 with the title “Equal Opportunity Requirements”:

A. If this Contract exceeds \$10,000, Contractor shall comply with Executive Order 11246, “Equal Employment Opportunity,” as amended by Executive Order 11375, “Amending Executive Order 11246 Relating to Equal Employment Opportunity,” and as supplemented by regulations at 41 CFR part 60, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor.”

B. Contractor’s compliance with Executive Order 11246 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative active obligations required by the Standard Federal Equal Employment Opportunity Construction Contract Specifications, as set forth in 41 CFR Part 60-4 and its efforts to meet the goals established for the geographical area where the Contract is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting Contractor’s goals shall be a violation of the Contract, the Executive Order, and the regulations in 41 CFR part 60-4. Compliance with the goals will be measured against the total work hours performed.

C. Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the Contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the Contract is to be performed.

K. SC 19.11 Add the following after Article 19.10.C with the title “Restrictions on Lobbying”:

A. Contractor and each subcontractor shall comply with Restrictions on Lobbying (Public Law 101-121, Section 319) as supplemented by applicable Agency regulations. This Law applies to the recipients of contracts and subcontracts that exceed \$100,000 at any tier under a Federal loan that exceeds \$150,000 or a Federal grant that exceeds \$100,000. If applicable, Contractor must complete a certification form on lobbying activities related to a specific Federal loan or grant that is a funding source for this Contract. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to

influence an officer or employee of any agency, a member of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. 1352. Each tier shall disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Certifications and disclosures are forwarded from tier to tier up to the Owner. Necessary certification and disclosure forms shall be provided by Owner.

L. SC 19.12 Add the following after Article 19.11.A with the title "Environmental Requirements":

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

- A. Wetlands – When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert wetlands.
- B. Floodplains – When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert 100-year floodplain areas (Standard Flood Hazard Area) delineated on the latest Federal Emergency Management Agency Floodplain Maps, or other appropriate maps, e.g., alluvial soils on NRCS Soil Survey Maps.
- C. Historic Preservation – Any excavation by Contractor that uncovers an historical or archaeological artifact or human remains shall be immediately reported to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the State Historic Preservation Officer (SHPO).
- D. Endangered Species – Contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of Contractor, Contractor will immediately report this evidence to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the U.S. Fish and Wildlife Service.

**SECTION 00 91 13**  
**ADDENDA**

The following Addenda were issued during the bidding process for the Work, and are included herein as part of the Construction Documents. The Addenda are provided in reverse chronological order.

END OF SECTION 00 91 13

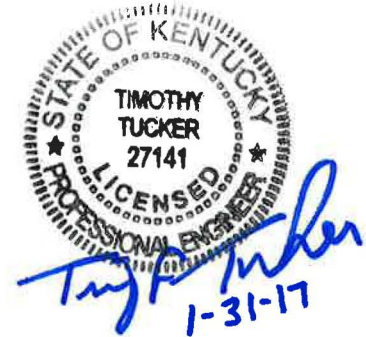
PROJECT: Hwy 1882 & Hwy 144 Water Transmission Main Replacement  
Hardin County, KY

ADDENDUM NO.: 1

ADDENDUM DATE: January 31, 2017

OWNER: Hardin County Water District No. 1  
1400 Rogersville Road  
Radcliff, KY 40160

ENGINEER: Cannon & Cannon, Inc.  
8550 Kingston Pike  
Knoxville, Tennessee 37919



**ALL BIDS SHALL CONFORM TO THIS ADDENDUM:**

This addendum forms a part of the Contract referenced above. The following items covering changes in the bidding requirements shall apply to and become a part of the requirements thereof.

Receipt of this Addendum shall be acknowledged by inserting its number and date in the space on the Bid Form. Failure to do so may result in disqualification of the Bidder.

This Addendum consists of two (2) pages and the following attachments.

- Pre-Bid Meeting Minutes and Questions and Answers - four (4) pages
- Pre-Bid Sign-in Sheet – two (2) pages
- Exhibits 1 through 3 – three (3) pages
- Section 00 41 13 Bid Form – eight (8) pages
- North American Green Installation Manual – eight (8) pages

**ITEM No. 1 PRE-BID MEETING MINUTES**

A Mandatory Pre-Bid Meeting was held on January 26, 2017, at Hardin County Water District No. 1. Attached are the minutes of the meeting with comments, questions, and responses to the questions at the meeting. Also attached is the sign in sheet from the meeting.

**ITEM NO. 2 CLARIFICATIONS**

The following items are clarifying comments on certain Sections and Drawings of the Contract Documents and on the overall intent of the Project.

- A. Station 4+75 on Line A Sheet W1.01 is a future hydrant location. Tee, gate valve, and cap shall be installed in accordance with "Future Hydrant Locations" detail on W2.01. Unit prices for restrained joint 6 inch DIP and 6 inch gate valve will be paid for this work. There is not additional payment for fittings or thrust blocks.



### ITEM NO, 3    REPLACEMENTS

- A. **DELETE Section 00 41 13 Bid Form-Unit Price** in its entirety and **REPLACE** with **revised Section 00 41 13, Bid Form-Unit Price**, attached. In addition, the deleted pages are of an obsolete version and the following changes have been made:
  - a. **CHANGED quantity for pay item 5 from 6,800 to 5,900**
  - b. **CHANGED quantity for pay item 6 from 1,200 to 2,100**

### ITEM No. 4    MODIFICATIONS

- A.     Sheet W1.04 – LINE A STA. 30+00 to STA. 43+50: Modify callout as follows:

Modify callout at Station 41+52 Line A to say 6" DIP (instead of PVC). This connection will require restrained joint 6-inch Ductile Iron Pipe (pay item 8). See Exhibit 1 attached. The existing 6-inch line to be tapped is C-900 PVC.
- B.     Sheet W2.01 – WATER DETAILS: Modify Major Creek Crossing Detail as follows:

Delete callout for #57 stone. Stone is not required beneath steel casing installed by jack & bore method. See Exhibit 2 attached.
- C.     Sheet W2.02 – WATER DETAILS: Modify Restrained Joint Length Table as follows:

Add row for tees, valves, plugs and caps. Restrained Length required for 16" diameter water line at a tee, valve, plug, or cap is 120 feet. See Exhibit 3 attached.

END ADDENDUM NO. 1

<b>PROJECT</b>	Hwy 1882 & Hwy 144 Water Transmission Main Replacement	<b>CCI PROJ #</b>	904-0004
<b>DATE</b>	January 26, 2017	<b>TIME</b>	2:00 pm
<b>LOCATION</b>	Hardin County Water District No. 1 1400 Rogersville Rd, Radcliff, KY, 40160		
<b>PURPOSE</b>	Mandatory Pre-Bid Meeting		

## 1. INTRODUCTION & SIGN IN

Owner: Hardin County Water District No. 1  
Jim Bruce, General Manager  
Daniel Clifford, Engineering Manager  
Brett Pyles, Operations Manager  
Bob Ammerman, Project Coordinator  
Tim Osborne, Distribution Supervisor

Engineer: Cannon & Cannon, Inc. / Seth Fischer, P.E.

## 2. BIDDING REQUIREMENTS

1. Mandatory Pre-Bid Meeting
2. Outside of Envelope (see SECTION 00 21 13)
  - Project Title
  - Name and address of bidder
  - If sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED."
3. Items to include with Bid Submission (see SECTION 00 41 13):
  - Bid Form
    - Acknowledgement of any Addenda
    - All blank spaces for bid prices must be filled in, in ink or typewritten
    - Signed and dated
    - Corrections initialed
  - Required Bid security in the form of 5% Bid Bond or Bank Check in the amount of 5% of the Bid (form located in SECTION 00 43 13)
  - Tabulation of subcontractors, suppliers and other individuals and entities required to be identified in this bid
  - Compliance Statement (SECTION 00 45 11) RD 400-6
  - Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions (SECTION 00 45 13) AD-1048



- ### 3. SCHEDULE

- **Thursday January 26, 2017**.....Pre-Bid Meeting at 2:00 PM
- **Thursday February 2, 2017** .....Cut-off for questions at 5:00 PM
- **Tuesday February 7, 2017**.....Issue Addendum if necessary by 10:00 AM
- **Friday February 10, 2017**.....**Bid opening at 10:00 AM** (local time)

- Direct questions in writing to Seth Fischer, P.E. [sfischer@cannon-cannon.com](mailto:sfischer@cannon-cannon.com) by 5:00 pm on Thursday February 2, 2017. Questions not received in writing or received after the cut-off for questions may not be answered.
- Notice of award after HCWD1, RD, and PSC approval of award
- Required Substantial Completion within **150** days from contract commencement date listed on Notice to Proceed
- Required Final Completion within **180** days from contract commencement date listed on Notice to Proceed
- Liquidated damages - \$500 per day

The work to be bid on is as follows: All labor, materials, and equipment necessary to furnish, install, test, and place in satisfactory operation 8,050 LF of 16" ductile iron water line, 1,280 LF of 6-inch PVC water line, 100 LF of 24" steel casing to be bored

under Otter Creek; service line replacement and reinstatement of eight existing services; installation of a leak detection station; and miscellaneous valves and appurtenances required for complete installation.

- Erosion Control is the Contractor's responsibility (SECTION 01 57 13).
  - KPDES General permits
  - The Contractor shall do all Work and take all measures necessary to control soil erosion resulting from construction operations, shall prevent the flow of sediment from the construction site, and shall contain construction materials (including excavation and backfill) within his protected working area so as to prevent damage to the adjacent wetlands or water courses. At a minimum, the Contractor shall install all measures shown on the plans.
- Traffic control is the Contractor's responsibility and must be coordinated with the KYTC as applicable.

## **5. QUESTIONS**

**Q. Are there wage rate requirements on this project**

*A. No, there are no state or federal wage rate requirements on this project.*

**Q. Is there a Buy America requirement on this project.**

*A. No, there is not a Buy America or American Iron and Steel requirement on this project.*

**Q. Is the KYTC permit included in the project manual?**

*A. Yes, the KYTC permit, as well as DOW construction, and Floodplain Construction Permits are included in appendix A of the Project Manual.*

**Q. Have stream crossing permits been acquired?**

*A. Yes, Floodplain Construction Permit is included in Appendix A of the Project Manual. Army Corps of Engineers permit and Section 401 Water Quality Certification are not required. A letter from U.S. Army Engineer District, Louisville is also included in Appendix A.*

**Q. Where is the restrained joint pipe found in the bid form required.**

*A. Restrained joint pipe is required adjacent to bends (vertical and horizontal), valves, tees, and plugs. The quantity of restrained joint pipe is revised to 2,100 in this Addendum #1. The Restrained Joint Length Table on Sheet W2.02 has also been amended in this Addendum #1 to include tees, valves, plugs, and caps. In addition to restraint, all fittings and valves also require concrete thrust blocking per drawings and specifications. (SECTION 33 11 00 3.03.A.5)*

*No separate pay item has been established for fittings and no determination of the number of fittings required on the job has been made. The Contractor, during the bidding phase, shall determine the number of fittings required on the job and include the cost of the fittings and installation in the unit price for pipe.*

*Horizontal and vertical angles (bends), whether shown on the plans or not, shall be made using standard fittings. Additional fittings shall be provided at the Contractor's own expense to achieve the required horizontal and vertical routing.*

**Q. Is there rock on the project?**

*A. All excavation and bores are UNCLASSIFIED. No subsurface explorations are available, only visual examination of the site and information commonly known to contractors doing business in the locality of the site.*

**Q. Is #57 Stone required beneath casing on jack and bore stream crossing.**

*A. No, #57 stone is not required beneath casing on jack and bore installations. The Major Creek Crossing detail on sheet W2.01 has been modified accordingly.*

**Q. Is Item 7 on the Bid Form Free Bore or Directional Bore.**

*A. This item is for 40 LF of free bore beneath a concrete driveway. No casing is required. Any trenchless method the contractor chooses may be employed. Damage, including but not limited to surface heave, to the driveway shall be repaired at the Contractor's expense, to a condition equal to or better than the condition prior to construction.*

**Q. How is debris from clearing on 6-inch segment to be disposed of?**

*A. Debris from clearing and grubbing shall be hauled and disposed of off-site. Mulching and leaving on site shall NOT be allowed. See SECTION 31 10 00 Paragraph 3.06.*

**Q. Is TR Flex or Field-lok required for restrained joint pipe.**

*A. Either Field-lok or TR Flex or pre-approved equal of either will be allowed. M.J. fittings and valves shall be restrained with friction type retainer gland by Ford, Romac, EBAA or pre-approved equal. Required restrained length from fittings shall be restrained with Field-lok or TR Flex type restraining gasket or pre-approved equal.*

**Q. How is North American Green S150 to be anchored? Earth Anchors or Pins?**

*A. This product, or an equal, shall be anchored in accordance with manufacturer's requirements and recommendation as shown on Sheet W2.03 and in referenced material from the manufacturer. It is Contractor's responsibility to select the appropriate anchor type and length. Anchoring shall be selected to hold the mat in intimate contact with the soil subgrade and resist pullout. For information, an Installation Guide is attached including staple pattern guides for various slopes.*

**Q. When will contract times commence?**

*A. After approval by Owner, RD, and PSC, a Notice of Award will be issued. At the time of notice of award a Notice to Proceed date will be agreed upon within 30 days of Notice of Award. Notice of Award is expected within 60 days of Bid Opening. Notice to Proceed and commencement of contract times is expected within 90 days of Bid Opening.*

**Q. Will Owner provide water for testing?**

*A. Yes, Owner will provide water for testing at no charge. Water used for testing shall be metered and reported to owner. See SECTION 01 50 00 Paragraph 3.06.*



**PROJECT:** Hwy 1882 & Hwy 144 Water Transmission Main Replacement  
Hardin County Water District No. 1  
Hardin County, KY

**PRE-BID MEETING:** Jan. 26, 2016 @ 2:00 pm  
**LOCATION:** Hardin County Water District No. 1  
1400 Rogersville Road, Radcliff, KY 40160

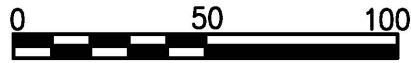
NAME	COMPANY	PHONE NUMBER	EMAIL ADDRESS
JEFF LASHLEE	CANNON & CANNON	270-780-4651	JLASHLEE@CANNON-CANNON.COM
Ryan Hunt	Cleary Construction	270-487-1784	estimating@clearyconst.com
Jim Curtis	United Pipeline	270-535-0799	jim.unitedpipeline@yahoo.com
Bo Ellison	Cumberland Pipeline	859-699-9344	bellison@cumberlandpipeline.com
Chris Adams	TwinStates Utilities	270-407-8366	Cadams@twinstatesinc.com
Joe Finley	Twin States	270-427-0710	jfinley@twinstatesinc.com
LANCE HUBERT	HUBERT EXCAVATING	502-680-1281	hubertexcavating@gmail.com
Greg Bertram	Flo-Line Contracting	606-340-8000	floline@windstream.net
MARK MATHEIS	HD Supply	502-572-5741	mark.matheis@hdsupply.com
Mike Salmon	Salmon Const	270-547-0090	
Bryant Stevenson	Abbico Contracting	270-668-4499	abbicocontracting@att.net
Chris Cornett	Weddle Enterprises Inc	859-576-3446	chris@weddle-enterprises.com
Chasity Houston	Norris Bros Excavating, LLC	931-277-5665	norrisbrosexcavating@hotmail.com
Lance Smith	RAME Contracting	859-336-6000	jmattingly@ramecontracting.com
Ed MORRIS	TSI Constr.	502-773-2204	emorris@tsiconstructioninc.com
Ryan Quinn	Flynn Brothers	502-364-9100	rquinn@flynnbrothers.com



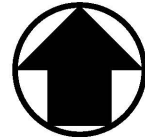
**PROJECT:** Hwy 1882 & Hwy 144 Water Transmission Main Replacement  
Hardin County Water District No. 1  
Hardin County, KY

**PRE-BID MEETING:** Jan. 26, 2016 @ 2:00 pm  
**LOCATION:** Hardin County Water District No. 1  
1400 Rogersville Road, Radcliff, KY 40160

NAME	COMPANY	PHONE NUMBER	EMAIL ADDRESS
Larry Watson	L Watson Trucking	502-387-9211	lwatsontruckng@icloud.com
Eric Watson	ETC Landscape	562-643-3885	ETClandscape@outlook.com
Ben Tanson	Garney Construction	513-256-2288	Garney.Nashville@garney.com
Terry McCauley	Ferguson Waterworks	502-599-4140	Terry.McCauley@ferguson.com
Kenneth Eichenberger	T+C Contracting	502-937-3433	Kenneth.E@TCKY.biz
DUSTIN GERKINS	PHILLIPS BROTHERS CONST.	270-877-6303	estimating@phillipsdirt.com
Troy Jeffries	Fredrick MAX CONST.	606-743-4327	
Jon Bullington	Martin Contracting	502-723-1946	jon.bullington@martincontracting.net
Roger Kink	DYNAMIC CONSTRUCTION	615-207-5365	RKINK2008@COMCAST.NET
Karl Schroeder	Schroeder Construction	270-737-7717	SEI.SACOD@Gmail.com
Daniel C. Cifano	HCWD No. 1	270-268-4090	DELIFANO@HCWD.com
JIM BRUCE	HCWD 1	270-268-4069	JBRUCE@HCWD.COM
Brett Pyles	HCWD 1	270/766-9477	bpyles@hcwd.com
Tim Osborne	HCWD 1	270-266-9464	fosborne@hcwd.com
SETH FISHER	CANNON & CANNON	865-670-8555	SFISHER@CANNON-CANNON.COM



SCALE: 1" = 50'



NORTH

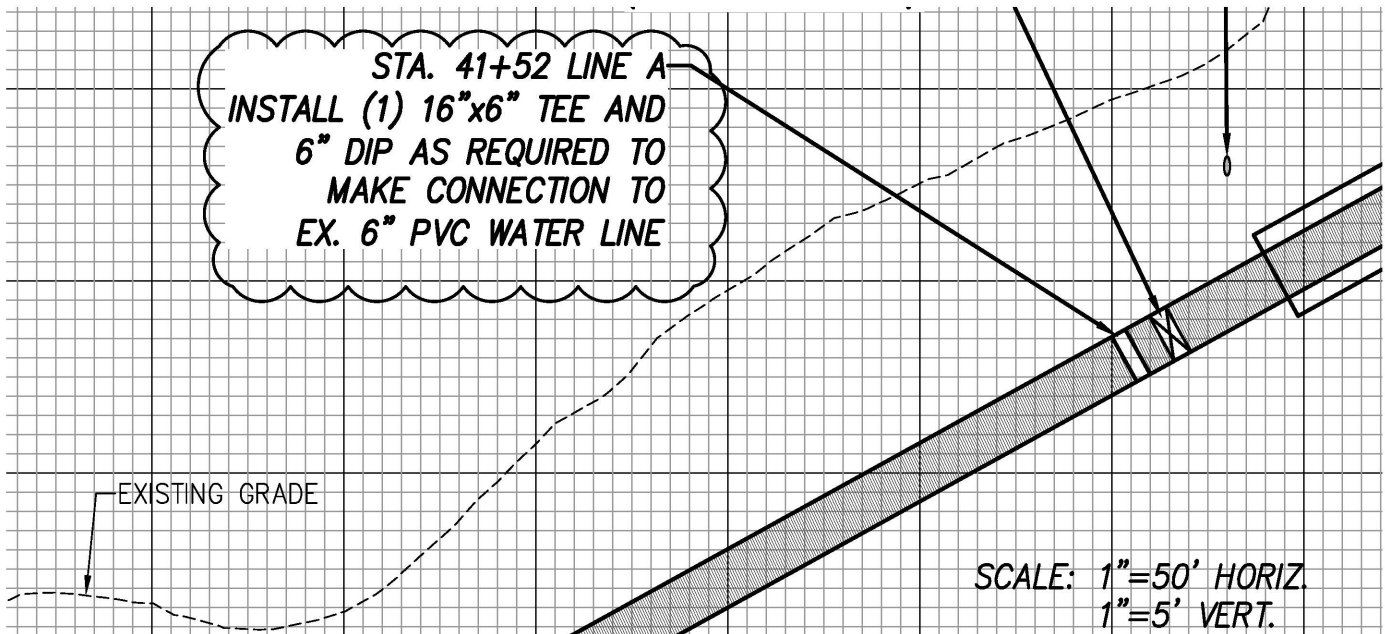
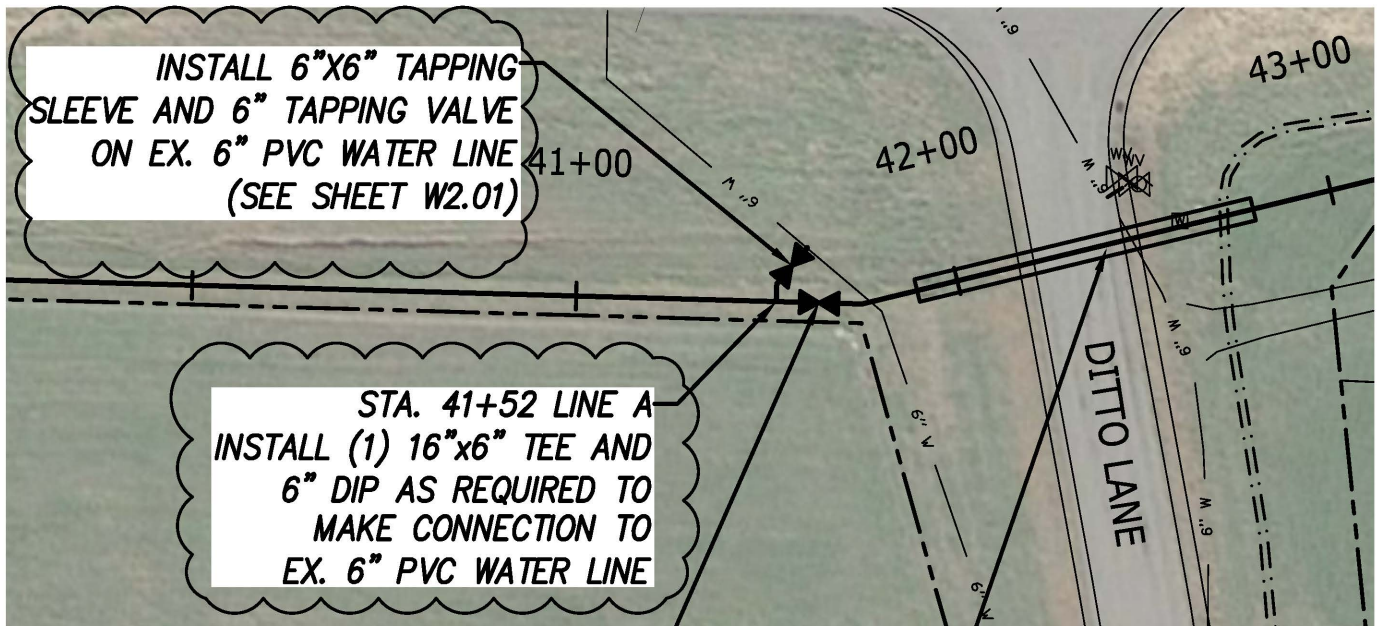


EXHIBIT 1  
ADDENDUM #1  
FROM PLAN SHEET W1.04

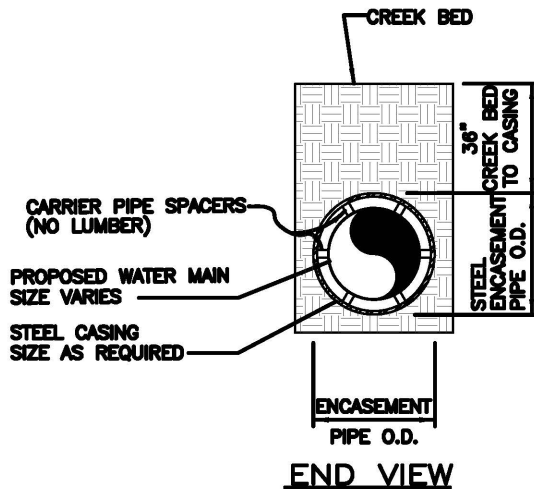


**CANNON & CANNON** INC  
CONSULTING ENGINEERS · FIELD SURVEYORS  
TEL 865.670.8555 || 8550 Kingston Pike  
WWW.CANNON-CANNON.COM || Knoxville, TN 37919  
FAX 865.670.8866

DRAWN BY	SAF
CHECKED BY	TFT
DATE	01-31-17
SCALE	SEE ABOVE
CCI PROJ. NO.	00904-0004

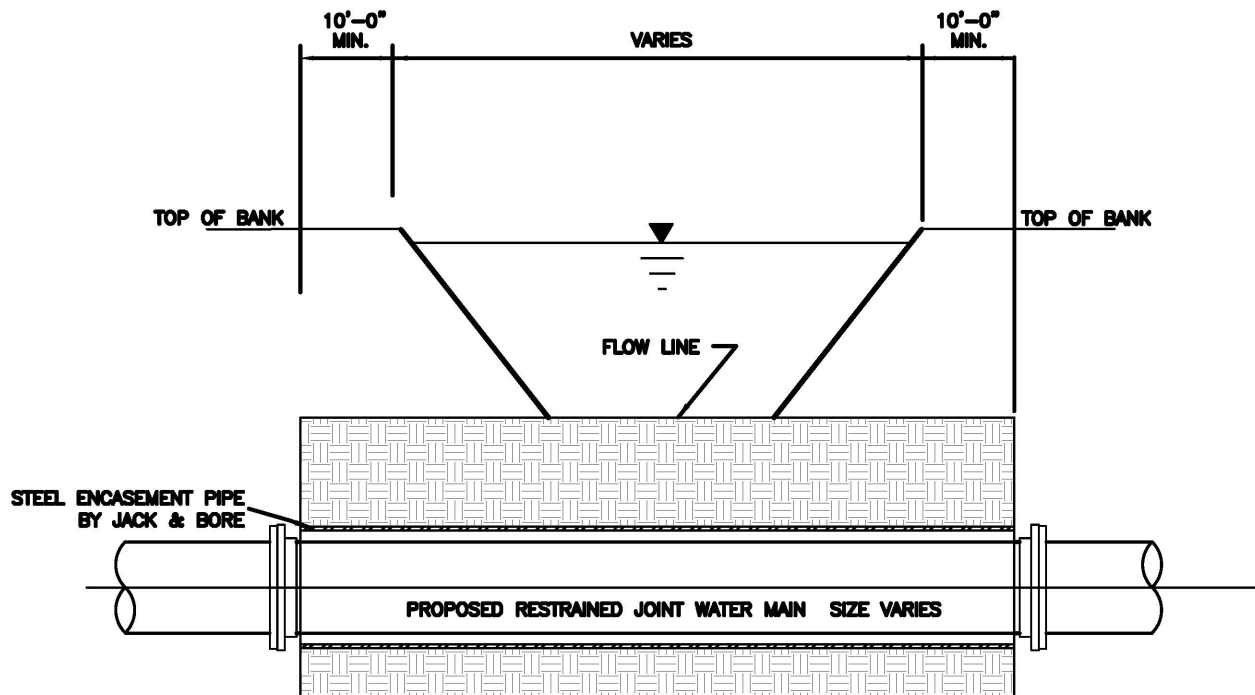
HWY 1882 & HWY 144 WATER  
TRANSMISSION MAIN  
REPLACEMENT  
HARDIN COUNTY, KY





**NOTE:**

1. INSTALL RESTRAINED JOINT PIPE THROUGH CROSSING AND AS NOTED ON THE PLANS.
2. INSTALL VERTICAL BENDS AS REQUIRED TO AVOID EXCESSIVE EXCAVATION DEPTHS.
3. WHERE VERTICAL BENDS ARE INSTALLED, RESTRAINED JOINT PIPE SHALL BE INSTALLED PAST THE BEND. REFER TO THE RESTRAINED JOINT TABLE ON SHEET W2.02 FOR REQUIRED LENGTHS PAST EACH BEND.
4. INSTALL A LEAK DETECTION STATION AT CROSSINGS AS NOTED ON THE PLANS.



MAJOR CREEK CROSSING

**EXHIBIT 2  
ADDENDUM #1  
FROM PLAN SHEET W2.01**



**NOTE:**

RESTRAINED JOINT PIPE (FLEX-RING, FIELD LOK, OR EQUAL) SHALL BE USED UPSTREAM AND DOWNSTREAM OF EACH RESTRAINED JOINT FITTING AS FOLLOWS:

**REQUIRED LENGTH OF RESTRAINED JOINT PIPE (FEET)**

	<u>HORIZONTAL &amp; VERTICAL UP</u>		<u>VERTICAL DOWN</u>	
<u>WATER LINE DIA.</u>	<u>6"</u>	<u>16"</u>	<u>6"</u>	<u>16"</u>
90° BEND	50	110	125	295
45° BEND	20	50	50	120
22-1/2° BEND	10	20	25	60
11-1/4° BEND	5	10	10	30
TEE, VALVE, PLUG, OR CAP		<u>6"</u> 60	<u>16"</u> 120	

**RESTRAINED JOINT LENGTH TABLE**

**EXHIBIT 3  
ADDENDUM #1  
FROM PLAN SHEET W2.02**



**CANNON & CANNON INC**  
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FAX 865.670.8866

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SCALE	N.T.S.
CCI PROJ. NO.	00904-0004

HWY 1882 & HWY 144 WATER  
TRANSMISSION MAIN  
REPLACEMENT  
HARDIN COUNTY, KY

PROJECT: Hwy 1882 & Hwy 144 Water Transmission Main Replacement  
Hardin County, KY

ADDENDUM NO.: 2

ADDENDUM DATE: February 6, 2017

OWNER: Hardin County Water District No. 1  
1400 Rogersville Road  
Radcliff, KY 40160

ENGINEER: Cannon & Cannon, Inc.  
8550 Kingston Pike  
Knoxville, Tennessee 37919



ALL BIDS SHALL CONFORM TO THIS ADDENDUM:

This addendum forms a part of the Contract referenced above. The following items covering changes in the bidding requirements shall apply to and become a part of the requirements thereof.

Receipt of this Addendum shall be acknowledged by inserting its number and date in the space on the Bid Form. Failure to do so may result in disqualification of the Bidder.

This Addendum consists of one (1) page.

#### ITEM NO. 1 CLARIFICATIONS

The following items are clarifying comments on certain Sections and Drawings of the Contract Documents and on the overall intent of the Project.

- A. License number and evidence to do business in the state of KY are NOT required to be submitted with bid. The paragraphs below shall be deleted from the project manual.

#### ITEM NO. 2 DELETIONS

- A. **SECTION 00 21 13 - INSTRUCTIONS TO BIDDERS;**  
DELETE Paragraphs 3.01 A., 3.01 B., and 13.09 (License number and evidence of authority to do business in the state where the project is located are NOT required to be submitted with bid.)
- B. **SECTION 00 31 31 - QUALIFICATIONS STATEMENT;**  
DELETE Section 7 - Licensing.
- C. **SECTION 00 41 13 - BID FORM - UNIT PRICE;**  
DELETE Paragraphs 7.01 E and 7.01 F (License number and evidence of authority to do business in the state where the project is located are NOT required to be submitted with bid.)

END ADDENDUM NO. 2

**SECTION 00 41 13 BID FORM**

**Hwy 1882 and Hwy 144 Water Transmission Main Replacement**

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## ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

**Hardin County Water District No. 1  
1400 Rogersville Rd  
Radcliff, KY 40160**

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

## ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for ~~60~~ **120** days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

## ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.

Addendum, Date

_____	_____
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

~~D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.~~

E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of

such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. 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.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

#### **ARTICLE 4 – BIDDER'S CERTIFICATION**

##### **4.01 Bidder certifies that:**

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
  - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
  - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

**ARTICLE 5 – BASIS OF BID**

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1	Mobilization, General Requirements, Bonds and Insurance	LS	1		
2	Connect to 16" WM Sta 0+00 Line A	EA	1		
3	Connect to 16" WM Sta 80+19 Line A	EA	1		
4	6"x6" Tapping Sleeve and MJ Gate Valve	EA	1		
5	16" DI Pipe Class 350	LF	5,900		
6	16" DI Pipe CI 350 Restrained	LF	2,100		
7	16" DI Pipe CI 350 Direct Bore	LF	40		
8	6" DI Pipe CI 350 Restrained	LF	30		
9	24" Steel Casing by bore with 16" Steel carrier (Stream Crossing)	LF	100		
10	24" Steel Casing Open Cut	LF	90		
11	24" PVC Casing	LF	45		
12	16" Butterfly Valve	EA	5		
13	6" Gate Valve	EA	1		
14	Air/Vacuum Release Valve	EA	7		
15	Leak Detection Station	EA	1		
16	2" PVC Service Casing	LF	180		
17	¾" CL 200 HDPE Service line	LF	350		
18	Reconnect Existing Service	EA	5		
19	Meter Setting (relocate meter)	EA	1		
20	Bituminous Pavement Replacement	LF	50		
21	Traffic Control	LS	1		
22	Erosion Prevention and Sediment Control	LS	1		
<b>Sub-total of All Unit Price Bid Items</b>					<b>\$</b>



Alternate 1 – SHEET W1.08					
Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
23	Connect to 6" WM Sta 0+00 Line B	EA	1		
24	6" PVC Pipe PC 235 DR 18	LF	1275		
25	6" Gate Valve	EA	1		
26	Air/ Vacuum Release Valve	EA	1		
27	2" PVC Service Casing	LF	105		
28	¾" CL 200 HDPE Service line	LF	180		
29	Reconnect Existing Service	EA	3		
30	Fire Hydrant Assembly	EA	1		
<b>Sub-total of All Alternate 1 Unit Price Bid Items</b>					\$

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

**TOTAL BID PRICE - Total Unit Price Bid for Item Nos. 1 through 30 including Alternate 1**

\_\_\_\_\_ Dollars \_\_\_\_\_ Cents

(\$ \_\_\_\_\_)

**Deductive Total of Alternate 1 – Sheet W1.08 Item Nos. 23-30. Subtract:**

\_\_\_\_\_ Dollars \_\_\_\_\_ Cents

(\$ \_\_\_\_\_)

Alternate 1 (Sheet W1.08) will be deducted if necessary for lowest total bid to be within project funds. Deduction of alternate could change the low bidder.

## **ARTICLE 6 – TIME OF COMPLETION**

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

## **ARTICLE 7 – ATTACHMENTS TO THIS BID**

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security;
  - B. List of Proposed Subcontractors;
  - C. List of Proposed Suppliers;
  - D. List of Project References;
  - E. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
  - F. Contractor's License No.: \_\_\_\_\_
  - G. Required Bidder Qualification Statement (Section 00 31 13) with supporting data; and
  - H. **If Bid amount exceeds \$10,000, signed Compliance Statement (RD 400-6). Refer to specific equal opportunity requirements set forth in the Supplemental General Conditions. Section 00 45 11.**
  - I. **If Bid amount exceeds \$25,000, signed Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transactions (AD-1048) Section 00 45 13.**
  - J. **If Bid amount exceeds \$100,000, signed RD Instruction 1940-Q, Exhibit A-1, Certification for Contracts, Grants, and Loans. Section 00 45 15.**

## **ARTICLE 8 – DEFINED TERMS**

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

## ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By:

*[Signature]*

*[Printed name]*

*(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)*

Attest:

*[Signature]*

*[Printed name]*

Title:

Submittal Date:

Address for giving notices:

Telephone Number:

Fax Number:

Contact Name and e-mail address:

Bidder's License No.:

*(where applicable)*

**NOTE TO USER:** *Use in those states or other jurisdictions where applicable or required.*

# **ROLLMAX™**

## ROLLED EROSION CONTROL

### INSTALLATION GUIDE







## RollMax™ Installation Guidelines:

North American Green is the world's leading provider of performance-guaranteed erosion control solutions. For more than 25 years, our line of erosion and sediment control products has kept our customers on solid ground. Our short-term and long-term Erosion Control Blankets (ECBs) and Turf Reinforcement Mats (TRMs) keep you one step ahead of just about any erosion challenge.

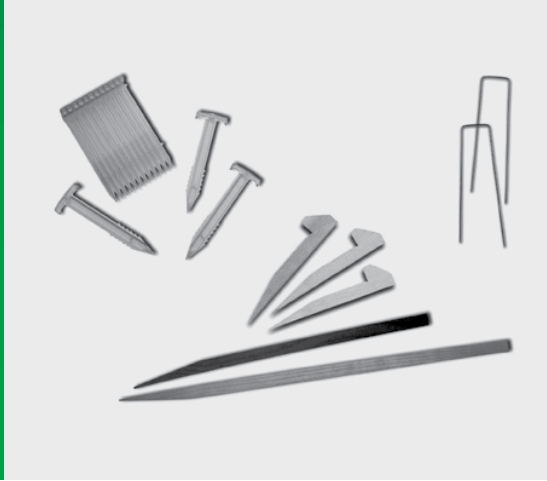
North American Green provides everything you need to know for quick, accurate erosion control installation tailored to your site. From start to finish, the North American Green® RollMax System™ product installation instructions are based on extensive research and field-proven techniques to ensure project success. The following pages offer instructions and guidelines for several scenarios you may encounter during the installation of the RollMax System.

### EXPERIENCE YOU CAN RELY ON

We are the industry leader when it comes to providing comprehensive erosion and sediment control and turf reinforcement solutions. We have developed integrated systems and products with the sole objective to ensure absolute customer satisfaction. Our products are backed by the most thorough quality assurance practices in the industry. In addition, we provide comprehensive design assistance for every North American Green system.

For additional installation assistance with the RollMax System, please visit **[www.tensarnagreen.com](http://www.tensarnagreen.com)**, e-mail **[customerservice-nag@nagreen.com](mailto:customerservice-nag@nagreen.com)**, or call **800-772-2040** and we will be happy to put you in touch with an erosion control specialist who can assist you.





# Installation Made Easy

When under the pressure of severe conditions, even the best erosion control products can't function to their full potential without proper installation and anchoring. North American Green supplies a wide variety of fastener options for nearly every application and soil type.

For use in cohesive soils, wire staples are a cost-effective means to fasten RollMax™ System Rolled Erosion Control Products (RECPs). Available in 6 in., 8 in., 10 in. and 12 in. lengths, our U-shaped staples reach various depths to ensure adequate pull-out resistance. For installation using our handy Pin Pounder installation tool, 6 in. V-top staples or 6 in. circle top pins are available.

Our biodegradable BioStakes® are available in 4 in. and 6 in. lengths and provide an environmentally friendly alternative to metal staples. For an even more durable, deeper reaching yet all-natural anchoring option, our wood EcoStakes® are available in 6 in., 12 in., 18 in. and 24 in. lengths.

For severe applications needing the ultimate, long-lasting hold, try our 12 in. and 18 in. rebar staples, our 12 in. plastic ShoreMax® stakes, or our complete line of percussion earth anchors. The earth anchors reach deep into the soil strata to offer enhanced anchoring in the worst conditions. Our variety of earth anchors are designed for durability and holding power under extreme hydraulic stresses and adverse soil conditions.

## STAPLE PATTERNS

Proper staple patterns must be used to achieve optimal results in RECP installation. We recommend the following general stapling patterns as guidance for use with our RECPs as seen in (Figure 1). Site-specific staple pattern recommendations based on soil type and severity of application may be acquired through our Erosion Control Materials Design Software (ECMDS®), [www.ecmds.com](http://www.ecmds.com).

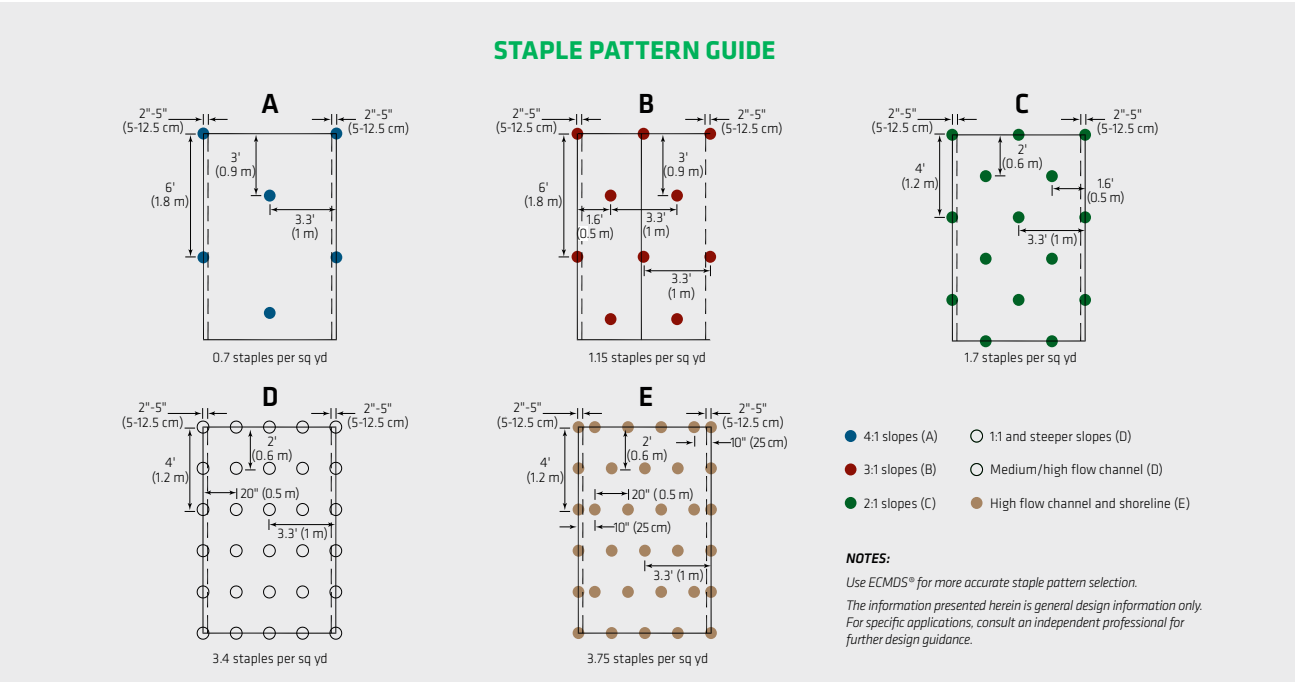
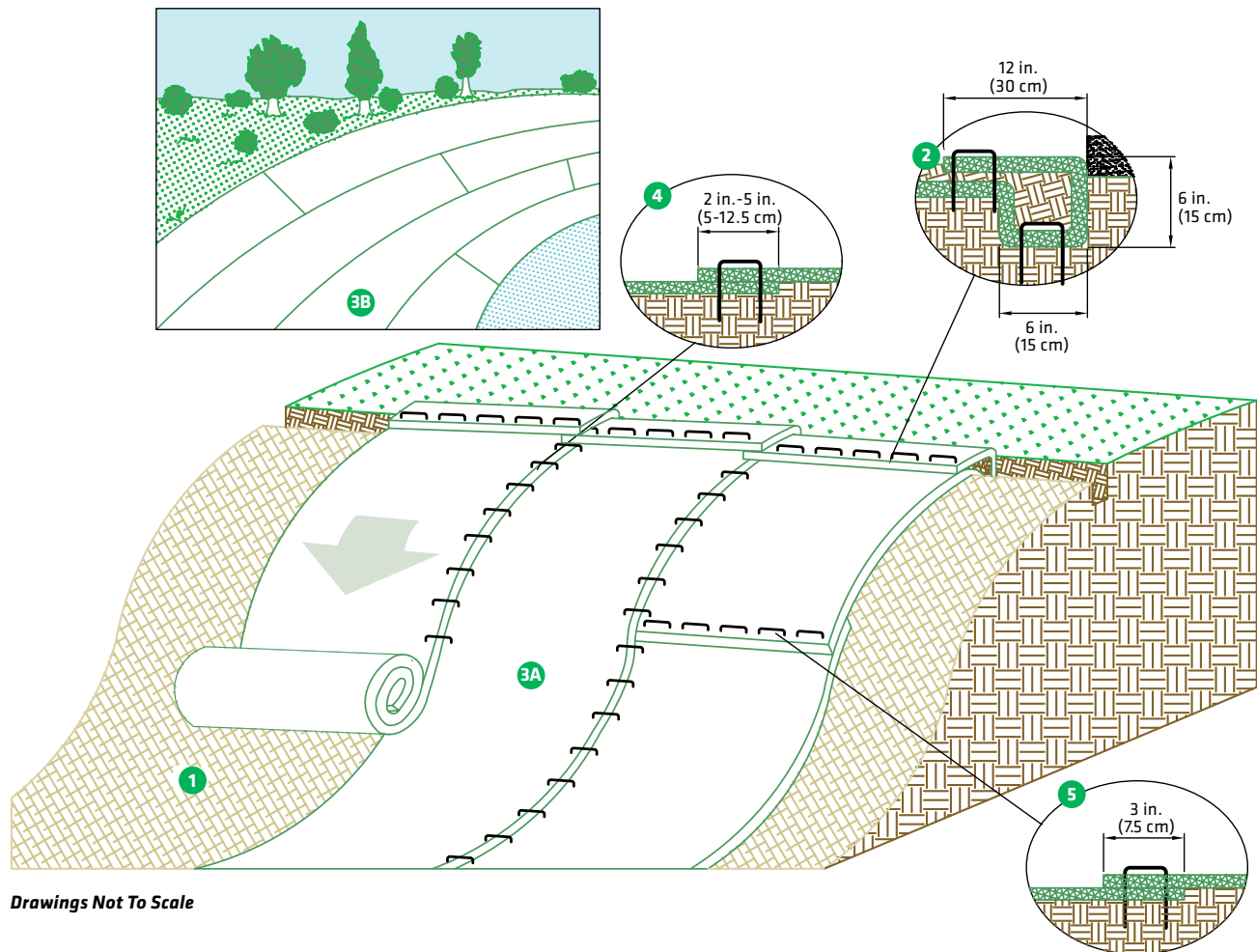


FIGURE 1

# Slope Installation

The following slope guide outlines general recommendations for installing RollMax™ System temporary and/or permanent RECPs on sloping applications. Consult the staple pattern guide (Figure 1) for fastener spacing recommendations based on the slope severity.



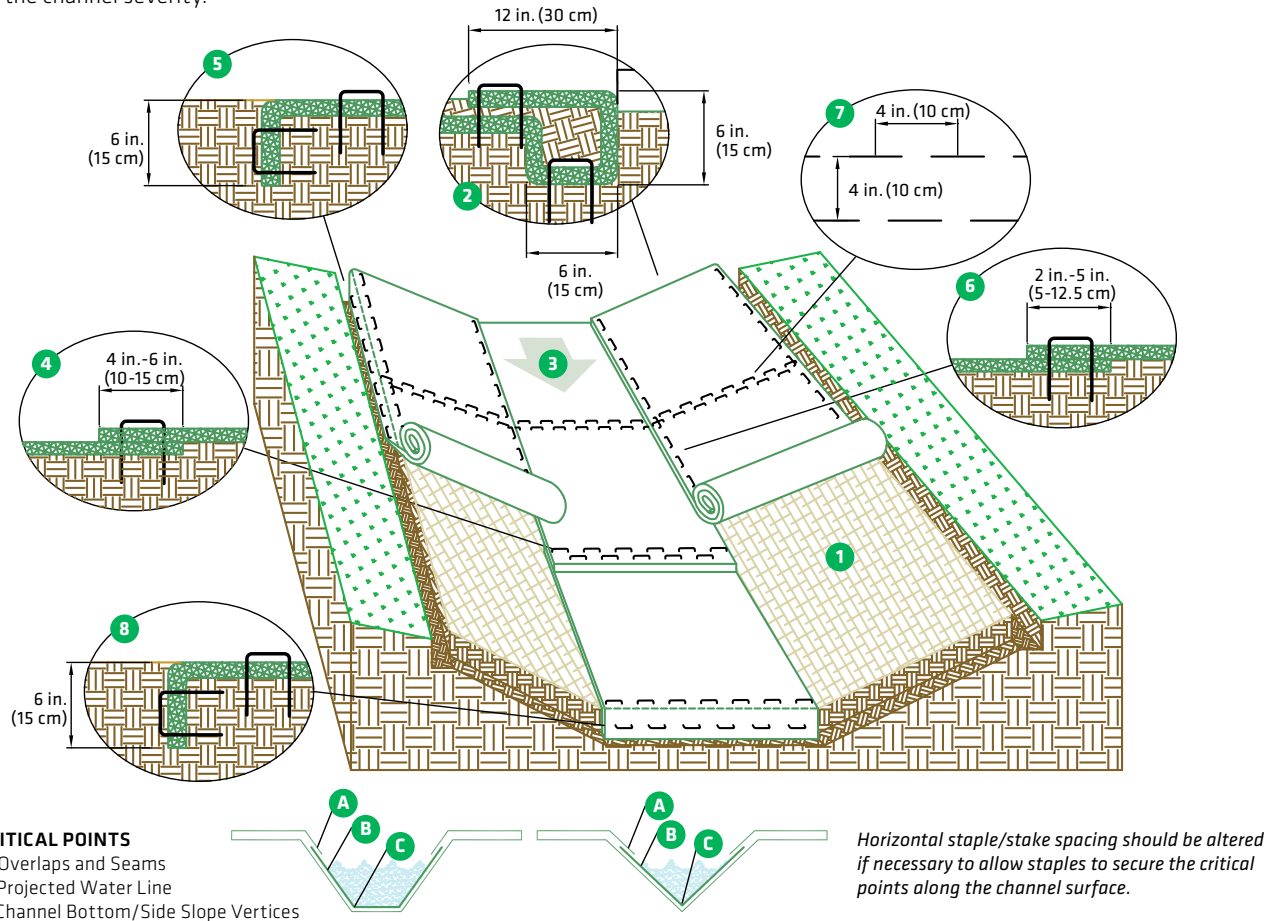
## SLOPE INSTALLATION STEPS

1. Prepare soil before installing RECPs, including any necessary application of lime, fertilizer and seed.
2. Begin at the top of the slope by anchoring the RECPs in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench with approximately 12 in. (30 cm) of RECPs extended beyond the upslope portion of the trench. Anchor the RECPs with a row of staples/stakes approximately 12 in. (30 cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12 in. (30 cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12 in. (30 cm) apart across the width of the RECPs.
3. Roll the RECPs (3A) down or (3B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
4. The edges of parallel RECPs must be stapled with an approximately 2 in.-5 in. (5-12.5 cm) overlap depending on the RECP type.
5. Consecutive RECPs spliced down the slope must be end-over-end (shingle style) with an approximate 3 in. (7.5 cm) overlap. Staple through overlapped area, approximately 12 in. (30 cm) apart across entire RECPs width.\*

**\*NOTE:** In adverse soil conditions longer staples/stakes or earth anchors may be necessary to properly secure the RECPs.

# Channel Installation

The following channel guide outlines general recommendations for installing RollMax System temporary and/or permanent RECPs in concentrated flow applications. Consult the staple pattern guide (Figure 1) for fastener spacing recommendations based on the channel severity.



**Drawings Not To Scale**

## CHANNEL INSTALLATION STEPS

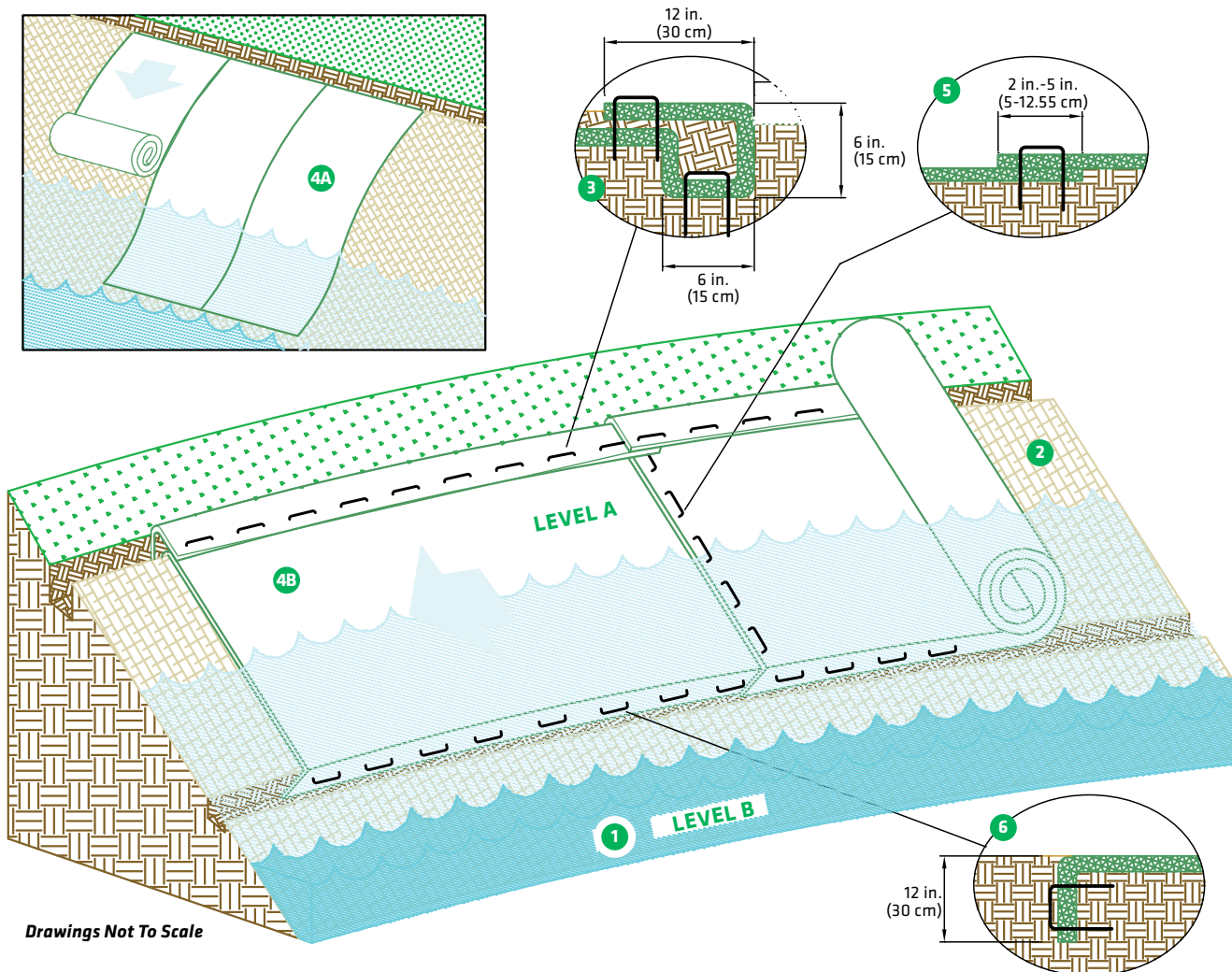
1. Prepare soil before installing RECPs, including any necessary application of lime, fertilizer and seed.
2. Begin at the top of the channel by anchoring the RECPs in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench with approximately 12 in. (30 cm) of RECPs extended beyond the upslope portion of the trench. For supplemental scour protection, use RevetMax™ System ShoreMax® Mat at the channel/culvert outlet as needed. Anchor the RECPs with a row of staples/stakes approximately 12 in. (30 cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12 in. (30 cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12 in. (30 cm) apart across the width of the RECPs.
3. Roll center RECPs in direction of water flow in bottom of channel. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
4. Place consecutive RECPs end-over-end (shingle style) with a 4 in.-6 in. (10-15 cm) overlap. Use a double row of staples staggered 4 in. (10 cm) apart and 4 in. (10 cm) on center to secure RECPs.
5. Full-length edge of RECPs at top of side slopes must be anchored with a row of staples/stakes approximately 12 in. (30 cm) apart in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench. Backfill and compact the trench after stapling.
6. Adjacent RECPs must be overlapped approximately 2 in.-5 in. (5-12.5 cm) (depending on RECP type) and stapled.\*
7. In high flow channel applications a staple check slot is recommended at 30 to 40 ft (9-12 m) intervals. Use a double row of staples staggered 4 in. (10 cm) apart and 4 in. (10 cm) on center over entire width of the channel.
8. The terminal end of the RECPs must be anchored with a row of staples/stakes approximately 12 in. (30 cm) apart in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench. Backfill and compact the trench after stapling.

**\*NOTE:** In adverse soil conditions longer staples/stakes or earth anchors may be necessary to properly secure the RECPs.



# Shoreline Installation

Below are recommendations for installing RollMax System temporary and/or permanent RECPs along shoreline and stream bank applications. Consult the staple pattern guide (Figure 1) for fastener spacing recommendations based on the bank severity.



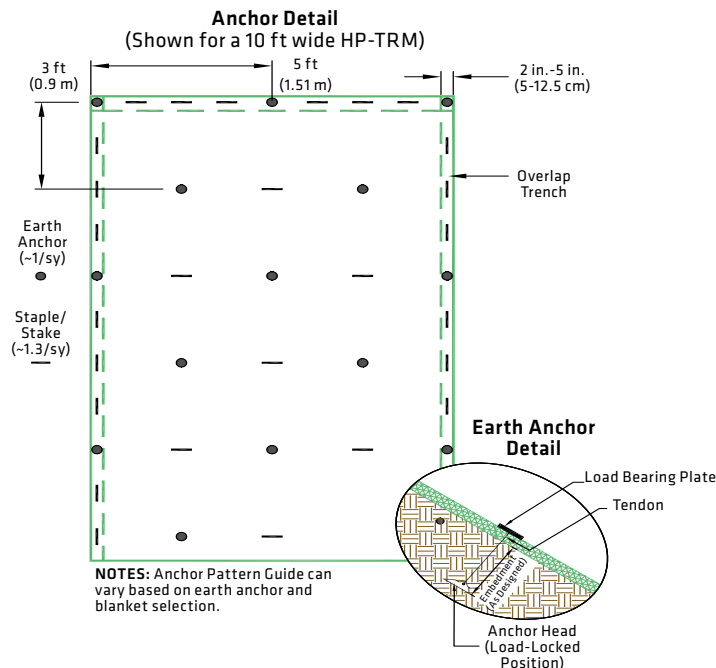
**Drawings Not To Scale**

## SHORELINE/STREAMBANK INSTALLATION STEPS

- For easier installation, lower water level from Level A to Level B before installation to allow bottom trenching.
- Prepare soil before installing RECPs, including any necessary application of lime, fertilizer and seed.
- Begin at the top of the shoreline by anchoring the RECPs in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench with approximately 12 in. (30 cm) of RECPs extended beyond the upslope portion of the trench. Anchor the RECPs with a row of staples/stakes approximately 12 in. (30 cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12 in. (30 cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12 in. (30 cm) apart across the width of the RECPs.
- Roll RECPs either (A) down the shoreline for long banks (top to bottom) or (B) horizontally across the shoreline slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
- The edges of all horizontal and vertical seams must be stapled with an approximately 2 in.-5 in. (5-12.5 cm) overlap. In streambank applications, seam overlaps should be shingled in the predominant flow direction.
- The edges of the RECPs at or below normal water level must be anchored by placing the RECPs in a 12 in. (30 cm) deep x 6 in. (15 cm) wide anchor trench. Anchor the RECPs with a row of staples/stakes spaced approximately 12 in. (30 cm) apart in the trench. Backfill and compact the trench after stapling (stone or soil may be used as backfill). For installation at or below normal water level, use of a ShoreMax Mat on top of the RECP or geotextile may be recommended. Bottom anchor trench can be eliminated when using a ShoreMax Mat over RECP along the bottom edge.

**NOTE:** In adverse soil conditions longer staples/stakes or earth anchors may be necessary to properly secure the RECPs.

# Special Installation Instructions



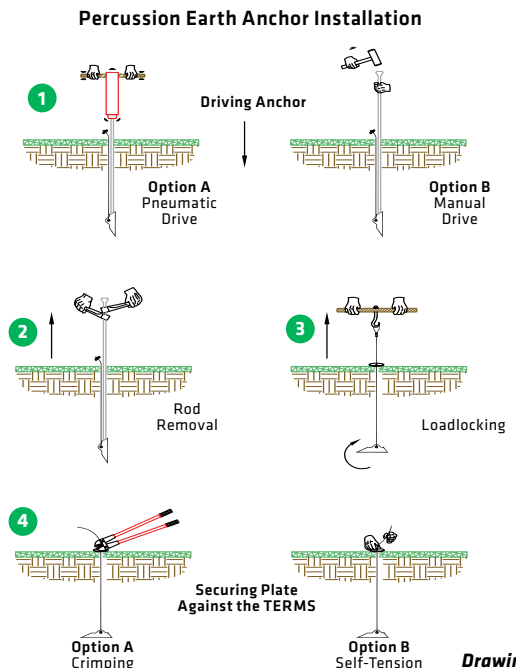
## ANCHORING DETAIL

Consult the *RollMax™ Turf and Earth Reinforced Mat Systems (TERMS) Installation Guide* for details about using earth anchors with RollMax RECPs. The performance of ground anchoring devices is highly dependent on numerous site/project specific variables. It is the responsibility of the project engineer and/or contractor to select the appropriate anchor.

1. Staples and/or stakes should be at least 6 in. (15 cm) in length and with sufficient ground penetration to resist pullout. Longer staples and/or stakes may be needed in looser soils.
2. The percussion earth anchor assembly includes an anchor head, a tendon, a faceplate, and an end-piece device. Consult Earth Anchor specification for detailed information on assembly components and associated pull-out strength.

## PERCUSSION EARTH ANCHOR INSTALLATION

1. Insert the drive rod into the assembly's anchor head then use either a sledge hammer or a vibratory hammer to drive the anchor to the desired depth.
2. After the desired anchor depth is achieved, retract the drive rod.
3. Lock the anchor assembly by swiftly pulling the cable upwards until the anchor head rotates as signaled by sudden resistance to pulling. A hooked setting tool may be used to aid in this step.
4. Secure the faceplate to the HP-TRM surface by locking the end-piece. If using a copper or aluminum stop, crimp the ferrule to secure. If using a self-tensioning end-piece (grip or wedge grip) set by simply tightening the end-piece against the faceplate. If needed, cut the remaining cable to desired length.



## SEEDING AND VEGETATING

When using a Composite Turf Reinforcement Mat (C-TRM) with fiber components:

1. Pre-seed prepared soils prior to the installation of the C-TRM. Install matting as directed. C-TRM does not require soil infill or a top dressing of seed. Overseeding may be done as a secondary form of seeding.
2. Sod may be installed in place of seeding on top of the C-TRM. Additional staking of sod is recommended in high-flow conditions. Sodded areas should be irrigated until rooting through the mat and into subgrade occurs.

When using a woven HP-TRM:

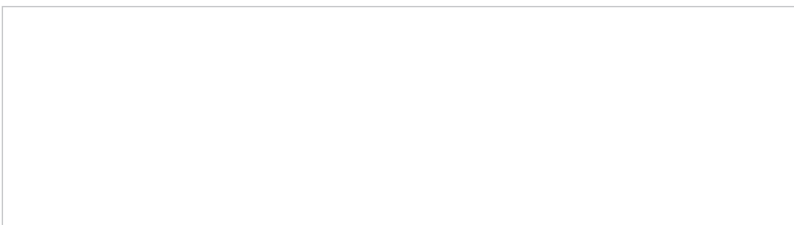
1. Install the HP-TRM as directed prior to seed and soil filling.
2. Place seed into the installed HP-TRM. After seeding, spread a layer of fine soil into the mat. Using the flat side of a rake, broom or other tool, completely fill the voids. Smooth soil-fill in order to just expose the top of the HP-TRM matrix. Do not place excessive soil above the mat.
3. Additional seed, hydraulic mulching, or the use of a temporary Erosion Control Blanket (ECB) can be applied over the soil-filled mat for increased protection.
4. Sod may be installed in place of seeding. Install HP-TRM, and soil-fill as outlined above. Place sod directly onto the soil-filled HP-TRM. Additional staking of sod is recommended in high-flow conditions. Sodded areas should be irrigated until rooting through the mat and into subgrade occurs.
5. Consult with a manufacturer's technical representative for installation assistance if unique conditions apply.



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## DIVISION 1: GENERAL REQUIREMENTS

**SECTION 01 11 00  
SUMMARY OF WORK**

**PART 1 - GENERAL**

**1.01 WORK INCLUDED**

- A. The following major Work items are included in the Contract:

**Improvements to the existing water system including the installation of 8,050 LF of 16" ductile iron water line, 1,280 LF of 6-inch PVC water line, 100 LF of 24" steel casing to be bored under Otter Creek; service line replacement and reinstatement of eight existing services; installation of a leak detection station; and miscellaneous valves and appurtenances required for complete installation. The work shall be completed in strict accordance with the drawings and the Contract Documents.**

- B. The Contractor shall provide all materials, labor and equipment necessary for completion of the Project, including installation and testing prior to transfer to the District. The Contract Documents are intended to provide the basis for proper completion of the work suitable for the intended use of HCWD1. Anything not expressly set forth but which is reasonably implied or necessary for proper performance of the Project shall be included.
- B. The Contractor shall maintain the existing system in continuous operations. The Contractor shall not operate District hydrants or valves, but shall coordinate with the District when this is required.

**1.02 PERMITS**

The Contractor shall obtain any permits related to or required by, the Work in this Contract. HCWD1 has obtained the following permit(s) for this Project:

1. Kentucky Division of Water Construction Permit
2. Floodplain Construction Permit
3. Kentucky Transportation Cabinet Encroachment Permit

**1.03 CODES**

Comply with applicable codes and regulations of authorities having jurisdiction. Submit copies of inspection reports, notices, citations and similar communications, to the HCWD1.

**1.04 EXISTING CONDITIONS AND DIMENSIONS**

- A. The Work in this Contract will primarily be performed in or around existing facilities of which a portion must remain functional. The Contractor must maintain the required items and/or systems functional without additional effort by the HCWD1's personnel and at no extra costs to the HCWD1.
- B. The Contractor is responsible for verifying all existing conditions, elevations, benchmarks, and survey data, dimensions, etc., and providing his finished work to facilitate existing conditions.

**END OF SECTION 01 11 00**

**SECTION 01 22 19**  
**MEASUREMENT AND PAYMENT (UNIT PRICE BID PROJECTS)**

**PART 1 - GENERAL**

**1.01 WORK INCLUDED**

The Contractor shall furnish all necessary labor, machinery, tools, apparatus, equipment, materials, services and other necessary supplies and perform all work shown on the Drawings and/or described in the Specifications and Contract Documents at the unit or lump sum prices for the items enumerated in Part 2 of this Section.

**PART 2 - PRODUCTS**

**2.01 MOBILIZATION**

Payment for the Contractor's mobilization will be made at the Contract lump sum price and shall include all costs incurred for moving equipment onto the Project area and any pertinent costs related thereto.

**2.02 BONDS AND INSURANCE**

Payment for bonds and insurance will be made at the Contract lump sum price, and shall include the costs of the Performance and Payment Bonds provided under the Contract, and the premiums for insurance required under the Contract.

**2.03 GENERAL REQUIREMENTS**

Payment for general requirements will be made at the Contract lump sum price distributed over the initial term of the Contract and shall include field supervision and support staff, office supervision and support staff, costs associated with maintaining the field operation, and other items required by the general requirements and conditions of the Contract.

**2.04 WATER LINE**

- A. Payment for water line will be made at the Contract unit price per linear foot in place, which shall include compensation for furnishing pipe, trenching, bedding, laying, jointing, shoring, sheeting and bracing, initial backfill, and all other appurtenances required but not specifically delineated herein. Ductile iron fittings (including thrust blocking) and friction type restraint glands are included in this pay item.
- B. The quantity of piping to be paid for shall be the length of pipe measured along the centerline of the completed pipe line without deducting the length of fittings.
- C. Payment for final backfill shall be included in this pay item except for asphalt material and concrete required in restoration of paved areas as defined in Sections 32 12 16 and 32 13 13. Bituminous binder and concrete shall be included in the pay item "Bituminous Pavement Replacement", or "Concrete Pavement Replacement". DGA

and/or crushed stone paving required in the restoration of gravel roadways and drives shall be included in this pay item.

- D. All excavation is unclassified and is included in this pay item and will not be paid for separately.
- E. Testing of the completed water line and any electric, gas or other utility relocation, if necessary, is included in this pay item. However, no payment for the labor portion of this unit item shall be made until the line has been tested and accepted by the Engineer. Testing shall include but not be limited to hydrostatic pressure, disinfecting and flushing and Bac-T.
- F. Payment for seeding and final clean-up (including furnishing and placing topsoil, finish grading, seeding, mulching and erosion control, removal of construction materials and debris, cleaning, and site restoration) is included in this pay item. However, HCWD1 will not pay eight percent (8%) per foot of the line unit cost until final clean-up and seeding has been performed to the satisfaction of HCWD1. The eight percent (8%) per foot of the line unit cost shall be shown as a subsidiary line item on the payment request, which shall also be subject to retainage.
- G. Fence repair/replacement incidental to water line construction is included in this pay item and will not be paid for separately.

## 2.05 VALVES

Payment for valves will be made at the Contract unit price each which shall include valves, friction type restraint glands, thrust blocking, valve box, concrete pad, and all appurtenances necessary for a complete installation. Valves related to fire hydrants are not included in this pay item.

## 2.06 TAPPING VALVE AND SLEEVE

Payment for tapping valve and sleeve connections from the new water line to the existing water system will be made at the Contract unit price each which includes excavation, backfill, valve, valve box, sleeve, gaskets and fittings required to complete the connections.

## 2.07 FIRE HYDRANT ASSEMBLY

Payment for fire hydrants will be made at the Contract unit price each which shall include fittings, anchor tees, pipe, hydrants, valve, friction type restraint glands, thrust blocking, drainage pits and all appurtenances necessary for a complete installation.

## 2.08 AIR/VACUUM RELEASE VALVE

Payment for an air/vacuum release valve will be made at the Contract unit price each, complete in place, including all excavation, material, manhole, saddles, fittings, backfilling, and labor necessary to complete the installation.

## 2.09 LEAK DETECTION STATION

Payment for a leak detection station will be made at the Contract unit price each, complete in place, including all excavation, material, meter box, saddles, fittings, backfilling, and labor necessary to complete the installation.

## 2.10 METER SETTINGS

Payment for meter settings will be made at the Contract unit price each which includes installation of 10 feet of service pipe, excavation, backfilling, cleanup, installation of meter, meter setter, meter box, meter box lid, lock, corporation stop, service saddle and all appurtenances required for a complete installation. Service pipe beyond the 10 feet will be paid for separately under item 2.10.

## 2.11 HDPE SERVICE PIPE

- A. Payment for service pipe and fittings will be made per linear foot in place, with attendant work completed. Excavation is unclassified and included in this pay item.
- B. All meter settings across the road from the water line shall be pushed under the road. The work of pushing is included in this pay item and will not be paid for separately.

## 2.12 PVC SERVICE CASING

- A. Payment for service casing will be made per linear foot in place, with attendant work completed. Boring is unclassified and included in this pay item.
- B. All meter settings across the road from the water line shall be pushed under the road. The work of pushing is included in this pay item and will not be paid for separately.
- C. Service carrier pipe will be paid separately under item 2.10

## 2.13 ENCASEMENT PIPE, OPEN CUT

Payment for force main, water line and gravity sewer line crossings as shown on the Drawings shall include the respective encasement pipe open cut across the roadway, creek or utility and will be paid for at the Contract unit price per linear foot of encasement pipe for the size and type. This work shall include the encasement pipe, complete in place with fittings, blocking, spacers, and all items necessary for its construction and installation. Carrier pipe is paid separately under Items 2.04.

## 2.14 ENCASEMENT PIPE, BORE AND JACK

Payment for force main, water line, and gravity sewer lines crossing under streams, roadways or railroads as shown on the Drawings shall include the respective encasement pipe bored under the roadway or railroad and will be paid for at the Contract unit price per linear foot of encasement pipe for the size and type. This work shall include the encasement pipe, complete in place with fittings, blocking, spacers, and all items



necessary for its construction and installation. Carrier pipe is paid separately under Items 2.04.

2.15 DIRECT BORE

Payment for force main, water line, and gravity sewer lines crossing under streams, roadways, driveways or railroads as shown on the Drawings shall include the respective pipe bored under the roadway, driveway, or railroad and will be paid for at the Contract unit price per linear foot of pipe for the size and type. This work shall include the pipe, complete in place with fittings, blocking, and all items necessary for its construction and installation.

2.16 BITUMINOUS PAVEMENT REPLACEMENT

Payment for bituminous pavement replacement will be paid for at the Contract unit price per linear foot which shall include base, placement of bituminous material, compaction and all appurtenances necessary for a complete installation.

2.17 CONNECTION TO EXISTING PIPE

Payment for connections of the new water line to the existing water system will be made at the Contract unit price each which includes the excavation, backfill, cutting the existing pipe, and fittings required to complete the connections. Valves and sleeves for wet taps are not included in this pay item and will be paid for separately under item 2.06.

2.18 TRAFFIC CONTROL

Payment for traffic control will be made at the Contract lump sum price. Payment shall include all signs, traffic control devices and other materials, flaggers and other labor required, and all items necessary to provide traffic control for the duration of the project, in accordance with the local agency having jurisdiction over the roadway impacted, the specifications, and the Kentucky Department of Highways encroachment permit.

2.19 EROSION PREVENTION AND SEDIMENT CONTROL

Payment for the erosion prevention and sediment control will be made at the contract lump sum price and shall include all necessary labor, equipment and materials to install and maintain erosion and sediment control measures including silt fences, stone bag check dams, stabilized construction entrances, and temporary seeding to prevent the erosion of exposed soil and transportation of sediment offsite.

PART 3 - EXECUTION

3.01 PAY ITEMS

- A. The pay items listed hereinbefore refer to the items listed in the Bid Schedule and cover all of the pay items for this Contract.

- B. Any and all other items of Work listed in the Specifications or shown on the Drawings for this Contract shall be considered incidental to and included in those pay items.

### 3.02 ESTIMATED QUANTITIES OF WORK

Wherever the estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of the documents, including the Bid Proposal, they are given for use in comparing bids and the right is specifically reserved, except as otherwise limited by the Contract Documents, to increase or diminish them as may be deemed reasonably necessary or desirable by HCWD1 to complete the Work contemplated by this Contract. Such increase or diminution shall be accompanied by an adjustment in the Contract Amount in accordance with the Contract Conditions, and shall not give cause for claims or liability for damages against HCWD1 or the Engineer, due to such increase or diminution.

END OF SECTION 01 22 19

## **SECTION 01 25 00 SUBSTITUTION PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
  - 1. Section 01 60 00 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

#### **1.3 DEFINITIONS**

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
  - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
  - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

#### **1.4 ACTION SUBMITTALS**

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
    - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
    - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section.

Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - e. Samples, where applicable or requested.
  - f. Certificates and qualification data, where applicable or requested.
  - g. List of similar installations for completed projects with project names and addresses and names and addresses of engineers and owners.
  - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - i. Research reports evidencing compliance with building code in effect for Project, from **ICC-ES**.
  - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
  - k. Cost information, including a proposal of change, if any, in the Contract Sum.
  - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
  - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
2. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within **seven** days of receipt of a request for substitution. Engineer will notify Contractor **through Construction Manager** of acceptance or rejection of proposed substitution within **15** days of receipt of request, or **seven** days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Engineer's Supplemental Instructions for minor changes in the Work.
  - b. Use product specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.

## 1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

## 1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than **15** days prior to time required for preparation and review of related submittals.
1. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
  - b. Requested substitution provides sustainable design characteristics that specified product provided **for achieving LEED prerequisites and credits**.
  - c. Substitution request is fully documented and properly submitted.
  - d. Requested substitution will not adversely affect Contractor's construction schedule.
  - e. Requested substitution has received necessary approvals of authorities having jurisdiction.
  - f. Requested substitution is compatible with other portions of the Work.
  - g. Requested substitution has been coordinated with other portions of the Work.
  - h. Requested substitution provides specified warranty.
  - i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Engineer will consider requests for substitution if received within **30** days after **the Notice to Proceed**. Requests received after that time may be considered or rejected at discretion of Engineer.
1. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
  - b. Requested substitution does not require extensive revisions to the Contract Documents.
  - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
  - d. Requested substitution provides sustainable design characteristics that specified product provided for achieving LEED prerequisites and credits.
  - e. Substitution request is fully documented and properly submitted.
  - f. Requested substitution will not adversely affect Contractor's construction schedule.

- g. Requested substitution has received necessary approvals of authorities having jurisdiction.
- h. Requested substitution is compatible with other portions of the Work.
- i. Requested substitution has been coordinated with other portions of the Work.
- j. Requested substitution provides specified warranty.
- k. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 25 00

## **SECTION 01 26 00 CONTRACT MODIFICATION PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
  - 1. Section 01 25 00 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

#### **1.3 PROPOSAL REQUESTS**

- A. Owner-Initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Work Change Proposal Requests issued by Engineer are not instructions either to stop work in progress or to execute the proposed change.
  - 2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include costs of labor and supervision directly attributable to the change.
    - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
    - e. Quotation Form: Use forms acceptable to Engineer.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Engineer.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 01 25 00 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use form acceptable to Engineer.

#### 1.4 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, Engineer will issue a Change Order for signatures of Owner and Contractor on form in Section 01 26 00.10 "Change Order".
- B. All Change Orders shall be sequentially numbered and dated.
- C. Change Order will fully describe all modifications to the Contract and will refer to the initiating Change Order Request, and will be fully executed by Owner, Engineer, and Contractor.
- D. Change Orders will be submitted to Contractor in triplicate. Contractor will sign and return two copies to Engineer.
- E. The schedule of Work shall be updated by Contractor to reflect all Change Orders and Field Orders.
- F. Upon completion of work under a Field Order, or Change Order, all pertinent changes to the Work will be shown on the Record Set by Contractor.
- G. Contractor shall not bill for a Change Order on the Application for Payment prior to its execution by the Owner. Engineer will not approve the portion of an Application for Payment which bills for a Change Order not yet executed by Owner.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00



**Change Order No.** \_\_\_\_\_

Date of Issuance:

Effective Date:

Owner:

Owner's Contract No.:

Contractor:

Contractor's Project No.:

Engineer:

Engineer's Project No.:

Project:

Contract Name:

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

Description:

Attachments: *[List documents supporting change]*

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

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

Approved by Funding Agency (if applicable)

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Title: \_\_\_\_\_

**SECTION 01 29 00**  
**PAYMENT PROCEDURES**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
  - 1. Section 01 26 00 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
  - 2. Section 01 32 00 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

**1.3 DEFINITIONS**

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

**1.4 SCHEDULE OF VALUES**

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
  - 1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with continuation sheets.
    - b. Submittal schedule.
    - c. Items required to be indicated as separate activities in Contractor's construction schedule.
  - 2. Submit the schedule of values to Engineer at earliest possible date, but no later than seven (7) days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
  - 1. Identification: Include the following Project identification on the schedule of values:

- a. Project name and location.
  - b. Name of Engineer.
  - c. Engineer's project number.
  - d. Contractor's name and address.
  - e. Date of submittal.
2. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
  - a. Related Specification Section or Division.
  - b. Description of the Work.
  - c. Name of subcontractor.
  - d. Name of manufacturer or fabricator.
  - e. Name of supplier.
  - f. Change Orders (numbers) that affect value.
  - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
    - 1) Labor.
    - 2) Materials.
    - 3) Equipment.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of [five] <Insert number> percent of the Contract Sum.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
  - a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.
6. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
  - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
8. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

## 1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner.
  - 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: Submit Application for Payment to Engineer by the last day of the month. The period covered by each Application for Payment is one month, ending on the last Saturday of each month.
- D. Application for Payment Forms: Use form in Section 00 62 76 of the Project Manual or substitute form approved by Owner and Agency.
- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Engineer will return incomplete applications without action.
  - 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
  - 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
  - 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
  - 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- F. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
  - 1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
  - 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
  - 3. Provide summary documentation for stored materials indicating the following:
    - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

- G. Transmittal: Submit five (5) signed and notarized original copies of each Application for Payment to Engineer by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
  2. Schedule of values.
  3. Contractor's construction schedule (preliminary if not final).
  4. Products list (preliminary if not final).
  5. Submittal schedule (preliminary if not final).
  6. List of Contractor's staff assignments.
  7. Copies of building permits.
  8. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  9. Initial progress report.
  10. Report of preconstruction conference.
  11. Certificates of insurance and insurance policies.
  12. Performance and payment bonds.
  13. Data needed to acquire Owner's insurance.
- I. Application for Payment at Substantial Completion: After Engineer issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
  2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  3. Updated final statement, accounting for final changes to the Contract Sum.
  4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
  6. AIA Document G707, "Consent of Surety to Final Payment."
  7. Evidence that claims have been settled.
  8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
  9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00

## **SECTION 01 31 13 COORDINATION**

### **PART 1 - GENERAL**

#### **1.01 WORK INCLUDED**

- A. The Contractor shall coordinate the Work of all crafts, trades and subcontractors engaged on the Work, and he shall have final responsibility in regards to the schedule, workmanship and completeness of each and all parts of the Work.
- B. All crafts, trades and subcontractors shall be made to cooperate with each other and with others as they may be involved in the installation of work which adjoins, incorporates, precedes or follows the work of another. It shall be the Contractor's responsibility to point out areas of cooperation prior to execution of subcontract agreements and the assignment of the parts of the Work. Each craft, trade and subcontractor shall be made responsible to the Contractor, for furnishing embedded items, giving directions for doing all cutting and fitting, making all provisions for accommodating the Work, and for protecting, patching, repairing and cleaning as required to satisfactorily perform the Work.
- C. The Contractor shall be responsible for all cutting, digging and other actions of his subcontractors and workmen. Where such action impairs the safety or function of any structure or component of the Project, the Contractor shall make such repairs, alterations and additions as will, in the opinion of the Engineer, bring said structure or component back to its original design condition at no additional cost to HCWD1.
- D. Each subcontractor is expected to be familiar with the General Requirements and all Sections of the Detailed Specifications for all other trades and to study all Drawings applicable to his work to the end that complete coordination between the trades will be affected. Each subcontractor shall consult with the Contractor, who shall advise the Engineer if conflicts exist on the Drawings.
- E. Coordination shall include giving notice to HCWD1. Forty-eight (48) hours notice is required to adjust work schedules.
- F. Coordination includes local EMS (traffic) and appropriate road departments.

**END OF SECTION 01 31 13**

## **SECTION 01 32 00**

### **CONSTRUCTION PROGRESS DOCUMENTATION**

#### **PART 1 - GENERAL**

##### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

##### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Startup construction schedule.
  - 2. Contractor's construction schedule.
  - 3. Construction schedule updating reports.
  - 4. Daily construction reports.
  - 5. Material location reports.
  - 6. Site condition reports.
  - 7. Special reports.
- B. Related Requirements:
  - 1. Section 01 33 00 "Submittal Procedures" for submitting schedules and reports.
  - 2. Section 01 45 00 "Quality Control" for submitting a schedule of tests and inspections.

##### **1.3 DEFINITIONS**

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
  - 2. Predecessor Activity: An activity that precedes another activity in the network.
  - 3. Successor Activity: An activity that follows another activity in the network.

##### **1.4 INFORMATIONAL SUBMITTALS**

- A. Format for Submittals: Submit required submittals in the following format:
  - 1. Working electronic copy of schedule file, where indicated.
  - 2. PDF electronic file.
  - 3. Three (3) paper copies.
- B. Startup construction schedule.



1. Approval of cost-loaded, startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.
  - C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.
  - D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
  - E. Construction Schedule Updating Reports: Submit with Applications for Payment.
  - F. Daily Construction Reports: Submit at weekly intervals.
  - G. Material Location Reports: Submit at monthly intervals.
  - H. Site Condition Reports: Submit at time of discovery of differing conditions.
  - I. Special Reports: Submit at time of unusual event.
- 1.5 COORDINATION
- A. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.
    1. Secure time commitments for performing critical elements of the Work from entities involved.
    2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

## PART 2 - PRODUCTS

### 2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.
  1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
  1. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
  2. Submittal Review Time: Include review and resubmittal times indicated in Section 01 33 00 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.

3. Testing Time: Include no fewer than 15 days for testing.
  4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Engineer's administrative procedures necessary for certification of Substantial Completion.
  5. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
  2. Work Restrictions: Show the effect of the following items on the schedule:
    - a. Limitations of continued occupancies.
    - b. Uninterruptible services.
    - c. Use of premises restrictions.
    - d. Provisions for future construction.
    - e. Seasonal variations.
- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.
- E. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.
1. See Section 01 29 00 "Payment Procedures" for cost reporting and payment procedures.
- F. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
1. Unresolved issues.
  2. Unanswered Requests for Information.
  3. Rejected or unreturned submittals.
  4. Notations on returned submittals.
  5. Pending modifications affecting the Work and Contract Time.
- G. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.
- H. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

## 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within thirty (30) days of date established for the Notice to

Proceed. Base schedule on the startup construction schedule and additional information received since the start of Project.

- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
  - 1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in ten (10) percent increments within time bar.

## 2.3 REPORTS

- A. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:
  - 1. Material stored prior to previous report and remaining in storage.
  - 2. Material stored prior to previous report and since removed from storage and installed.
  - 3. Material stored following previous report and remaining in storage.
- B. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

## 2.4 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.

2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  3. As the Work progresses, indicate final completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Engineer, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
  2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00

## **SECTION 01 32 33**

### **PHOTOGRAPHIC DOCUMENTATION**

#### **PART 1 - GENERAL**

##### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

##### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for the following:
  - 1. Preconstruction photographs.
  - 2. Periodic construction photographs.
  - 3. Final completion construction photographs.
- B. Related Requirements:
  - 1. Section 01 33 00 "Submittals" for submitting photographic documentation.
  - 2. Section 01 77 00 "Project Closeout" for submitting photographic documentation as project record documents at Project closeout.
  - 3. Section 31 10 00 "Site Clearing" for photographic documentation before site clearing operations commences.

##### **1.3 INFORMATIONAL SUBMITTALS**

- A. Digital Photographs: Submit image files within thirty (30) days of taking photographs.
  - 1. Digital Camera: Minimum sensor resolution of eight (8) megapixels.
  - 2. Format: Minimum 3200 x 2400 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph.
  - 3. Identification: Provide the following information with each image description in file metadata tag:
    - a. Name of Project.
    - b. Name and contact information for photographer.
    - c. Name of Engineer.
    - d. Name of Contractor.
    - e. Date photograph was taken.
    - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

## PART 2 - PRODUCTS

### 2.1 PHOTOGRAPHIC MEDIA

- A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of eight (8) megapixels, and at an image resolution of not less than 3200 x 2400 pixels.

## PART 3 - EXECUTION

### 3.1 CONSTRUCTION PHOTOGRAPHS

- A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
- B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
  - 1. Date and Time: Include date and time in file name for each image.
  - 2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Engineer.
- C. Preconstruction Photographs: Before starting construction, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Engineer.
  - 1. Flag construction limits before taking construction photographs.
  - 2. Take twenty (20) photographs to show existing conditions adjacent to property before starting the Work.
  - 3. Take twenty (20) photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
  - 4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- D. Periodic Construction Photographs: Take twenty (20) photographs monthly, coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- E. Final Completion Construction Photographs: Take twenty (20) color photographs after date of Substantial Completion for submission as project record documents. Engineer will inform photographer of desired vantage points.

END OF SECTION 01 32 33

## **SECTION 01 33 00 SUBMITTALS**

### **PART 1 - GENERAL**

#### **1.01 WORK INCLUDED**

Shop drawings, descriptive literature, project data and samples (when samples are specifically requested) for all manufactured or fabricated items shall be submitted by the Contractor to the Engineer for examination and review in the form and in the manner required by the Engineer. All submittals shall be furnished in at least three (3) copies to be retained by the Engineer and shall be checked and reviewed by the Contractor before submission to the Engineer. The review of the submittal by the Engineer shall not be construed as a complete check, but will indicate only that the general method of construction and detailing is satisfactory. Review of such submittal will not relieve the Contractor of the responsibility for any errors which may exist as the Contractor shall be responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work. Materials or equipment for which submittals are required should not be ordered until submittals have been reviewed and approved. Ordering materials and equipment beforehand are at the Contractor's risk.

#### **1.02 DEFINITIONS**

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

#### **1.04 CONTRACTOR'S ULTIMATE RESPONSIBILITY**

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

#### **1.05 GENERAL REQUIREMENTS FOR SUBMITTALS**

- A. Shop drawings are defined as original drawings prepared by the Contractor, subcontractors, suppliers, or distributors performing work under this Contract. Shop drawings illustrate some portion of the work and show fabrication, layout, setting or erection details of equipment, materials and components. The Contractor shall, except as otherwise noted, have prepared the number of reviewed copies required for his distribution plus three (3) which will be retained by the Engineer and HCWD1. In lieu of three (3) hard copies, the Contractor may submit an electronic copy (pdf) to Engineer. Shop drawings shall be folded to an approximate size of 8-1/2 inch x 11 inch and in such manner that the title block will be located in the lower righthand corner of the exposed surface.

- B. Project data shall include manufacturer's standard schematic drawings modified to delete information which is not applicable to the Project, and shall be supplemented to provide additional information applicable to the Project. Each copy of descriptive literature shall be clearly marked to identify pertinent information as it applies to the Project.
- C. Where samples are required, they shall be adequate to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged. Provide sufficient size and quantity to clearly illustrate functional characteristics of product and material, with integrally related parts and attachment devices, along with a full range of color samples.
- D. The Contractor shall review and check submittals, and indicate his review by initials and date.
- E. If the submittals deviate from the Contract Drawings and/or Specifications, the Contractor shall advise the Engineer, in letter of transmittal of the deviation and the reasons therefore. All changes shall be clearly marked on the submittal with a bold mark other than red. Any additional costs for modifications shall be borne by the Contractor.
- F. In the event the Engineer does not specifically reject the use of material or equipment at variance to that which is shown on the Drawings or specified, the Contractor shall, at no additional expense to HCWD1, and using methods reviewed by the Engineer, make any changes to structures, piping, controls, electrical work, mechanical work, etc., that may be necessary to accommodate this equipment or material. Should equipment other than that on which design drawings are based be accepted by the Engineer, shop drawings shall be submitted detailing all modification work and equipment changes made necessary by the substituted item.
- G. Additional information on particular items, such as special drawings, schedules, calculations, performance curves, and material details, shall be provided when specifically requested in the technical Specifications.
- H. Submittals for all electrically operated items (including instrumentation and controls) shall include complete wiring diagrams showing lead, runs, number of wires, wire size, color coding, all terminations and connections, and coordination with related equipment.
- I. Equipment shop drawings shall indicate all factory or shop paint coatings applied by suppliers, manufacturers and fabricators; the Contractor shall be responsible for insuring the compatibility of such coatings with the field-applied paint products and systems.
- J. Fastener specifications of manufacturer shall be indicated on equipment shop drawings.
- K. Where manufacturer's brand names are given in the Specifications for building and construction materials and products, such as grout, bonding compounds, curing compounds, masonry cleaners, waterproofing solutions and similar products, the Contractor shall submit names and descriptive literature of such materials and products he proposes to use in this Contract.
- L. No material shall be fabricated or shipped unless the applicable drawings or submittals have been reviewed by the Engineer and returned to the Contractor.
- M. All bulletins, brochures, instructions, parts lists, and warranties packaged with and accompanying materials and products delivered to and installed in the Project shall be saved and transmitted to HCWD1 through the Engineer.



1.06 CONTRACTOR RESPONSIBILITIES

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

END OF SECTION 01 33 00

## **SECTION 01 42 00**

### **REFERENCES AND ABBREVIATIONS**

#### **PART 1 - GENERAL**

##### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

##### **1.2 DEFINITIONS**

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Engineer's action on Contractor's submittals, applications, and requests, "approved" is limited to Engineer's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Engineer. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

##### **1.3 INDUSTRY STANDARDS**

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

- B. Publication Dates: The date of the standard is that in effect as of the Bid date, unless a certain date is indicated for the standard in the Contract Documents.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
  - 1. When required by an individual Specification section, the Prime Contractor shall obtain a copy of the standard. Maintain the copy at the job site, available for review by HCWD1, Engineer, Resident Representative and other appropriate parties until Substantial Completion.

#### 1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AASHTO	American Association of State Highway and Transportation Officials www.transportation.org	(202) 624-5800
ACI	American Concrete Institute (Formerly: ACI International) www.concrete.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
ANS	American National Standard	
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
APA	Architectural Precast Association www.archprecast.org	(239) 454-6989

ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)	
ASME	ASME International (American Society of Mechanical Engineers) www.asme.org	(800) 843-2763 (973) 882-1170
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9500
AWG	American or Brown and Sharpe Wire Gage	
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(404) 622-0073
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(800) 328-6306 (847) 517-1200
CSA	CSA International (Formerly: IAS - International Approval Services) www.csa-international.org	(866) 797-4272 (416) 747-4000
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
ECA	Electronic Components Association www.ec-central.org	(703) 907-8024
HI	Hydraulic Institute www.pumps.org	(973) 267-9700
ICC	International Code Council www.iccsafe.org	(888) 422-7233 (202) 370-1800
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11

IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IPS	Iron Pipe Size	
ISO	International Organization for Standardization www.iso.org	41 22 749 01 11
MSHA	Mine Safety and Health Administration http://www.msha.gov/	(202) 693-9401
NADCA	National Air Duct Cleaners Association www.nadca.com	(202) 737-2926
NBS	National Bureau of Standards	
NEC	National Electric Code; latest edition	
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NFPA	NFPA (National Fire Protection Association) www.nfpa.org	(800) 344-3555 (617) 770-3000
NFPA	NFPA International (See NFPA)	
NPT	National Pipe Thread	
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NSPE	National Society of Professional Engineers www.nspe.org	(703) 684-2800
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)	

STI	Steel Tank Institute <a href="http://www.steeltank.com">www.steeltank.com</a>	(847) 438-8265
UBC	Uniform Building Code (See ICC)	
UL	Underwriters Laboratories Inc. <a href="http://www.ul.com">www.ul.com</a>	(877) 854-3577
UNI	Uni-Bell PVC Pipe Association <a href="http://www.uni-bell.org">www.uni-bell.org</a>	(972) 243-3902
125-lb. ANS; 250 lb. ANS	American National Standard for Cast-Iron Pipe Flanges and Flanged Fittings, Designation B16.1-1975, for the appropriate class	

B. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

COE	Army Corps of Engineers <a href="http://www.usace.army.mil">www.usace.army.mil</a>	(202) 761-0011
CPSC	Consumer Product Safety Commission <a href="http://www.cpsc.gov">www.cpsc.gov</a>	(800) 638-2772 (301) 504-7923
DOC	Department of Commerce National Institute of Standards and Technology <a href="http://www.nist.gov">www.nist.gov</a>	(301) 975-4040
DOD	Department of Defense <a href="http://dodssp.daps.dla.mil">http://dodssp.daps.dla.mil</a>	(215) 697-2664
DOE	Department of Energy <a href="http://www.energy.gov">www.energy.gov</a>	(202) 586-9220
EPA	Environmental Protection Agency <a href="http://www.epa.gov">www.epa.gov</a>	(202) 272-0167
FAA	Federal Aviation Administration <a href="http://www.faa.gov">www.faa.gov</a>	(866) 835-5322
FG	Federal Government Publications <a href="http://www.gpo.gov">www.gpo.gov</a>	(202) 512-1800
GSA	General Services Administration <a href="http://www.gsa.gov">www.gsa.gov</a>	(800) 488-3111 (202) 619-8925
HUD	Department of Housing and Urban Development <a href="http://www.hud.gov">www.hud.gov</a>	(202) 708-1112

LBL	Lawrence Berkeley National Laboratory Environmental Energy Technologies Division <a href="http://eetd.lbl.gov">http://eetd.lbl.gov</a>	(510) 486-4000
OSHA	Occupational Safety & Health Administration <a href="http://www.osha.gov">www.osha.gov</a>	(800) 321-6742
SD	Department of State <a href="http://www.state.gov">www.state.gov</a>	(202) 647-4000
TRB	Transportation Research Board National Cooperative Highway Research Program <a href="http://www.trb.org">www.trb.org</a>	(202) 334-2934
USDA	Department of Agriculture Agriculture Research Service U.S. Salinity Laboratory <a href="http://www.ars.usda.gov">www.ars.usda.gov</a>	(202) 720-3656
USDA	Department of Agriculture Rural Utilities Service <a href="http://www.usda.gov">www.usda.gov</a>	(202) 720-2791
USDJ	Department of Justice Office of Justice Programs National Institute of Justice <a href="http://www.ojp.usdoj.gov">www.ojp.usdoj.gov</a>	(202) 307-0703
USP	U.S. Pharmacopeia <a href="http://www.usp.org">www.usp.org</a>	(800) 227-8772 (301) 881-0666
USPS	United States Postal Service <a href="http://www.usps.com">www.usps.com</a>	(202) 268-2000

- C. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CFR	Code of Federal Regulations Available from Government Printing Office <a href="http://www.gpo.gov/fdsys">www.gpo.gov/fdsys</a>	(866) 512-1800 (202) 512-1800
DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point <a href="http://dodssp.daps.dla.mil">http://dodssp.daps.dla.mil</a>	(215) 697-2664
DSCC	Defense Supply Center Columbus	

FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from Department of Defense Single Stock Point <a href="http://dodssp.daps.dla.mil">http://dodssp.daps.dla.mil</a>  Available from Defense Standardization Program <a href="http://www.dsp.dla.mil">www.dsp.dla.mil</a>  Available from General Services Administration <a href="http://www.gsa.gov">www.gsa.gov</a>	(215) 697-2664      (800) 488-3111 (202) 619-8925
	Available from National Institute of Building Sciences/Whole Building Design Guide <a href="http://www.wbdg.org/ccb">www.wbdg.org/ccb</a>	(202) 289-7800
MILSPEC	Military Specification and Standards (See DOD)	
USAB	United States Access Board <a href="http://www.access-board.gov">www.access-board.gov</a>	(800) 872-2253 (202) 272-0080
USATBCB	U.S. Architectural & Transportation Barriers Compliance Board (See USAB)	

D. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

DEP	Department for Environmental Protection	(502) 564-2380
DOW	Division of Water <a href="http://water.ky.gov/Pages/default.aspx">http://water.ky.gov/Pages/default.aspx</a>	
KYTC	Kentucky Transportation Cabinet District 4 Office <a href="http://transportation.ky.gov/Pages/default.aspx">http://transportation.ky.gov/Pages/default.aspx</a>	(270) 766-5066

PART 3 - EXECUTION (Not Used)

December 21, 2016



## **SECTION 01 45 00 QUALITY CONTROL**

### **PART 1 - GENERAL**

#### **1.01 WORK INCLUDED**

- A. Work of all crafts and trades shall be laid out to lines and elevations as established by the Contractor from the Drawings or from instructions by the Engineer.
- B. Unless otherwise shown, all work shall be plumb and level, in straight lines and true planes, parallel or square to the established lines and levels. The Work shall be accurately measured and fitted to tolerance as established by the best practices of the crafts and trades involved, and shall be as required to fit all parts of the Work carefully and neatly together.
- C. All equipment, materials and articles incorporated into the Work shall be new and of comparable quality to that specified. All workmanship shall be first-class and shall be performed by mechanics skilled at, and regularly employed in, their respective trades.
- D. The Contractor shall determine that the equipment he proposes to furnish can be brought into the facility and installed in the space available. Equipment shall be installed so that all parts are readily accessible for inspection and maintenance.

#### **1.02 WORKMANSHIP**

Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

#### **1.03 MANUFACTURERS' INSTRUCTIONS**

Comply with manufacturers' instructions in full detail as to shipping, handling, storing, installing, start-up and operation.

#### **1.05 TESTING SERVICES**

- A. Tests, inspections and certifications of materials, of equipment, of subcontractors' work, or of completed work shall be provided by the Contractor, as required by the various sections of the Specifications, and all costs for such tests, inspections and certifications shall be included in the Contract Price. Testing services are considered incidental to the installation of the Project. Tests shall include, but not be limited to, hydrostatic pressure, chlorine disinfecting, bacteriological, low pressure air, deflection (mandrel), vacuum, exfiltration, CCTV inspection, concrete compression strength, soil density, and compaction.
- B. The Contractor shall submit the name of testing laboratory proposed for use on the Project to HCWD1, for approval.
- C. The Contractor shall deliver written notice to the Engineer at least two (2) work days in advance of any inspections or tests to be made at the Project site. All inspections or tests to be conducted in the field shall be done in the presence of HCWD1 or his representative.

- D. Certifications by independent testing laboratories may be by properly attested copies of the data including scientific procedures and results of tests.

END OF SECTION 01 45 00

**SECTION 01 50 00**  
**TEMPORARY CONTROLS AND UTILITIES**

**PART 1 - GENERAL**

**1.01 WORK INCLUDED**

- A. Dust control.
- B. Erosion and sediment control.
- C. Temporary Electricity

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION**

**3.01 DUST CONTROL**

- A. Execute work by methods to minimize raising dust from construction operations.
- B. Provide positive means to minimize construction or traffic generated dust from dispersing into atmosphere.
- C. Provide spraying of construction traffic areas with water to hold dust leaving the construction site to the minimum amounts allowed by regulations.

**3.02 EROSION AND SEDIMENT CONTROL**

- A. Adhere to the requirements and provisions of KPDES General Permit (KYG20) for stormwater discharges to small Municipal Storm Sewer Systems (sMS4), where applicable.
- B. Adhere to the requirements and provisions of KPDES General Permit (KYR10) for stormwater discharges associated with small construction activities that disturb 1 acre or greater.
- C. At a minimum, provide the following:
  - 1. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
  - 2. Minimize amount of bare soil exposed at one time.
  - 3. Provide temporary measures such as berms, dikes, drains, hay bales, gabions, etc., as directed by the Engineer so as to minimize siltation due to runoff.
  - 4. Construct fill and waste areas by selective placement to avoid erosive exposed surface of silts or clays.
  - 5. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

**3.03 REQUIREMENTS OF REGULATORY AGENCIES**

- A. Obtain and pay for all permits not provided by HCWD1 as required by governing authorities.
- B. Obtain and pay for temporary easements required across property other than that of HCWD1.

- C. Comply with applicable codes.

3.04 REMOVAL

- A. Completely remove temporary materials, equipment, and miscellaneous items upon completion of construction and approval of the Engineer.
- B. Repair damage caused by installation and restore to specified or original condition.

3.05 TEMPORARY ELECTRICITY

Electrical services for construction needs and for lighting and heating the work area will be provided by the Contractor.

3.06 TEMPORARY WATER

Water for testing water and sanitary sewer systems will be provided by HCWD1. Water for testing and flushing shall be metered by Contractor and quantity reported to HCWD1.

END OF SECTION 01 50 00

## **SECTION 01 55 27 TRAFFIC REGULATION**

### **PART 1 - GENERAL**

#### **1.01 WORK INCLUDED**

- A. Construction parking control.
- B. Flagmen.
- C. Flares and lights.
- D. Haul routes.
- E. Removal of controls.

### **PART 2 - PRODUCTS**

#### **2.01 SIGNS AND DEVICES**

- A. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions.
- B. Flagman Equipment: As required by local jurisdictions.

### **PART 3 - EXECUTION**

#### **3.01 CONSTRUCTION PARKING CONTROL**

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

#### **3.02 TRAFFIC CONTROL**

- A. Whenever and wherever, in the Engineer's opinion, traffic is sufficiently congested or public safety is endangered, Contractor shall furnish uniformed officers to direct traffic and to keep traffic off any highway area affected by construction operations.
- B. Contractor shall abide by city, county, state, and federal military regulations governing utility construction work.
- C. Traffic control shall be provided according to the Kentucky Department of Highways Manual on Uniform Traffic Control Devices for Streets and Highways.

3.03      FLAGMEN

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

3.04      FLARES AND LIGHTS

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

3.05      HAUL ROUTES

- A.    Consult with authorities to establish public thoroughfares to be used for haul routes and site access.
- B.    Confine construction traffic to designated haul routes.
- C.    Provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.

3.06      REMOVAL OF CONTROLS

Remove equipment and devices when no longer required.

END OF SECTION 01 55 27

## **SECTION 01 57 13 EROSION AND SEDIMENT CONTROL**

### **PART 1 - GENERAL**

#### **1.01 WORK INCLUDED**

- A. All Work shall adhere to the requirements and provisions of KPDES General Permit (KYG20) for stormwater discharges to small Municipal Storm Sewer Systems (sMS4), where applicable.
- B. All Work shall adhere to the requirements and provisions of KPDES General Permit (KYR10) for stormwater discharges associated with small construction activities that disturb 1 acre or greater.
- C. The Contractor shall do all Work and take all measures necessary to control soil erosion resulting from construction operations, shall prevent the flow of sediment from the construction site, and shall contain construction materials (including excavation and backfill) within his protected working area so as to prevent damage to the adjacent wetlands or water courses. At a minimum, the Contractor shall install all measures shown on the plans.
- D. The Contractor shall not employ any construction method that violates a rule, regulation, guideline or procedure established by Federal, State or local agencies having jurisdiction over the environmental effects of construction.
- E. Pollutants such as chemicals, fuels, lubricants, bitumen, raw sewage and other harmful waste shall not be discharged into or alongside of any body of water or into natural or man-made channels leading thereto.

### **PART 2 - PRODUCTS**

#### **2.01 MATERIALS**

Silt checks shall be constructed of No. 1 coarse aggregate as defined by the Kentucky Transportation Cabinet. Filter fabric for sediment traps shall be of suitable materials acceptable to the Engineer. Bales may be hay or straw, and shall be reasonably clean and free of noxious weeds and deleterious materials.

### **PART 3 - EXECUTION**

#### **3.01 METHODS OF CONSTRUCTION**

- A. The Contractor shall use any of the acceptable methods necessary to control soil erosion and prevent the flow of sediment to the maximum extent possible. These methods shall include, but not be limited to, the use of silt fences, hay bales, water diversion structures, temporary revegetation, diversion ditches and settling basins.

- B. Construction operations shall be restricted to the areas of work indicated on the Drawings and to the area which must be entered for the construction of temporary or permanent facilities. The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations and to direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of the wetlands and adjacent watercourses. Such work may involve the construction of temporary berms, dikes, dams, sediment basins, slope drains, and use of temporary mulches, mats, or other control devices or methods as necessary to control erosion.
- C. Excavated soil material shall not be placed adjacent to the wetlands or watercourses in a manner that will cause it to be washed away by high water or runoff. Earth berms or diversions shall be constructed to intercept and divert runoff water away from critical areas. Diversion outlets shall be stable or shall be stabilized by means acceptable to the Engineer. If for any reason construction materials are washed away during the course of construction, the Contractor shall remove those materials from the fouled areas as directed by the Engineer.
- D. For Work within easements or rights-of-way, all materials used in construction such as excavation, backfill, roadway, and pipe bedding and equipment shall be kept within the limits of these easements or rights-of-way.
- E. The Contractor shall not pump silt-laden water from trenches or other excavation into the wetlands, or adjacent watercourses. Instead, silt-laden water from his excavations shall be discharged within areas surrounded by baled hay or into sediment traps or ensure that only sediment-free water is returned to the watercourses. Damage to vegetation by excessive watering or silt accumulation in the discharge area shall be avoided.
- F. Prohibited construction procedures include, but are not limited to the following:
  - 1. Dumping of spoil material into any streams, wetlands, surface waters, or unspecified locations.
  - 2. Indiscriminate, arbitrary, or capricious operation of equipment in wetlands or surface waters.
  - 3. Pumping of silt-laden water from trenches or excavations into surface waters, or wetlands.
  - 4. Damaging vegetation adjacent to or outside of the construction area limits.
  - 5. Disposal of trees, brush, debris, paints, chemicals, asphalt products, concrete curing compounds, fuels, lubricants, insecticides, washwater from concrete trucks or hydroseeders, or any other pollutant in wetlands, surface waters, or unspecified locations.
  - 6. Permanent or unauthorized alteration of the flow line of any stream.
  - 7. Open burning of debris from the construction work.
- G. Any temporary working roadways required shall be clean fill approved by the Engineer. In the event fill is used, the Contractor shall take every precaution to prevent the fill from mixing with native materials of the site. All such foreign fill materials shall be removed from the site following construction.

### 3.02 EROSION CHECKS

- A. The Contractor shall furnish and install baled hay or straw erosion checks surrounding the base of all deposits of stored excavated material outside of the disturbed area, and where indicated by the Engineer. Checks located surrounding stored material shall be located approximately 6 feet from that material. Bales shall be held in place with two 2 inch by 2 inch by 3 feet wooden stakes. Each bale shall be butted tightly against the adjoining bale to preclude short circuiting of the erosion check.



- B. The Contractor shall remove silt and sediment from the site as it accumulates at erosion checks and repair damaged checks during construction.

### 3.03 REMOVAL OF BMPs

The Contractor shall remove all erosion control materials from the site as soon as the potential for erosion has been eliminated and when approved by the Engineer. Reseed area where hay bales or silt fence has been removed.

END OF SECTION 01 57 13

## **SECTION 01 57 20 ENVIRONMENTAL PROTECTION**

### **PART 1 - GENERAL**

#### **1.01 SCOPE**

For the purpose of this Specification, environmental protection is defined as the retention of the environment in Project construction and to enhance the natural appearance in its final condition. Environmental protection requires consideration of air and land and involves noise as well as other pollutants. In order to prevent, and to provide for abatement and control of, any environmental pollution arising from the construction activities in the performance of this Contract, the Contractor and his subcontractors shall comply with all applicable federal, state and local laws and regulations concerning environmental pollution control and abatement. This Section covers the furnishings of all labor, materials, equipment and performing all work required for the protection of the environment during construction operations except for those measures set forth in other Sections of these specifications.

#### **1.02 PRECONSTRUCTION VIDEO**

After the Contractor has staked or laid out the job and prior to the initiation of any construction activities, including the installation of erosion and sediment control BMPs, the entire project corridor shall be videoed in digital format on DVD. A copy of the DVD shall be provided to HCWD1.

#### **1.03 PROTECTION OF LAND RESOURCES**

The land resources within the Project boundaries and outside the limits of work performed under this Contract shall be preserved in their present condition or be restored to a condition after completion of construction that will appear to be natural and not detract from the appearance of the project.

#### **1.04 RECORDING AND PRESERVING HISTORICAL AND ARCHAEOLOGICAL FINDS**

In the event archaeological materials (arrowheads, stone tools, stone axes, prehistoric and historic pottery, bottles, foundations, Civil War artifacts, and other types of artifacts) are uncovered during the construction of this project, work is to immediately cease at the location and the Kentucky Heritage Council shall be contacted. The telephone number is (502) 564-7005. Construction shall not commence at this location until a written release is received from the Kentucky Heritage Council. Failure to report a find could result in legal action.

#### **1.05 PROTECTION OF LAND AREAS**

Except for any work on storage areas and access routes specifically assigned for the use of the Contractor under this Contract, the land areas outside the limits of permanent work performed under this Contract shall be preserved in their present condition. Contractor shall confine his construction activities to areas defined for work on the plans or specifically assigned for his use. No other areas shall be used by the Contractor without written consent of the HCWD1.

#### **1.06 PROTECTION OF TREES AND SHRUBS**

Reasonable care shall be taken during construction to avoid damage to vegetation.

The Contractor shall not deface, injure or destroy trees or shrubs, nor remove or cut them without prior approval from HCWD1. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorage.

#### 1.07 TREE PROTECTIVE STRUCTURES

Where, in the opinion of the Engineer, trees may possibly be defaced, bruised, injured or otherwise damaged by the Contractor's equipment or by his other operations, he may direct the Contractor to provide temporary protection of such trees by placing boards, plans, or poles around them. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage.

#### 1.08 RESTORATION OF DAMAGED TREES

Any tree scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the Contractor's expense. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. All scars made on trees shall be coated as soon as possible with an approved tree wound dressing.

Trees that are to remain, either within or outside established clearing limits, that are damaged by the Contractor so as to be beyond saving in the opinion of the Engineer, shall be immediately removed, if so directed, and replaced with a nursery-grown tree of the same species and size.

#### 1.09 PROTECTION OF WATER RESOURCES

The Contractor shall control the disposal of fuels, oils, bitumens, calcium chloride, acids, or harmful materials, and shall comply with applicable Federal, State, County and Municipal laws concerning pollution of rivers and streams while performing work under this Contract. Special measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, herbicides and insecticides from entering public waters. Water used in on-site material processing, concrete curing, foundation and concrete cleanup, and other waste waters shall not be allowed to reenter a stream if an increase in the turbidity of the stream could result therefrom.

#### 1.10 BURNING

Air pollution restrictions applicable to this project are as follows: Materials shall not be burned on the premises. If the Contractor elects to dispose of waste materials off the premises, by burning, he shall make his own arrangements for such burning area and shall, as specified in the General Conditions, conform to all applicable regulations.

#### 1.11 DUST CONTROL

The Contractor shall maintain all excavations, stockpiles, access roads, waste areas, and all other work free from excess dust to such reasonable degree as to avoid causing a hazard or nuisance to others. Approved temporary methods consisting of sprinkling, chemical treatment, or similar methods will be permitted to control dust. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

#### 1.12 EROSION CONTROL

Surface drainage from cuts and fills within the construction limits, whether or not completed, and from borrow and waste disposal areas, shall be graded to control erosion within acceptable limits. Temporary control measures shall be provided and maintained until permanent drainage facilities are completed and operative. The area of bare soil exposed at any one time by construction operations, should be held to a minimum.

Any erosion control measures shown on the plans are considered to be minimum requirements. It is the Contractor's responsibility to provide erosion control and prevent migration of silt.

#### 1.13 CORRECTIVE ACTION

The Contractor shall, upon receipt of a notice in writing of any noncompliance with the foregoing provisions, take immediate corrective action. If the Contractor fails or refuses to comply promptly, HCWD1 may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs of damages by the Contractor unless it was later determined that the Contractor was in compliance.

#### 1.14 POST-CONSTRUCTION CLEANUP, REMOVAL AND RESTORATION

The Contractor shall, unless otherwise instructed in writing by the Engineer, remove all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. The disturbed areas shall be graded and filled and the entire area seeded.

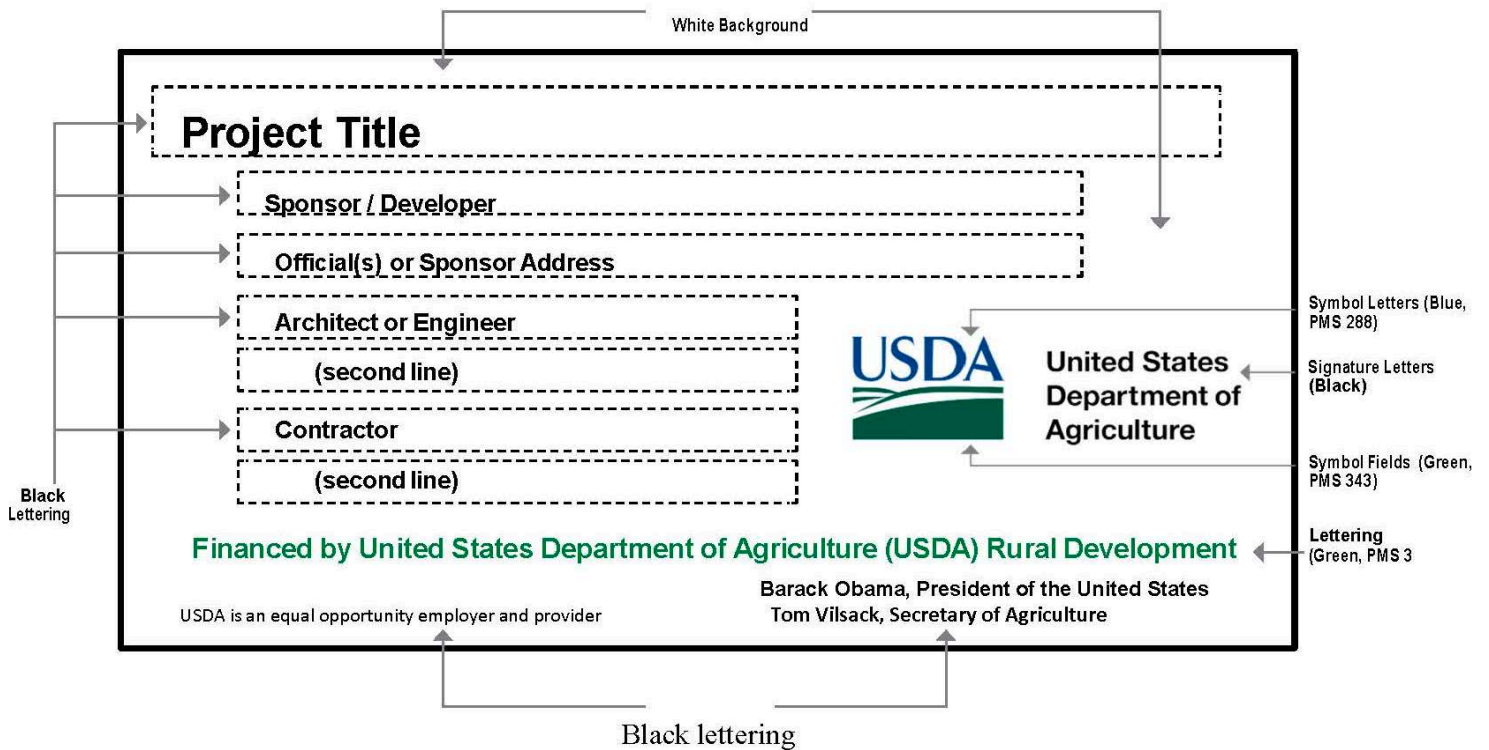
END OF SECTION 01 57 20

## SECTION 01 58 13 PROJECT SIGN TEMPLATE

Contractor shall provide identification sign(s). Sign(s) shall conform to the template below. Sign shall be erected and visible during the entire construction phase of the project at a location agreed to by Owner and Agency.

Kentucky Bulletin 1780-1  
Exhibit H  
Page 1

### TEMPORARY CONSTRUCTION SIGN FOR RURAL DEVELOPMENT PROJECTS



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

END OF SECTION 01 58 13

## **SECTION 01 60 00 PRODUCT REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
  - 1. Section 01 25 00 "Substitution Procedures" for requests for substitutions.
  - 2. Section 01 42 00 "References and Abbreviations" for applicable industry standards for products specified.

#### **1.3 DEFINITIONS**

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
  - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

#### 1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
  - 2. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Engineer will notify Contractor of approval or rejection of proposed comparable product request within fifteen (15) days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.
    - a. Form of Approval: As specified in Section 01 33 00 "Submittals."
    - b. Use product specified if Engineer does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01 33 00 "Submittals." Show compliance with requirements.

#### 1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

#### 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
  - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
  - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
  - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
  - 1. Store products to allow for inspection and measurement of quantity or counting of units.

2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.

## 1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
  1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
  2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
  1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
  3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 01 77 00 "Closeout Procedures."

## PART 2 - PRODUCTS

### 2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
  1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
  2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  4. Where products are accompanied by the term "as selected," Engineer will make selection.



5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Products:

- a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered.
- b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.

2. Manufacturers:

- a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered.
- b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

3. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Engineer's sample", provide a product that complies with requirements and matches Engineer's sample. Engineer's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 01 25 00 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Engineer from manufacturer's full range" or similar phrase, select a product that complies with requirements. Engineer will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## 2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Engineer will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Engineer may return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
  2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  3. Evidence that proposed product provides specified warranty.
  4. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners, if requested.
  5. Samples, if requested.

### PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

## **SECTION 01 73 00**

### **EXECUTION**

#### **PART 1 - GENERAL**

##### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

##### **1.2 SUMMARY**

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Progress cleaning.
6. Starting and adjusting.
7. Protection of installed construction.

- B. Related Requirements:

1. Section 01 11 00 "Summary of Work" for limits on use of Project site.
2. Section 01 33 00 "Submittals" for submitting surveys.
3. Section 01 77 00 "Project Closeout" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

##### **1.3 DEFINITIONS**

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

##### **1.4 QUALITY ASSURANCE**

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
  1. Structural Elements: When cutting and patching structural elements, notify Engineer of locations and details of cutting and await directions from Engineer before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and

patch structural elements in a manner that could change their load-carrying capacity or increase deflection.

2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
  3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
  4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Engineer's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Engineer for the visual and functional performance of in-place materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
  2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
  - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Engineer.

### 3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Engineer promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
  - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
  - 2. Establish limits on use of Project site.
  - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  - 4. Inform installers of lines and levels to which they must comply.
  - 5. Check the location, level and plumb, of every major element as the Work progresses.

6. Notify Engineer when deviations from required lines and levels exceed allowable tolerances.
  7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Engineer.

### 3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
1. Do not change or relocate existing benchmarks or control points without prior written approval of Engineer. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Engineer before proceeding.
  2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two (2) permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
  2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
  3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

### 3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
  2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
  4. Maintain minimum headroom clearance of 96 inches in occupied spaces and **90 inches** in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Engineer.
  2. Allow for building movement, including thermal expansion and contraction.
  3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 01 11 00 "Summary of Work."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
  5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
  1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.



- a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
  - b. Restore damaged pipe covering to its original condition.
- 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
  - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
- 4. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

### 3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
  - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Use containers intended for holding waste materials of type to be stored.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 50 00 "Temporary Controls and Utilities."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.8 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: Comply with qualification requirements in Section 01 45 00 "Quality Control."

### 3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01 73 00

**SECTION 01 76 10**  
**PROTECTION OF INSTALLED WORK**

**PART 1 - GENERAL**

**1.01 WORK INCLUDED**

Protection for products, including Owner-provided products, after installation.

**1.02 RELATED REQUIREMENTS**

Division 1 - General Requirements.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION**

**3.01 PROTECTION AFTER INSTALLATION**

- A. Protect installed products and control traffic in immediate area to prevent damage from subsequent operations.
- B. Restrict traffic of any kind across planted lawn and landscape areas.

END OF SECTION 01 76 10

## **SECTION 01 77 00 PROJECT CLOSEOUT**

### **PART 1 - GENERAL**

#### **1.01 RELATED REQUIREMENTS**

- A. Section 01 78 39 - Project Record Documents.

#### **1.02 SUBSTANTIAL COMPLETION**

- A. The Contractor shall submit written certification to Engineer that project is substantially complete and list of major items to be completed or corrected.
- B. Engineer will make an inspection within seven days after receipt of certification, together with HCWD1's representative.
- C. Should Engineer consider that work is substantially complete:
  - 1. Contractor shall prepare, and submit to Engineer, a list of the items to be completed or corrected, as determined by on-site observation.
  - 2. Engineer will prepare and issue a Certificate of Substantial Completion, containing:
    - a. Date of Substantial Completion.
    - b. Contractor's list of items ("Punch List") to be completed or corrected, verified and amended by Engineer.
    - c. The time within which Contractor shall complete or correct work of listed items.
    - d. Time and date Owner will assume possession of work or designated portion thereof.
  - 3. Contractor: Complete work listed for completion or correction, within designated time.
- D. Should Engineer consider that work is not substantially complete:
  - 1. He shall notify Contractor, in writing, stating reasons.
  - 2. Contractor: Complete work, and send second written notice to Engineer, certifying that Project or designated portion of project is substantially complete.
  - 3. Engineer will review work again.

#### **1.03 FINAL INSPECTION**

- A. Contractor shall submit written certification that:
  - 1. Project has been inspected for compliance with Contract Documents.
  - 2. Work has been completed in accordance with Contract Documents.
  - 3. Equipment and systems have been tested in presence of Owner's representative and are operational.
  - 4. Project is completed and ready for final inspection.
- B. Engineer will make final on-site observation/review within seven (7) days after receipt of certification.

- C. Should Engineer consider that work is finally complete in accordance with requirements of Contract Documents, he shall request Contractor to make Project Closeout submittals.
- D. Should Engineer consider that work is not finally complete:
  - 1. He shall notify Contractor, in writing, stating reasons.
  - 2. Contractor shall take immediate steps to remedy the stated deficiencies, and send second written notice to Engineer certifying that work is complete.
  - 3. Engineer will review the work again.

1.04 FINAL CLEAN UP

The work will not be considered as completed and final payment made until all final clean up has been done by the Contractor in a manner satisfactory to the Engineer.

1.05 CLOSEOUT SUBMITTALS

- A. Project Record Documents: to requirements of Section 01 78 39.
- B. Warranties and Bonds: to requirements of particular technical specifications and Section 01 78 37.
- C. Affidavit of Payment of Debts and Claims 00 65 19.13
- D. Contractor's Affidavit of Release of Liens Form 00 65 19.16
- E. Consent of Surety to Final Payment 00 65 19.19

1.06 FINAL APPLICATION FOR PAYMENT

Contractor shall submit final applications in accordance with requirements of the Contract.

END OF SECTION 01 77 00

## **SECTION 01 78 37 WARRANTIES AND BONDS**

### **PART 1 - GENERAL**

#### **1.01 WORK INCLUDED**

- A. Compile specified warranties and bonds.
- B. Compile specified service and maintenance contracts.
- C. Review submittals to verify compliance with Contract Documents.

#### **1.02 RELATED REQUIREMENTS**

- A. Performance and Payment Bonds.
- B. General Warranty of Construction.
- C. Warranties and Bonds required for specific products: As listed in other Specification sections.

#### **1.03 WARRANTY BONDS OR CORPORATE GUARANTEES IN LIEU OF EXPERIENCE RECORD**

- A. When specifically requested in the products and installation general provisions of a Specification section for a particular piece of equipment or product, a record of five (5) years of successful full-scale operation shall be required from the equipment manufacturer. This record of full-scale operation shall be from existing facilities utilizing the equipment or product specified, in an application similar to the application intended for this Project.
- B. The manufacturer shall certify in writing to the Contractor that it has the required record of successful full-scale operation. This certification shall be submitted by the Contractor with his construction materials and/or equipment data list. In the event the manufacturer cannot provide the five (5) year certification of experience to the Contractor, the Contractor shall furnish within thirty (30) days after the Notice of Award, a Warranty Bond or Corporation Guarantee from the equipment manufacturer written in the name of the Contractor and acceptable to HCWD1. The Warranty Bond or Corporate Guarantee shall be kept in force for five (5) years from the Date of Substantial Completion of the Contract less the number of years of experience the manufacturer may be able to certify to the Engineer. As a minimum, the Bond or Guarantee shall be in force for one (1) year after the Date of Substantial Completion of the Contract. The Warranty Bond shall be written in an amount equivalent to the manufacturer's quotation, the Contractor's installation cost plus 100 percent (100%). The Warranty Bond or Corporate Guarantee will assure HCWD1 that, if in the judgement of the Engineer, the equipment does not perform its specified function, the Contractor shall remove the equipment and install equipment that will perform the specified function and the work by the Contractor shall be paid for by the Warranty Bond or Corporate Guarantee.

#### 1.04 SUBMITTALS REQUIREMENTS

- A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers and subcontractors.
- B. Furnish two (2) original signed copies.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
  - 1. Product, equipment or work item.
  - 2. Firm name, address and telephone number.
  - 3. Scope.
  - 4. Date of beginning of warranty, bond or service and maintenance contract.
  - 5. Duration of warranty, bond or service and maintenance contract.
  - 6. Provide information for Owner's personnel:
    - a. Proper procedure in case of failure.
    - b. Instances which might affect the validity of warranty or bond.
  - 7. Contractor name, address and telephone number.

#### 1.05 FORM OF SUBMITTALS

- A. Prepare in duplicate packets in the following format:
  - 1. Size 8 1/2-inch x 11 inches, punch sheets for 3-ring binder: Fold larger sheets to fit into binders.
  - 2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS". List the Title of Project and Name of Contractor.
- B. Binders: Commercial quality, three-ring, with durable and cleanable plastic covers.

#### 1.06 TIME OF SUBMITTALS

- A. Make submittals within ten (10) days after date of substantial completion, prior to final request for payment.
- B. For items of work, where acceptance is delayed materially beyond the Date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing the date of acceptance as the start of the warranty period.

#### 1.07 SUBMITTALS REQUIRED

Submit warranties, bonds, service and maintenance contracts as specified in the respective sections of the Specifications. Additionally, the Contractor shall warrant the entire contract, including all concrete and paving to be free from defects in installation for one (1) year from the date of startup. In the event a component fails to perform as specified or is proven defective in service during the warranty period, the Contractor shall repair the defect without cost to HCWD1.

END OF SECTION 01 78 37

**SECTION 01 78 39**  
**PROJECT RECORD DOCUMENTS**

**PART 1 - GENERAL**

**1.01 RELATED REQUIREMENTS**

- A. Section 01 33 00 - Submittals.

**1.02 MAINTENANCE OF DOCUMENTS**

- A. Maintain at job site, one copy of Contract Drawings, Specifications, Addenda, and Shop Drawings.
- B. Store documents in location, apart from documents used for construction.
- C. Maintain documents in clean, dry legible condition.
- D. Do not use record documents for construction purposes.
- E. Make documents available at all times for inspection by Engineer and HCWD1.

**1.03 RECORDING**

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



1.04 SUBMITTAL

- A. At completion of project, deliver:
  - 1. Record drawings.
  - 2. Spare parts, if necessary.
  - 3. Operations and maintenance manuals.
  - 4. Start-up reports of vendors, suppliers, subcontractors.
  - 5. Release of Lien.
- B. Prior to final payment, Contractor should deliver:
  - 1. Request letter of certification and initiation of warranty period from Engineer.
- C. Accompany submittal with transmittal letter, in duplicate, containing:
  - 1. Date.
  - 2. Project title and number.
  - 3. Contractor's name and address.
  - 4. Title and number of each record document.
  - 5. Certification that each document as submitted is complete and accurate.
  - 6. Signature of Contractor or his authorized representative.

END OF SECTION 01 78 39

## DIVISION 3: CONCRETE

## **SECTION 03 30 00 CAST-IN-PLACE CONCRETE**

### **PART 1 - GENERAL**

#### **1.01 WORK INCLUDED**

- A. Formwork.
- B. Reinforcing Steel.
- C. Expansion and Contraction Joints. D.  
Waterstops
- E. Concrete.

#### **1.02 RELATED REQUIREMENTS**

- A. Section 31 23 33 – Excavating, Backfilling and Compacting for Utilities.

#### **1.03 REFERENCES**

- A. ACI 350R Environmental Engineering Concrete Structures.
- B. ACI318 - Building Code Requirements for Reinforced Concrete. C. ACI347  
- Recommended Practice for Concrete Formwork.
- D. CRSI - Manual of Standard Practice. E.  
CRSI - Placing Reinforcing Bars.
- F. ASTM - A-615, A-120, A-185, C-31, C-39.

#### **1.04 SUBMITTALS**

- A. The Contractor shall submit the following data to the Engineer for review:
  - 1. Mix designs for all mixes proposed or required to be used, including all mixes containing admixtures.
  - 2. Certification by the manufacturer that cement meets the Specification contained herein.
  - 3. Shop drawing for reinforcing steel showing bar schedules, location, and splices.
  - 4. Reports on laboratory compression tests of cylinders taken during concrete placement.
  - 5. Manufacturer's cut sheets for all other concrete related products.

## PART 2 - PRODUCTS

### 2.01 CLASSES OF CONCRETE AND USAGE

- A. Structural concrete of the various classes required shall be proportioned to produce the following 28-day compressive strengths:
1. Selection of Proportions for 4,500 psi Concrete:
    - a. 4,500 psi compressive for strength at 28 days. b. Type I/II cement plus air.
    - c. Maximum water/cement ratio - 0.42.
    - d. Minimum cement content - 564 lbs. (6.0 bags)/cubic yard concrete. e. Nominal maximum size coarse aggregate - No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
    - f. Air content - 5% plus or minus 1% by volume.
    - g. Slump - 4 inches in accordance with ASTM C-143, when measured with only an air entraining admixture. Additional slump is allowed by use of water reducing or superplasticizing admixtures.
  2. Selection of Proportions for 3,000 psi Concrete:
    - a. 3,000 psi compressive strength at 28 days. b. Type I/II cement plus air.
    - c. Maximum water/cement ratio - 0.56.
    - d. Minimum cement content - 470 lbs. (5.0 bags)/cubic yard concrete. e. Nominal maximum size coarse aggregate - No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
    - f. Air content - 5% plus or minus 1% by volume.
    - g. Slump - 4 inches in accordance with ASTM C-143, when measured with only an air entraining admixture.
- B. Concrete shall be used as follows:
1. 4,500 psi concrete for all concrete work except as noted below.
  2. 3,000 psi concrete for encasement of piping where indicated, and thrust blocking.
- C. All testing of aggregates and determination of proportions shall be or have been performed by a recognized independent testing laboratory.
- D. Cement for exposed concrete shall have a uniform color classification.
- E. Type I/II cement conforming to ASTM C-150 shall be used in all concrete.
- F. Coarse aggregate shall be crushed stone having clean, hard, uncoated particles, and shall be

free from injurious amount of soft, friable, thin, elongated or laminated pieces. Coarse aggregates shall conform to all requirements of ASTM C-33.

- G. Fine aggregates shall be natural sand having clean, hard, uncoated grains, free from injurious amounts of clay, dust, organic matter or other deleterious substances, and shall conform to ASTM C-33.
- H. Water for concrete shall be clean, fresh, and free from injurious amounts of oil, acid, alkali, organic matter, or other deleterious substances.

## 2.02 ADMIXTURES

- A. An air entraining admixture shall be used on all concrete and shall be the neutralized vinsol resin type such as Master Builders MB-VR, Euclid Chemical Company AIR-MIX or equivalent. The admixture shall meet the requirements of ASTM C-260.
- B. Other admixtures (water reducing agents, accelerating agents, retarding agents, superplasticizing agents) shall be considered where necessary to meet the needs of construction.
- B. Admixtures shall be used in concrete design mixes in the same manner and proportions as in the field so that the effects of the admixtures are included in preliminary test submitted to the Engineer for review prior to the start of construction.

## 2.03 REINFORCEMENT

- A. The minimum yield strength of the reinforcement shall be 60,000 pounds per square inch. Bar reinforcement shall conform to the requirements of ASTM A-615. All bar reinforcement shall be deformed.
- B. Welded wire fabric shall conform to ASTM A-185 and shall be of weight and gauge as indicated on the Drawings.
- C. Reinforcement supports and other accessories in contact with the forms for members which will be exposed to view in the finished work shall be of stainless steel or shall have approved high-density polyethylene tips so that

the metal portion shall be at least one-quarter of an inch from the form or surface. Supports for reinforcement, when in contact with the ground or stone fill, shall be precast stone concrete blocks.

## 2.04 FORMS

- A. Forms shall be of suitable material, design, and construction so as to be rigid, tight enough to prevent the passage of mortar, and plane surfaces with a tolerance of 1/16-inch in 4 feet.
- B. For surfaces to be given burlap-rubbed finish, the form surface in contact with the concrete shall be made of heavy gauge metal, new plywood (used plywood which, in the opinion of the

Engineer, is substantially equal to new plywood may be used), tempered wood fiberboards with smooth surface, or similar materials. Metal forms or form linings shall have square edges so that the concrete will not have fins or fluting. Forms shall not be pieced out by use of materials different from those in the adjacent form or in such manner as will detract from the uniformity of the finished surface.

- C. For surfaces other than those to be given burlap-rubbed finish, forms shall be made of wood, metal, or other acceptable material. Wooden forms shall be constructed of sound lumber or plywood of suitable dimensions, free from knotholes and loose knots. Plywood shall be reasonable good, as accepted. Metal forms shall be of an acceptable type for the work involved. Edges of forms in contact with concrete shall be flush within 1/16-inch.
- D. Form for walls, columns, or piers shall have removable panels at the bottom for cleaning, inspection, and scrubbing-in of bonding grout. Forms for thin sections (such as walls or columns) of considerable height shall be arranged with suitable openings so that the concrete can be placed in a manner that will prevent segregation and accumulations of hardened concrete on the forms or reinforcement above the fresh concrete, unless special spouts are used to place concrete, and so that construction joints can be properly keyed and treated.
- E. Forms for exposed surfaces shall be built with 3/4-inch chamfer strips attached to produce smooth, straight chamfers at all sharp edges of concrete.
- F. Form ties to be encased in concrete shall not be made of through-bolts or common wire, but shall be of a well-established type, so made and installed as to embody the following features:
  - 1. After removal of the protruding part of the tie, there shall be no metal nearer than 1 inch to the face of the concrete.
  - 2. That part of the tie which is to be removed shall be at least 1/2-inch in diameter, or if smaller, it shall be provided with a wood or metal cone 1 inch long placed against the inside of the forms. Cones shall be carefully removed from the concrete after the forms have been stripped.
  - 3. Ties which pass through walls subject to hydrostatic pressure shall be provided with acceptable water stops, such as washers, securely fastened to the ties.

## 2.05 OTHER MATERIALS

- A. Anchorage items shall be of standard manufacture and of type required to engage with the anchors to be installed therein under other sections of the Specifications and shall be subject to approval by the Engineer.
- B. Premolded expansion-joint filler strips shall conform to ASTM D-1752 and shall be 3/8-inch thick unless otherwise shown.
- C. Joint sealants shall conform to ANSI 116.1. The following joint sealants are acceptable:

1. Colma by Sika Corporation.
2. Hornflex by A. C. Horn, Inc.
3. Sonolastic by Sonneborn Division of Contech, Inc. D.

#### GROUT

1. Precision-support grout shall consist of a non-shrink, ready-to-use, precision grout material; proportioned, pre-mixed and packaged at the factory; delivered to the job site to place with only the addition of water; forming, placing and curing as stipulated by the manufacturer.
2. Grouts which depend upon aluminum powders, chemicals, or other agents which produce gas for expansion are not acceptable.
3. Precision-support grout shall also meet the following requirements:
  - a. Free of gas producing agents.
  - b. Free of oxidizing catalysts.
  - c. Free of inorganic accelerators, including chlorides.

#### Construction Joint Waterstops:

1. Polyvinylchloride (PVC) Waterstops:
  - a. Provide PVC waterstops complying with Corps of Engineers CRD-C572.
  - b. Provide serrated type with a minimum thickness of 3/8 inch by a minimum width of 6 inches may be provided in specific applications as approved by the ENGINEER.
  - c. Provide PVC waterstops as manufactured by Greenstreak Plastic Products company; Vinylex Corporation, or equivalent product.
2. Adhesive Waterstop:
  - a. Provide pre-formed adhesive waterstop in construction joint locations where shown, or as alternative to PVC waterstop where appropriate.
  - b. The preformed waterstop shall meet or exceed all requirements of Federal Specifications SS-S-210A, "Sealing Compounds for Expansion Joints".
  - c. Provide adhesive waterstops as manufactured by Synko-Flex Products, Division of Henry Products, Inc.; or equivalent product.
3. Hydrophilic Waterstops:
  - a. Hydrophilic waterstop may be used as an alternate to the adhesive waterstop.
  - b. Provide waterstops as manufactured by Greenstreak Plastic Products Company; Adeka, Inc.; or equivalent product.

Membrane Forming Curing compound: ASTM C 309, Type I-D.

1. Provide without fugitive dye when requested by Engineer.
- G. Epoxy Bonding Agent: Provide two-component epoxy resin bonding agent as manufactured by Sika Chemical Corporation; A.C. Horn, Incorporated; or equivalent product.
- H. Adhesive Dowels:
1. Drilling equipment used and installation of adhesive dowels shall be in accordance with manufacturer's instructions.
  2. Assure that embedded items are protected from damage and are not filled in with concrete.
  3. Unless otherwise shown or approved by Engineer, embedment depths shall be based on a compressive strength of 2,500 psi when embedded into existing concrete.)
  4. The Contractor shall comply with the adhesive material manufacturer's installation instructions on the hole diameter. The Contractor shall properly clean out the hole utilizing a synthetic brush and compressed air to remove all loose material from the hole, prior to installing  
  
adhesive capsules or material. Proper mixing of the two-component system shall be done to the manufacturer's recommendations.
  5. Adhesive material manufacturer's representative shall observe and demonstrate the proper installation procedures for the adhesive dowels and adhesive material at no additional expense to HCWD1. Each installer shall be certified in writing by the manufacturer to be qualified to install the adhesive dowels.
  6. Provide two-component dowel installation adhesive as manufactured by Hilti Corporation, or approved equivalent product.

### PART 3 - EXECUTION

#### 3.01 FORMING

- A. Forms shall be so constructed and placed that the resulting concrete will be of the shape, lines, dimensions and to the elevations indicated on the Drawings or specified, and exposed concrete will be substantially free from board or grain marks, poorly matched joints, and other irregularities or defects.
- B. Forms shall be sufficiently rigid to prevent displacement or sagging between supports, and so constructed that the concrete will not be damaged by their removal. The Contractor shall be entirely responsible for their adequacy.
- C. All falsework to support structural slabs, beams, girders, etc., shall be designed to safely and adequately support the concrete and forms during placement and curing. The adequacy and safety of the falsework shall be the sole responsibility of the Contractor.
- D. All forms shall be oiled with an acceptable nonstaining oil or liquid form coating before reinforcement is placed.



- E. Before form material is reused, all surfaces that are in contact with the concrete shall be thoroughly cleaned, all damaged places repaired, and all projecting nails withdrawn.
- F. Except as otherwise specifically authorized by the Engineer, forms shall not be removed until the concrete has aged for the following number of days- degrees\*:
  - 1. Beams and slabs: 500 day-degrees.
  - 2. Walls and vertical surfaces: 100 day-degrees.
  - 3. \*Day-degree: Total number of days times average daily air temperature at surface of concrete. For example, 5 days at a daily average temperature of 60 degrees F, equals 300 day-degrees.
- G. Shores under beams and slabs shall not be removed until the concrete has attained at least 60 percent of the specified compressive strength and also sufficient strength to support safely its own weight and the construction live loads upon it.

### 3.02 PLACING REINFORCEMENT

- A. Reinforcement shall be bent cold to the dimensions and shapes shown on the Drawings and within tolerances specified in the CRSI Manual of Standard Practice.
- B. Before being placed in position, reinforcement shall be cleaned of loose mill and rust scale, dirt and other coatings that will interfere with development of proper bond.
- C. Reinforcement shall be accurately placed in positions shown on the Drawings and firmly held in place during placement and hardening of concrete by using annealed wire ties. Bars shall be tied at all intersections except where spacing is less than one foot in both directions, then alternate intersections may be tied.
- D. Distance from the forms shall be maintained by means of stays, blocks, ties, hangers or other approved supports. Blocks for holding the reinforcement from contact with the forms shall be precast mortar blocks or approved metal chairs. Layers of bars will be separated by precast mortar blocks or other equally suitable devices; the use of pebbles, pieces of broken stone or brick, metal pipe and other such blocks will not be permitted. If fabric reinforcement is shipped in rolls, it shall be straightened into flat sheets before being placed.
- E. Before any concrete is placed, the Engineer shall have inspected the placing of the steel reinforcement and given permission to deposit the concrete. Concrete placed in violation of this provision will be rejected and thereupon shall be removed.
- F. Unless otherwise specified, reinforcement shall be furnished in the full lengths indicated on the plans. Splicing of bars, except where shown on the plans, will not be permitted without the approval of the Engineer. Where splices are made, they shall be staggered insofar as possible.

### 3.03 TESTING AGGREGATES AND DETERMINING PROPORTIONS

- A. No concrete shall be used in the work until the materials and mix design have been accepted by the Engineer.
- B. The conformity of aggregates to the Specifications hereinbefore given shall be demonstrated and determined by tests per ASTM C-33 made with representative samples of the materials to be used on the work.
- C. The actual proportions of cement, aggregates, admixtures and water necessary to produce concrete conforming to the requirements set forth herein shall be determined by making test cylinders using representative samples of the materials to be used in the work. A set of four standard 6-inch cylinders shall be made and cured per ASTM C-31. Two shall be tested at 7 days and two at 28 days per ASTM C-39. The slump shall not be less than the greatest slump expected to be used in the work.
- D. Reports on the tests and a statement of the proportions proposed for the concrete mixture, shall be submitted in triplicate to the Engineer for review as soon as possible, but not less than five days prior to the proposed beginning of the concrete work. If the Contractor furnishes in writing, similar, reliable detailed information from an acceptable source, and of date not more than four months prior to the time when concrete will be used on this project, the above requirements for laboratory test may be modified by the Engineer. Such data shall derive from mixtures containing constituents, including the admixtures where used, of the same types and from the same sources as will be used on this project.
- E. The Engineer shall have the right to make check tests of aggregates and concrete, using the same materials, and to order changes as may be necessary to meet the specified requirements.
- F. The Contractor may request permission to add water at the job site; and when the addition of water is permitted by the Engineer, the quantity added shall be the responsibility of the Contractor and in no case shall the total water per bag of cement exceed the ratio set forth herein.
- G. If concrete of the required characteristics is not being produced as the work progresses, the Engineer may order such changes in proportions or materials or both, as may be necessary to secure concrete of the specified quality. The Contractor shall make such changes at his own expense and no extra compensation will be allowed because of such changes.

### 3.04 MIXING

- A. All central-plant and rolling-stock equipment and methods shall conform to the Truck Mixer and Agitator Standards of the Truck Mixer Manufacturers' Bureau of the National Ready Mixed Concrete Association, as well as the ACI Standards for measuring, Mixing and Placing Concrete (ACI 614), and with

the ASTM Standard Specification for Ready-Mixed Concrete, Designation C94, insofar as applicable.

- B. Ready-mixed concrete shall be transported to the site in watertight agitator or mixer trucks. The quantity of concrete to be mixed or delivered in any one batch shall not exceed the rated capacity of the mixer or agitator for the respective conditions as stated on the nameplates.
- C. Central-mixed concrete shall be plant-mixed a minimum of 1-1/2 minutes per batch, and then shall be truck-mixed or agitated a minimum of 8 minutes. Agitation shall begin immediately after the premixed concrete is placed in the truck and shall continue without interruption until discharge. For transit-mixed concrete the major portion of the mixing water shall be added and mixing started immediately after the truck is charged.
- D. The amount of water initially added shall be recorded on the delivery slip for the Engineer's information; no additional water shall be added, either in transit or at the site, except as directed. Mixing (at mixing speed) shall be continued for at least 10 minutes followed by agitation without interruption until discharge. Concrete shall be discharged at the site within 1-1/2 hours after water was first added to the mix, and shall be mixed at least 5 minutes after all water has been added.
- E. Concrete which has become compacted or segregated during transportation to or in the site of the work shall be satisfactorily remixed just prior to being placed in the forms.
- F. Partially hardened concrete shall not be deposited in the forms. The retempering of concrete which has partially hardened (that is, the remixing of concrete with or without additional cement, aggregate, or water) will not be permitted.

### 3.05 COMPRESSION TESTS

- A. During the progress of the work, at least one (1) set of four (4) compression test cylinders shall be made for each 50 cubic yards of concrete or major fraction thereof, and not less than one such set for each type of concrete for each day's pouring. Cylinders made in the field shall be made and cured in accordance with the ASTM Standard Method of Making and Curing Concrete Test Specimens in the Field, Designation C31, except that wherever possible molds shall be left on the cylinders until they have reached the laboratory. Testing services to satisfy the requirements of ACI shall be paid for by the Contractor at his expense. Testing lab must be approved by the Engineer.
- B. One cylinder of each set shall be broken in accordance with ASTM C-39 at seven (7) days and the other two at twenty-eight (28) days. Two copies of these test results shall be submitted to the Engineer on the same day of the tests.
- C. On evidence of these tests, any concrete that fails to meet the specified strength requirements shall be strengthened or replaced as directed by the Engineer at the Contractor's expense.

### 3.06 METALWORK IN CONCRETE

- A. All trades shall be notified, at the proper time, to install items to be embedded in concrete.
- B. All castings, inserts, conduits, and other metalwork shall be accurately built into or encased in the concrete by the Contractor as directed, and all necessary precautions shall be taken to prevent the metalwork from being displaced or deformed.
- C. Anchor bolts shall be set by means of substantial templates.

### 3.07 PLACING AND COMPACTING CONCRETE

- A. At least twenty-four (24) hours before the Contractor proposes to make any placement of concrete, he shall notify the Engineer of his intention and planned procedure. Unless otherwise permitted, the work shall be so executed that a section begun on any day shall be completed during daylight of the same day.
- B. No concrete shall be placed until the subgrade has been accepted in accordance with the requirements of Section 01 45 00, Quality Control, nor shall it be placed on frozen subgrade or in water. Placement of concrete shall not be scheduled until the forms, , reinforcing, and preliminary work have been accepted. No concrete shall be placed until all materials to be built into the concrete have been set and have been accepted by the various trades and by the Engineer. All such materials shall be thoroughly clean and free from rust, scale, oil, or any other foreign matter.
- C. Forms and excavations shall be free from water and all dirt, debris, and foreign matter when concrete is placed. Except as otherwise directed, wood forms and embedded wood called for or allowed shall be thorough wetted just prior to placement of concrete.
- D. Concrete placed at air temperatures below 40 degrees shall have a minimum temperature of 50 degrees F. and a maximum of 70 degrees F. when placed.
- E. Concrete shall be transported from the mixer to the place of final deposit as rapidly as practicable and by methods which will prevent separation of ingredients and avoid rehandling.
- F. Chutes for conveying concrete shall be metal or metal-lined and of such size, design, and slope as to ensure a continuous flow of concrete without segregation. The slope of chutes shall be not flatter than 1 on 2 and all parts of a chute shall have approximately the same slope. The discharge end of the chute shall be provided with a baffle, or, if required, a spout; and the end of the chute or spout shall be kept as close as practicable to, but in no event more than 5 feet above the surface of the fresh concrete. When the operation is intermittent, the chute shall discharge into a hopper.
- G. In thin sections of considerable height (such as walls and columns), concrete shall be placed in such a manner as will prevent segregation and accumulations of hardened concrete on the forms or reinforcement above the mass of concrete being placed. To achieve this end, suitable hoppers, spouts with restricted outlets, etc., shall be used as required or permitted

unless the forms are provided with suitable openings.

- H. Chutes, hoppers, spouts, etc., shall be thoroughly cleaned before and after each run and the water and debris shall not be discharge inside the form.
- I. For any one placement, concrete shall be deposited continuously in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams and planes of weakness within the section, and so as to maintain, until the completion of the unit, an approximately horizontal, plastic surface.
- J. No wooden spreaders shall be left in the concrete.
- K. During and immediately after being deposited, concrete shall be thoroughly compacted by means of suitable tools and methods, such as internal-type mechanical vibrators operating at not less than 5,000 rpm., or other tool spading, to produce the required density and quality of finish. Vibration shall be done only by experienced operators under close supervision and shall be carried on in such a manner and only long enough to produce homogeneity and optimum consolidation without permitting segregation of the solid constituents, "pumping" of air, or other objectionable results. All vibrators shall be supplemented by proper spade puddling approximately 2 to 3 inches away from forms to remove included bubbles and honeycomb. Excessive spading against the forms, causing the deposition of weak mortar at the surface, shall be avoided.
- L. The concrete shall be thoroughly rodded and tamped about embedded materials so as to secure perfect adhesion and prevent leakage. Care shall be taken to prevent the displacement of such materials during concreting.

### 3.08 BONDING CONCRETE AT CONSTRUCTION JOINTS

- A. In order to secure full bond at construction joints, the surface of the concrete previously placed (including vertical, inclined, and substantially horizontal areas) shall be thoroughly cleaned of foreign materials and laitance, if any, and then roughened.
  - B. The previously placed concrete at the joint shall be saturated with clean water and kept thoroughly wet overnight, after which all pools shall be removed. After free or glistening water disappears, the concrete shall be given a thorough coating of neat cement mixed to a suitable consistency. The coating shall be 1/8-inch thick on vertical surfaces and 1/4-inch thick on horizontal surfaces, and shall be well scrubbed in by means of stiff bristle brushes wherever possible. New concrete shall be deposited before the neat cement dries.

### 3.09 CURING AND PROTECTION

- A. All concrete, particularly slabs and including finished surfaces, shall be treated immediately after concreting or cement finishing is completed, to provide continuous moist curing for at least seven days, regardless of the adjacent air temperature. Walls and vertical surfaces may be covered with continuously saturated burlap, or kept moist by other acceptable means. Horizontal surfaces, slab, etc., shall be ponded to a depth of 1/2-inch wherever practicable, or kept continuously wet by the use of lawn sprinklers, a complete covering of

continuously saturated burlap, or by other acceptable means.

- B. For at least seven (7) days after having been placed, all concrete shall be so protected that the temperature at the surface will not fall below 45 degrees F.
  - 1. No manure, salt, or other chemicals shall be used for protection.
  - 2. Wherever practicable, finished slabs shall be protected from the direct rays of the sun to prevent checking and crazing.

### 3.10 TRIMMING AND REPAIRS

- A. The Contractor shall use suitable forms, mixture of concrete, and workmanship so that concrete surfaces, when exposed, will require no patching.
- B. As soon as the forms have been stripped and the concrete surfaces exposed, fins and other projections shall be removed, recesses left by the removal of form ties shall be filled, and surface defects which do not impair structural strength shall be repaired.
- C. Defective concrete shall be cut perpendicular to the surface until sound concrete is reached, but less than 1 inch deep. The remaining concrete shall be thoroughly roughened and cleaned. Concrete around the cavity or the form-tie recess shall be thoroughly wetted and promptly painted with a 1/16- inch brush coat of neat cement mixed to the consistency of lead paint. The hole shall then be filled with mortar.
  - 1. Mortar shall be 1:1-1/2 cement and sand mix with sufficient white cement, or fine limestone screenings in lieu of sand, to produce a surface matching the adjoining work. Cement and sand shall be from the same sources as in the parent concrete.
  - 2. For filling form-tie recesses, the mortar shall be mixed slightly damp to the touch (just short of "balling"), hammered into the recess until it is dense and an excess of paste appears on the surface, and then troweled smooth. Mortar in patches shall be applied so that after partial set it can be compressed and rubbed to produce a finish flush and uniform in texture with the adjoining work. All patches shall be warm-moist cured as above specified.
- D. The use of mortar patching as above specified shall be confined to the repair of small defects in relatively green concrete. If substantial repairs are required, the defective portions shall be cut out to sound concrete and the masonry replaced by means of a cement gun, or the masonry shall be taken down and rebuilt, all as the Engineer may decide or direct.

### 3.11 SURFACE FINISH

- A. Fins and irregularities on formed surfaces to receive no other finish shall be smoothed.
- B. The top of concrete on which other concrete or unit masonry will later be placed shall be struck off true at the surface indicated on the Drawings or as permitted by the Engineer, as the concrete is being placed. As soon thereafter as the condition of the concrete permits and before it has hardened appreciably (normally within 2 hours after being deposited), all water, scum, laitance, and loose aggregate shall be removed from the surface by means of wire or

bristle brooms in such a manner as to leave the coarse aggregate slightly exposed and the surface clean.

- C. Concrete surfaces shall be finished as follows, except as otherwise required by various sections of the Specifications or shown on the Drawings.
1. Wood-float finish shall be given to all top, substantially horizontal, exposed surfaces.
  2. Burlap-rubbed finish shall be given to all interior and exterior surfaces placed against forms which will be exposed to view on completion of the work. (Finish shall be to one foot below ground and below normal liquid surface elevations).
  3. All surfaces shaped without forms and over which liquids will flow shall be given a steel-trowel finish.
  4. Concrete surfaces to which roof insulation or roofing are to be applied shall be finished sufficiently smooth to receive the roofing material, as obtained by steel trowel or very smooth wood-float finish.

### 3.12 METHOD OF FINISHING

- A. Broomed Finish: Surfaces to be given broomed finish shall first be given a steel-trowel finish. Immediately after troweling, the surface shall be lightly brushed in one direction with a hair broom to produce a nonslip surface of uniformly good appearance.
- B. Wood-float Finish:
1. Surfaces to be given a wood-float finish shall be finished by tamping with special tools to force aggregates away from the surface, and screeding with straight edges to bring the surface to the required line.
  2. As soon after the condition of concrete permits and before it has hardened appreciably, all water, film, and foreign material which may work to the surface shall be removed. Rough finishing shall be done with straight edges and derbies. Machine floating if used, shall not be started until the surface will support the float adequately without digging in and bringing excess fines to the surface. At such time, a minimum of machine and hand floating with a wood float shall be employed to bring the finish to a true and uniform surface with no coarse aggregate visible.
  3. Under no circumstances will sprinkling with water or dusting with cement be permitted during finishing of the slab.
- C. Steel Trowel Finish: Surfaces to be given a steel-trowel finish shall first be given a wood-float finish. This shall be followed by hand troweling with steel trowels to bring the surface to a uniform, smooth, hard, impervious surface free from marks and blemishes. Troweling shall not be started until all water has disappeared from the surface. Over-troweling shall be avoided. Dusting

with dry cement or other mixtures or sprinkling with water will not be permitted in finishing.

- D. Burlap Rubbed Finish:

1. Immediately after the forms have been stripped and before the concrete has changed in color, all fins and other projections shall be carefully removed by use of a hammer or other suitable means, and imperfections shall be repaired as hereinbefore specified under "Trimming and Repairs". While the surface is still damp, a thin coat of cement slurry of medium consistency shall be applied by means of bristle brushes to provide a bonding coat within pits and minor blemishes in the parent concrete; the coating of large areas of the surface with this slurry shall be avoided.
2. Before the slurry has dried or changed color, a dry (almost crumbly) grout composed of 1 volume of cement to 1-1/2 volumes of masonry sand shall be applied. The sand shall have a fineness modulus of approximately 2.25 and comply with the gradation requirements of the ASTM Standard Specifications for Aggregate for Masonry Mortar, Designation C144-76.
3. The grout shall be uniformly applied by means of damp (neither dripping wet nor dry) pads of burlap of convenient size (approximately 6 inches square) and shall be allowed to harden for one to two hours, depending on the weather. In hot, dry weather the surface shall be kept damp by means of a fine fog spray during the hardening period.
4. When the grout has hardened sufficiently, but before it becomes so hard as to be difficult to remove, excess grout shall be scraped from the surface of the parent concrete by the edge of a steel trowel, without removing the grout from the imperfections. Thereafter, the surface shall be allowed to dry thoroughly and then be rubbed vigorously with burlap to remove all dried grout so that no visible film remains on the surface after the rubbing. The entire cleaning operation for any area shall be so planned that sufficient time is allowed for the grout to dry and be rubbed after it has been cut with the trowel.
5. On the day following the grouting and burlap rubbing, the concrete surface shall again be rubbed clean with a dry burlap to remove inadvertent dust. If any built-up film remains on the parent surface, it shall be removed by being rubbed with a fine abrasive stone without breaking through the surface film of the original concrete. Such rubbing shall be light and sufficient only to remove excess material without working up a lather of mortar or changing the texture of the concrete. Following the final rubbing with burlap or abrasive stone, the surface shall be thoroughly washed with stiff bristle brushes (worked only along parallel lines) to remove extraneous materials from the surface. The surface shall then be sprayed with a fine fog spray to maintain a  
  
continually damp condition for at least three (3) days after application of the grout.
6. When the burlap-rubbed finish has been completed, the concrete surface shall be smooth, free from discolorations and stains, and of uniformly good appearance.

### 3.13 HOT WEATHER CONDITIONS

Placing of concrete under conditions of high temperature, low humidity or wind shall be done in accordance with the American Concrete Institute "Hot Weather Conditions" (latest edition).



3.14 COLD WEATHER CONDITIONS

Cold weather concreting procedures precautions shall conform with American Concrete Institute "Cold Weather Concreting" (latest edition).

**END OF SECTION 03 30 00**

## DIVISION 31: EARTHWORK

## **SECTION 31 10 00 SITE CLEARING**

### **PART 1 GENERAL**

#### **1.01 WORK INCLUDED**

- A. Clear site within construction limits of trees and shrubs and other vegetation.
- B. Remove surface debris.

#### **1.02 REGULATORY REQUIREMENTS**

- A. Conform to applicable local codes and ordinances for disposal of debris.

### **PART 2 PRODUCTS (NOT USED)**

### **PART 3 EXECUTION**

#### **3.01 EXISTING TREES AND OTHER VEGETATION**

- A. The Contractor shall not cut or injure any trees or other vegetation outside right-of-way or easement lines and outside areas to be cleared, as indicated on the Drawings, without written permission from HCWD1. The Contractor shall be responsible for all damage done outside these lines.
- B. Trees shall be removed within permanent and temporary easement lines or right-of-way lines for the construction of water, sanitary sewer and storm lines and appurtenances.

#### **3.02 CLEARING**

- A. From areas to be cleared, the Contractor shall cut or otherwise remove all trees, brush, and other vegetable matter such as snags, bark and refuse. The ground shall be cleared to the width of the permanent easement or right-of-way unless otherwise directed by the Engineer.
- B. Except where clearing is done by uprooting with machinery, trees, stumps, and stubs to be cleared shall be cut as close to the ground surface as practicable, but no more than 6 inches above the ground surface for small trees and 12 inches for larger trees.
- C. Elm bark shall be either buried at least 1 foot deep or burned in suitable incinerators off site with satisfactory antipollution controls and fire prevention controls, to prevent the spread of Dutch Elm disease and as required by applicable laws.

#### **3.03 GRUBBING**

From areas to be grubbed, the Contractor shall remove completely all stumps, remove to a

depth of 12 inches all roots larger than 3-inch diameter, and remove to a depth of 6 inches all roots larger than 1/2-inch diameter. Such depths shall be measured from the existing ground surface or the proposed finished grade, whichever is lower.

#### 3.04 STRIPPING OF TOPSOIL

Prior to starting general excavation, strip topsoil to a depth of 6 inches or to depths required by the Engineer. Do not strip topsoil in a muddy condition and avoid mixture of subsoil. Stockpile the stripped topsoil within easement or right-of-way lines for use in finish grading and site restoration. Topsoil stockpiled shall be free from trash, brush, stones over 2 inches in diameter and other extraneous material.

#### 3.05 PROTECTION

- A. Protect trees, shrubs and other plant growth if required by special provision of the easement as final landscaping.
- B. Protect bench marks and existing work from damage or displacement.
- C. Maintain designated site access for vehicle and pedestrian traffic.

#### 3.06 REMOVAL

- A. All material resulting from clearing and grubbing and not scheduled for reuse shall become the property of the Contractor and shall be suitably disposed of off-site, unless otherwise directed by the Engineer, in accordance with all applicable laws, ordinances, rules and regulations.
- B. Such disposal shall be performed as soon as possible after removal of the material and shall not be left until the final period of cleaning up.

END OF SECTION 31 10 00

**SECTION 31 23 33**  
**EXCAVATING, BACKFILLING, AND COMPACTING FOR UTILITIES**

**PART 1 - GENERAL**

**1.01 WORK INCLUDED**

The Contractor shall make excavations in such widths and depths as will give suitable room for below grade vaults, pump stations, etc., laying pipe to the lines, grades and elevations, furnish, place and compact all backfill materials specified herein or denoted on the Drawings. The materials, equipment, labor, etc., required herein are to be considered as part of the requirements and costs for installing the various pipes, structures and other items they are incidental to.

**1.02 RELATED WORK**

- A. Section 31 23 43 – Blasting.
- B. Section 33 11 00 – Water Pipe and Fittings.
- E. Drawing Sheet W2.01

**PART 2 - PRODUCTS**

**2.01 MATERIALS**

- A. Crushed stone material shall conform with the requirements of the applicable sections of the Kentucky Bureau of Highways Standard Specifications and shall consist of clean, hard, and durable particles or fragments, free from dirt, vegetation or objectionable materials.
- B. Two types of crushed stone material are used in this Section, No. 9 Aggregate and Dense Graded Aggregate (DGA).

**PART 3 - EXECUTION**

**3.01 EXCAVATION OF TRENCHES**

- A. Unless otherwise directed by the Engineer, trenches are to be excavated in open cuts.
  - 1. Where pipe is to be laid in gravel bedding or concrete cradle, the trench may be excavated by machinery to, or just below, the designated subgrade, provided that the material remaining at the bottom of the trench is no more than slightly disturbed and is suitable to support the installed pipe.
  - 2. Pipe shall never be laid directly on trench bottom.

- B. Trenches shall be sufficient width (minimum 30 inches) to provide working space on each side of the pipe and to permit proper backfilling around the pipe.
  - 1. The Contractor shall remove only as much of any existing pavement as is necessary for the prosecution of the Work. The pavement shall be cut without extra compensation to the Contractor, to prevent damage to the remaining road surface. Where pavement is removed in large pieces, it shall be disposed of before proceeding with the excavation.
- C. All excavated materials shall be placed a safe distance back from the edge of the trench.
- D. Unless specifically directed otherwise by the Engineer, not more than 500 feet of trench shall be opened ahead of the pipe laying work of any one crew, and not more than 500 feet of open ditch shall be left behind the pipe laying work of any one crew. Watchmen or barricades, lanterns and other such signs and signals as may be necessary to warn the public of the dangers in connection with open trenches, excavations and other obstructions, shall be provided by and at the expense of the Contractor. Temporary fencing will be required around any excavation in a residential area left unmonitored.
- E. When so required, or when directed by the Engineer, only one-half of street crossings and road crossings shall be excavated before placing temporary bridges over the side excavated, for the convenience of the traveling public. All backfilled ditches shall be maintained in such manner that they will offer no hazard to the passage of traffic. The convenience of the traveling public and the property owners abutting the improvements shall be taken into consideration. All public or private drives shall be promptly backfilled or bridged at the direction of the Engineer.
- F. Trench excavation shall include the removal of earth, rock, or other materials encountered in the excavating to the depth and extent shown or indicated on the Drawings.

### 3.02 WATER AND FORCE MAIN BEDDING

- A. Piping for water and force mains shall be supported as follows:
  - 1. The trench bottom for water and force main piping shall be excavated 6 inch below the pipe invert and bedded with a relatively smooth and free of frozen material, clodded dirt, foreign material and rock or granular material larger than 1/2 inch in diameter. When the trench is made through rock, the bottom shall be lowered to provide 6 inches of clearance around the pipe. No. 9 crushed stone bedding shall be used to bring the trench bottom to grade.
- B. After each pipe has been brought to grade, aligned, and placed in final position, earth material for water and force main piping in areas not subject to vehicular traffic and material for water and force mains in paved areas, shall be deposited and densified under the pipe haunches and on each side of the pipe up to the spring line of the pipe to prevent lateral displacement and hold the pipe in proper position during subsequent pipe jointing, bedding, and backfilling operations. Densified bedding material shall be mechanically tamped in 8-inch layers to obtain the maximum possible compaction as specified in Articles 3.08 and 3.09 herein.
- C. In wet, yielding and mucky locations where pipe is in danger of sinking below grade or floating out of grade or line, or where backfill materials are of such a fluid nature that such

movements of pipe might take place during the placing of the backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective.

- D. Where an unstable (i.e., water, mud, etc.) trench bottom is encountered, stabilization of the trench bottom is required. This is to be accomplished by undercutting the trench depth and replacing to grade with a foundation of crushed stone aggregate. It is the Contractor's responsibility to contact the Engineer when this is encountered.
- E. The depth of the foundation is dependent upon the severity of the trench bottom. The size of stone aggregate used in the foundation will be determined by the condition of the unstable material. Once the trench bottom has been stabilized, the required No. 9 crushed stone bedding material can be placed.
- F. It should be noted that no pipe shall be laid on solid or blasted rock.
- G. Pipe bedding as required in Paragraphs A, B, C, and D of this Section is not considered a separate pay item.

### 3.03 WATER AND FORCE MAIN BACKFILLING

#### A. Initial Backfill:

- 1. This backfill is defined as that material which is placed over the pipe from the spring line to a point 6 inches above the top of the pipe. For water main piping in areas not subject to vehicular traffic, initial backfill material shall be earth material free of rocks, acceptable to the Engineer or with No. 9 crushed stone when a condition exists mentioned in Paragraph A, 3. below. For water main piping in paved areas, initial and final backfill shall be No. 9 crushed stone material, full depth. Granular backfill material shall be mechanically tamped in approximately 8-inch layers to obtain maximum possible compaction as specified in Articles 3.08 and 3.09 herein.
- 2. Material used, whether earth or crushed stone material, in the initial backfilling is not a separate pay item. Payment for the material is included in the unit price per linear foot of water main.
- 3. In areas where large quantities of rock are excavated and the available excavated earth in the immediate vicinity is insufficient for placing the required amount of backfill over the top of the pipe as set forth in Paragraph A.1, the Contractor shall either haul in earth or order No. 9 crushed stone material for backfilling over the pipe. Neither the hauling nor placement of earth nor the ordering and placement of crushed stone material to fulfill the backfill requirements set forth herein is considered a separate pay item.

#### B. Final Backfill:

- 1. There are two cases where the method of final backfilling varies. The various cases and their trench situations are as follows:
  - a. Case I - Areas not subject to vehicular traffic.
  - b. Case II - Paved areas including streets, drives, parking areas, and sidewalks.
- 2. In all cases, walking or working on the completed pipelines, except as may be necessary in backfilling, will not be permitted until the trench has been backfilled to a point 6 inches above the top of the pipe. The method of final backfilling for each of

the above cases is as follows:

- a. Case I - The trench shall be backfilled from a point 6 inches above the top of the pipe to a point 12 inches below the surface of the ground with earth material free from large rock (greater than 6 inches in the longest dimension), acceptable to the Engineer. The final backfill shall be mechanically tamped in approximately 18- inch layers to obtain maximum possible compaction as specified in Articles 3.08 and 3.09 herein. The remainder of the trench shall be backfilled with topsoil material free of any rocks.
  - b. Case II - The trench shall be backfilled from a point 6 inches above the top of the pipe to pavement replacement subgrade with No. 9 crushed stone aggregate material. The backfill shall be mechanically tamped in approximately 18-inch layers to obtain the maximum possible compaction as specified in Articles 3.08 and 3.09 herein. The remaining backfill shall be as follows:
    - (1) For gravel surfaces – DGA material mechanically tamped to maximum possible compaction. The trench may be left with a slight mound if permitted by the Engineer.
    - (2) For bituminous and concrete surfaces - Bituminous and Concrete pavement sections as detailed on the Drawings and as specified for Bituminous Pavement Replacement and Concrete Pavement Replacement.
  3. Earth and crushed stone material used in final backfill is not a separate pay item. Payment shall be included in the price of water and force main.
  4. DGA material used in final backfill for gravel surfaces shall be included in the unit price of the pipe. DGA material used as base for pavements shall be included in the unit price for pavement replacement.
- C. A sufficient amount of DGA material shall be stockpiled to insure immediate replacement by the Contractor of any settled areas. No extra payment will be made for the filling in of settled or washed areas by the Contractor.
- D. Excavated materials from trenches, in excess of quantity required for trench backfill, shall be disposed of by the Contractor. It shall be the responsibility of the Contractor to obtain location or permits for its disposal, unless specific waste areas have been designated on the Drawings or noted in these Specifications. The cost of disposal of excess excavated materials, as set forth herein, no additional compensation being allowed for hauling or overhaul.
- E. Spoil materials that are hauled off projects Fort Knox MUST be disposed of at the Fort Knox landfill.

#### 3.04 BEDDING AND BACKFILLING PROCEDURES

- A. Place all bedding in pipe trenches in horizontal layers not exceeding 8 inches in depth up to a point 6 inches or more above the top of the pipe and thoroughly compact each layer along the full trench width before the next layer is placed.
- B. Backfill shall be placed in horizontal loose lifts not exceeding 18 inches in thickness and shall be mixed and spread in a manner assuring uniform lift thickness after placing. Backfill shall then be compacted as specified in Article 3.09, Compaction, up to 8 inches from existing ground level in non- paved areas or pavement subgrade level in paved areas.



- C. Perform compaction of bedding and backfill with equipment suitable for the type of material placed and which is capable of providing the densities required. Contractor shall select compaction equipment and submit it and his proposed procedure to Engineer for approval.
- D. Bedding and backfill shall be compacted by at least two coverages of all portions of the surface of each lift by compaction equipment. One coverage is defined as the condition obtained when all portions of the surface of the material have been subjected to the direct contact of the compactor.
- E. Test the effectiveness of the equipment selected by Contractor at the commencement of compaction by construction of a small section of trench bedding or backfill within the area where material is to be placed. If tests on this section show that the specified compaction is not obtained, Contractor shall increase the number of coverages, decrease the lift thickness or obtain a different type of compactor. No additional cost to Owner shall be incurred.

### 3.05 COMPACTION

- A. Granular Material:
  - 1. 85% relative density (ASTM D-4253 and D-4254).
- B. Earth Material:
  - 1. 90% standard proctor maximum dry density (ASTM D-698).

### 3.06 PLACEMENT OF IDENTIFICATION TAPE

- A. Detectable underground marking tape shall be placed over all utility lines. Care shall be taken to insure that the buried marking tape is not broken when installed and shall be Lineguard brand encased aluminum foil, Type III, or approved equal.
- B. The identification tape shall bear the printed identification of the utility line below it, such as "Caution - Buried Below". Tape shall be reverse printed; surface printing will not be acceptable. The tape shall be visible in all types and colors of soil and provide maximum color contrast to the soil. The tape shall meet the APWA color code, and shall be 2 inches in width. Colors are: yellow - gas, green - sewer, red - electric, blue - water, orange - telephone, brown - force main.
- C. The identification tape shall be the last equipment installed in the trench so as to be first out. The tape shall be buried 4 to 6 inches below top of grade. After trench backfilling, the tape shall be placed in the backfill and allowed to settle into place with the backfill. The tape may be plowed in after final settlement, installed with a tool during the trench backfilling process, unrolled before final restoration or installed in any other way acceptable to HCWD1 or Engineer.

### 3.07 PLACEMENT OF LOCATION WIRE

- A. Detectable underground location wire shall be placed above all non-metallic water mains and force mains. Care shall be taken to insure that the buried wire is not broken. The location wire shall be taped to the pipeline every 5 feet.

- B. The location wire shall be #12 AWG solid copper-coated steel wire.
- C. The location wire shall be continuous from valve box to valve box and shall be terminated (unconnected) with a wire nut and enough loose wire to extend 24 inches outside the valve box.

END OF SECTION 31 23 33

## **SECTION 31 50 00 SHORING AND BRACING**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. Shoring and bracing of excavations shall be performed by the Contractor in compliance with Occupational Safety and Health Administration (OSHA) requirements and other applicable codes.
- B. Shore and brace sidewalls in excavations with steel sheet piles with wale systems or soldier piles with timber lagging and tie back system as required to protect existing buildings, utilities, roadways, and improvements.
- C. Maintain shoring and bracing during construction activities, and remove shoring and bracing if practical when construction and filling is complete.

#### **1.02 SUBMITTALS**

Provide copies of information on methods of the shoring and bracing system proposed for the work, design basis, calculations where applicable, and copies of shop drawings for inclusion in the project and job-site record files.

#### **1.03 QUALITY ASSURANCE**

- A. Comply with governing codes and regulations. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Shoring and bracing system design shall be prepared and sealed by a registered professional engineer or structural engineer. The system design shall provide the sequence and method of installation and removal. Shoring and bracing system design shall be in accordance with OSHA requirements 29 CFR Section 1926.652.

### **PART 2 - PRODUCTS**

#### **2.01 MATERIALS**

- A. Steel Sheet Piles: Heavy-gauge steel sheet.
- B. Soldier Piles: Steel H-beams.
- C. Timber Lagging: Heavy timber. Pressure treated with wood preservative for use below water table for extended time period.

## PART 3 - EXECUTION

### 3.01 INSTALLATION

- A. Install in proper relation with adjacent construction. Coordinate with work of other sections.
- B. Locate shoring and bracing to avoid permanent construction. Anchor and brace to prevent collapse.

END OF SECTION 31 50 00

## DIVISION 32: EXTERIOR IMPROVEMENTS

## **SECTION 32 11 25 CRUSHED STONE PAVEMENT**

### **PART 1 - GENERAL**

#### **1.01 WORK INCLUDED**

Crushed stone pavement, compacted.

#### **1.02 REFERENCES**

ASTM C33 - Aggregate for Concrete.

#### **1.03 TESTS**

Gradation of stone materials shall be performed in accordance with ASTM C33.

### **PART 2 - PRODUCTS**

#### **2.01 MATERIALS**

Crushed stone shall conform to ASTM C33, Type No. 57, Type No. 2, and No. 610.

### **PART 3 - EXECUTION**

#### **3.01 INSPECTION**

- A. Subgrade soils shall be compacted to at least 95 percent of standard Proctor maximum dry density. Verify compacted subgrade.
- B. Minimum slope of subgrade and pavement surface shall be one-quarter inch per foot to promote surface drainage. Verify that gradients and elevations of base are correct.

#### **3.02 PAVEMENT THICKNESS**

- A. Pavement thickness shall be provided as called for on the Drawings from the Engineer.
- B. The minimum pavement thickness provided shall be: 6 inches No. 3 stone and 6 inches DGA.
- C. Place stone in 6-inch layers and compact and level surfaces to elevations and gradients indicated.

- D. Add small quantities of sand to stone mix as appropriate to assist compaction.
- E. Add water to assist compaction. With an excess water condition, rework topping and aerate to reduce moisture content.

END OF SECTION 32 11 25

## **SECTION 32 12 16 BITUMINOUS PAVEMENT**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. Provide bituminous pavement for following applications, with prepared subbase and compacted base.
  - 1. Roads.
  - 2. Parking areas.
  - 3. Driveways.
  - 4. Walkways.
  - 5. Curbs.
- B. Provide striping for parking, roadway, and handicapped markings.

#### **1.02 SUBMITTALS**

Submit for approval product data, test reports.

#### **1.03 REGULATORY AGENCIES**

Comply with encroachment or road cut permits, governing codes and regulations of the agency having jurisdiction over the roadways impacted by the Project. Agencies may include:

- A. Hardin County Roads Department
- B. City of Radcliff Public Works Department
- C. Kentucky Transportation Cabinet - Department of Highways, Elizabethtown District
- D. Fort Knox Directorate of Public Works

### **PART 2 - PRODUCTS**

#### **2.01 MATERIALS**

- A. Prime coat: Cut-back asphalt.
- B. Tack coat: Emulsified asphalt.
- C. Asphaltic cement: AASHTO M226 and as required by local authorities.
- D. Aggregate: Crushed stone or crushed gravel.



- E. Traffic paint: Quick-drying chlorinated-rubber alkyd type, color as approved.
- F. Wheel-stops: Precast concrete of uniform color and texture with steel stakes.

## PART 3 - EXECUTION

### 3.01 GENERAL

- A. Asphalt/aggregate Mixture: Comply with local agency Standard Specifications. Class as required by loading and use.
- B. Remove loose material from compacted subbase or existing pavement. Proof roll and check for areas requiring additional compaction. Beginning of work means acceptance of compacted subbase or condition of existing pavement and subbase.
- C. Apply prime coat to prepared surface. Apply tack coat to previous laid work and adjacent in-place concrete surfaces.
- D. Place bituminous concrete at minimum temperature of 225 degrees F in strips not less than 10' wide overlapping joints in previous courses. Complete entire base course thickness before beginning surface course.
- E. Construct curbs, where required, to dimensions indicated or if not indicated to standard shapes. Provide tack coat between curb and pavement.
- F. Begin rolling when pavement can withstand weight of roller. Roll while still hot to obtain maximum density and to eliminate roller marks.
- G. Provide 4" lane and striping paint in uniform, straight lines. Provide wheel stops where indicated and securely dowel into pavement. Protect work from traffic and damage.
- H. Test in-place asphalt work for thickness and smoothness. Remove and replace defective work and patch to eliminate evidence of patching. Provide the following minimum thickness and smoothness unless otherwise greater thickness is required on the Drawings:
  - 1. Trench Width Replacement – match existing subbase, base and surface course.

### 3.02 TRENCH WIDTH PAVEMENT REPLACEMENT

- A. Sections of pavement shall be replaced as required to install the pipelines. Disturbed pavement shall be reconstructed to original lines and grades with bituminous binder as detailed on the Drawings and in such manner as to leave all such surfaces in fully as good or better condition than that which existed prior to these operations.
- B. Prior to trenching, the pavement shall be scored or cut to straight edges along each side of the proposed trench to avoid unnecessary damage to the remainder of the paving. Edges of the existing pavement shall be recut and trimmed as necessary to square, straight edges after the pipe has been installed and prior to placement of the binder course or concrete.

- C. Backfilling of trenches shall be in accordance with the applicable portions of Section 31 23 33.
- D. Bituminous base or bituminous surface shall be one course construction of an appropriate base or surface JMF prepared and installed in accordance with the requirements of the Kentucky Department of Highways.
  - 1. Placement and compaction of binder course shall be in accordance with Section 403 of the Kentucky Department of Highways Standard Specifications. Minimum thickness after compaction shall be as detailed on the Drawings.
- E. Concrete base, as detailed on the Drawings, shall be 4,000 psi conforming to the applicable requirements of Division 3.
- F. Bituminous pavement replacement is a separate pay item.

END OF SECTION 32 12 16

## **SECTION 32 13 13 PAVEMENTS, WALKS, AND CURBS**

### **PART 1 - GENERAL**

#### **1.01 WORK INCLUDED**

- A. This Section includes all labor, materials, equipment and related items required to complete the work of pavements, walks, and curbs shown on the Drawings and specified herein.
- B. This Section does not include the following related items:
  - 1. Clearing and grubbing.
  - 2. Earthwork, including establishing of subgrades for pavements, walks, and curbs.
  - 3. Storm drainage and utilities.
  - 4. Concrete work in connection with storm drainage.

#### **1.02 COORDINATION**

Coordinate carefully the Work specified in this Section with storm drainage and utility installations specified under other Sections of these Specifications. Notify the Engineer promptly of any conflict between work of this Section and that of other trades.

#### **1.03 STATE SPECIFICATIONS**

Where the words "State Specifications" are used herein, they shall be understood to refer to the Standard Specifications of the Kentucky Department of Highways. Reference to State Specifications is solely for the purpose of specifying kind and quality of materials and methods of construction. Where, in such specifications, the word "Engineer" or the title of any other State Official or employee appears, it shall for the purpose just stated and be understood to mean the duly authorized representative of HCWD1.

### **PART 2 – PRODUCTS**

Not Used.

### **PART 3 - EXECUTION**

#### **3.01 SUBGRADES FOR PAVEMENTS, WALKS, AND CURBS**

- A. Grading. Do any necessary grading in addition to that performed in accordance with Section 31 23 33 to bring subgrades after final compaction to the required grades and sections for pavements and curbs.
- B. Preparation of Subgrades. Loosen exceptionally hard spots and re-compact. Remove spongy and otherwise unsuitable material and replace it with stable material. Fill and tamp traces of storm drain trenches.

- C. Compaction of Subgrade. Compact the subgrades of all surface areas with appropriate compacting equipment or by other means to such degree as will ensure against settlement of the superimposed work.
- D. Checking Subgrade. Maintain all subgrade in satisfactory condition, protected against traffic and properly drained until the surface improvements are placed. Immediately in advance of concreting, check subgrade levels with templates riding the forms, correct irregularities and compact thoroughly any added fill material. On areas to receive concrete pavement, place grade stakes spaced sufficiently to afford facility for checking subgrade levels. Correct irregularities, compacting thoroughly any fill material.
- E. Drainage Structures. Check for correct elevation and position all manhole covers, grates, and similar structures located within areas to be paved and make, or have made, any necessary adjustments in such structures.

### 3.02 CONCRETE WORK

- A. General. Concrete and concrete materials for work of this Section shall conform to applicable requirements of Section 03 30 00, and, in addition the following:
  - 1. Concrete used in all work of this Section shall be Class A and shall have a minimum 28-day allowable compressive strength of 4,000 pounds per square inch, shall contain not less than six (6) sacks of cement per cubic yard, and shall be an air entrained type, with 4 percent to 6 percent total air content, by use of an approved air entraining agent as specified under Section 03 30 00.
- B. Requirements for forms, reinforcement, mixing, placing, finishing and curing shall be generally as specified for other concrete work under Section 03 30 00, as modified hereinafter under particular item specification.

### 3.03 CONCRETE CURBS

- A. General. Concrete curb and gutter and header curb shall be constructed in accordance with State Specifications at locations shown and to details shown on the Drawings. Curved forms shall be used where curbs are curved to a radius of 100 feet or less.
  - 1. The Contractor may, at his option, install extruded section curb and gutter and header curb. If used, the section, equipment, jointing provisions, etc., shall be reviewed by the Engineer and approved prior to installation.
- B. Contraction Joints. Construct concrete curbs in sections 6 to 10 feet long by use of 1/8-inch steel division plates. Such plates shall be of size and shape conforming to cross sections of the concrete and shall not be bent or otherwise deformed.
- C. Expansion Joints. Provide expansion joints with premolded filler cut to shape of cross section as follows: (1) at ends of all the returns, (2) at not more than 50 feet intervals. Expansion joints shall be at least 2-inch wide, and if adjoining pavement is concrete, of the same width and at same locations as expansion joints in the pavement.
- D. Finish. Tamp and screed concrete as soon as placed. Remove division plates and face forms as soon as practicable; fill any honeycombed places with 1:2 mortar and give exposed surfaces a smooth, wood-float finish without plastering. Finish square corners to 1/4-inch radius and other corners to radius shown.

- E. Height. Curb height shall be as detailed on the Drawings. Transition height at handicap ramp locations to meet level of drive and walk pavement.
- F. Protection. Remove no forms (except face forms) for 24 hours after placing concrete. Barricade against vehicular traffic 14 days and against pedestrian for 3 days. Compact thoroughly the backfill behind the curb.

### 3.04 CONCRETE WALKS AND PAVING

- A. General. Walks in City streets or in streets to be dedicated shall be constructed in accordance with the local agency having jurisdiction over the roadway impacted or in the absence of same, in accordance with the following specifications for all other concrete walks.
- B. Concrete walks shall be one course construction, reinforced concrete nominally 5-inches thick, but in no case less than 4-inches actual thickness, of widths shown on the Drawings. Edges of walks shall be formed adequately and braced to maintain alignment. Use flexible or curved forms for all curves in walks.
  - 1. Provide integral turn-down at walk edges where abutting bituminous paving as detailed.
  - 2. Slopes. Provide grade stakes not more than 25 feet apart for all walk construction. Check tops of forms for grade before placing concrete. Introduce short vertical curves in all walks as shown on the Drawings, or at points where change in walk grade exceeds 2%. For a distance of 2 feet from top and bottom of steps, walk slopes shall not exceed 2 inch per foot. Provide 1/4 inch per foot cross slope in the direction of natural drainage, and make slight adjustments in slopes at walk intersections as necessary or directed to provide proper drainage.
  - 3. Finish. Tamp and screed the concrete true to grade and section bringing sufficient mortar to the surface for finishing and give a wood or carpet- float finish, providing that where the walk grade exceeds 5%, the surface shall be given a belted or broomed finish as directed by the Engineer. Round all edges, including those along expansion joints and scored joints to a 1/4 inch radius. Where walks terminate at curbs, finish the walk 1/4 inch above the curb providing a neat bevel.
  - 4. Expansion Joints. Provide 2 inch transverse expansion joints with premolded filler not more than 50 feet apart, also at walk junctions and intersections, at top and bottom of steps and where walks abut curb returns, buildings, platforms, or other fixed structures, or terminate at curbs. Such expansion joints are not required (except for curb returns) between walks and contiguous parallel curbs. At walk junctions and intersections, the required expansion joints shall be located at the end of each rounding or fillet. Expansion joints shall be at right angles to the slab and extend the full depth thereof; the premolded filler shall extend to within 1/4 inch of the walk surface. Locate expansion joints in all walks as nearly as practicable opposite those in abutting curbs.
  - 5. Scored Joints. Between expansion joints, cut grooves 1/8 inch to 1/4 inch wide, at least 3/4 inch deep, and with a spacing approximately equal to the walk width but not greater than 6 feet on centers.
- C. Handicap Ramp. Provide ramped sections for handicapped access where shown and as detailed. Ramp surface shall be given a uniform medium broomed finish at right angles to ramp pitch. Install tactile warning strip of width shown in Cobble II pattern as manufactured by Paverlock, Inc., of Cincinnati, Ohio.
- D. Other concrete paving at exterior areas shall conform to requirements shown on the Drawings.

1. Provide reinforced concrete entrance area paving at Auditorium Building where shown. Thickness and dimensions shall be as detailed. Surface shall match grade of adjacent existing paving and finish spot grades as shown on the Drawings. The pad shall be given a uniformly textured finish to match existing paving.
- E. Protection. Remove no forms for 24 hours after pouring concrete. Protect concrete walks and paving from pedestrian traffic for a period of 3 days after pouring, and against vehicular traffic for a period of 14 days.

### 3.05 CONCRETE STEPS

- A. Concrete steps shall be constructed under work of this Section where shown and as detailed on the Drawings. Verify elevations at top and bottom landings prior to laying out formwork, excavation or preparation of subgrade.
- B. Excavation and Preparation of Subgrade. Excavate for corner posts to dimensions shown, and trim subgrade of concrete to required shape and slope. Footing excavations and subgrades shall be in a firm, moist condition, prior to placing any concrete, clean and free from loose material.
- C. Build forms to details shown on the Drawings, and so as to permit their removal without damage to the concrete. Place reinforcement as detailed, properly supported to maintain it in position during placing of concrete.
- D. Finish. Place concrete, and thoroughly compact it in the forms by means of spading, rodding, tamping or vibrating so as to thoroughly work into all corners and around reinforcement. All treads shall be pitched as detailed to drain, and shall be given a uniformly textured wood or carpet float finish. Exposed edges of treads shall be rounded smoothly to 2-inch radius. Remove face forms as soon as practicable, patch any surface voids with 1:2 mortar to match color of concrete, and rub with carborundum stone and water to a uniformly textured finish. Plastering of concrete surfaces will not be permitted.
- E. Protection. Do not open steps for use for seven days after concrete is placed.

### 3.06 BITUMINOUS PAVING

- A. General. All roadway and parking area pavement designated as bituminous shall consist of a crushed stone and dense graded aggregate base, and bituminous surface course. Refer to the Drawings for thickness of base, and surfacing, and total paving thickness.
- B. Subgrades shall be in accordance with applicable provisions of State Specifications. The subgrades shall be shaped to conform to the lines, grades, and cross sections indicated on the Drawings. All high areas shall be removed and all low areas shall be filled with approved material and compacted. Areas of yielding or unstable material shall be excavated and backfilled with approved material as directed by the Engineer. Compaction shall be to a uniform density throughout.
- C. Bituminous Surface
  1. Surfacing shall be one-course bituminous concrete construction and in accordance with applicable provisions of the Kentucky Department of Highways Standard

Specifications, Section 402. The surface course shall contain no aggregate larger than 2-inch. The surface mixture shall contain natural sand in the proportions of no less than 25 percent of the total combined fine and course aggregates.

2. Surface course shall be of minimum thickness after compaction as shown on the Drawings.
3. Thickness of bituminous surface and base shall be determined by coring of the newly constructed pavement in accordance with Kentucky Method 64-420-04, Paragraphs 1.2, 1.3, 2, and 3, with the following exceptions:
  - a. Coring frequency shall be 500 feet.
  - b. Exploratory cores for a deficiency shall be spaced at 100 foot intervals.
  - c. Excess thickness will be considered as included in the Contract price per square yard.
  - d. Deficient thickness between 2-inch and  $\frac{3}{4}$ -inch will require a deduction from the unit price per square yard in the proportion of the actual thickness to the design thickness for the area of the deficiency as determined in accordance with the stipulated method. Deficient thickness of greater than  $\frac{3}{4}$ -inch will require an additional 1-inch layer of surface to be overlaid over the area of the deficiency.

D. Dense Graded Aggregate Base

1. Dense graded aggregate base shall be one-course construction and shall conform to the applicable provisions of the Kentucky Department of Highways Standard Specifications, Section 303. The base shall consist of graded aggregate no larger than 1 inch and water sufficient to provide the mixture with a satisfactory moisture content for compaction to a density of not less than 84 percent of the solid volume.
2. Dense graded aggregate base shall be of minimum thickness after compaction as shown on the Drawings.

E. Crushed Stone Base

1. Crushed stone base shall be one-course construction of No. 2 aggregate and shall conform to the applicable provisions of the Kentucky Department of Highways Standard Specifications, Section 302 for Gravel Base Type 1. The crushed stone shall consist of graded aggregate no larger than 3 inches and compacted to a minimum thickness as shown on the Drawings.

F. A cut-back asphalt emulsion primer shall be applied to the dense graded aggregate base course prior to placing the bituminous surface course. Primer- L shall conform to the applicable provisions of the Kentucky Department of Highways Standard Specifications, Section 407 for materials and application.

G. Compact the subgrade of all pavement areas and place and compact crushed stone base, dense graded aggregate base, and bituminous surface course in conformance with applicable sections of the Kentucky Department of Highways Standard Specifications to the lines, grades and cross-sections shown on the Drawings.

H. Signing: Construct signs for traffic control in areas as shown on the Drawings in accordance with the MUTCD, latest edition.

- I. Striping: Lay off and stripe parking areas and service road as indicated on the Drawings and in accordance with the MUTCD, latest edition. Provide cross-hatching, stop bars, and centerline stripes for roadway to limits shown on the Drawings. Cross-hatching and stripes shall be approximately 4 inches wide, stop bars shall be 24-inches wide, of lengths indicated. Paint materials shall be as recommended in State Specifications. Color shall be white.
  - 1. Provide painted lettering for "Stop" in location shown on the Drawings. Color shall be white and material shall be as specified above.
  - 2. Paint face and top of curbs in locations shown on the Drawings. Color shall be yellow and material shall be as specified above.

**END OF SECTION 32 13 13**



**SECTION 32 92 00**  
**RESTORATION OF LAWNS AND GRASSES**

**PART 1 - GENERAL**

**1.01 DESCRIPTION OF WORK**

The work covered by this section shall include the establishment or restoration of all ground cover including areas to be seeded and/or sodded. This work shall include the supply of all materials, labor, superintendence and maintenance as outlined in these specifications.

**1.02 RELATED WORK**

- A. Section 31 23 33 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 01 57 13 - Erosion and Sediment Control

**1.03 SCOPE OF THE WORK**

Restoration of Fields, Lawns and Grasses by seeding and/or sod placement shall be performed on all areas which are not occupied by structures, roads, curbs and gutters, sidewalks, and concrete slab walls, etc.

**PART 2 - PRODUCTS**

**2.01 SEED**

- A. The seed mixture furnished shall be in the following proportions:

Common Name	Proportion By Weight	Percent of Purity	Percent of Germination
Kentucky Bluegrass	40	90	85
Chewings Fescue	25	90	85
Italian Rye Grass	20	90	85
Red Top	10	90	85
White Clover	05	95	90

- B. All seed shall be fresh and clean and shall be delivered mixed, in unopened packages, bearing a guaranteed analysis of the seed and mixture.

**2.02 SOD**

- A. Sod shall be bluegrass or fine fescue sod strongly rooted and free of pernicious weeds. It shall be a uniform thickness of not more than 1-1/2 inches and shall have not less than 3/4 inches of soil. All sod shall be grown on a commercial turf farm and no pasture sod shall be

acceptable. The source of the sod must be approved by the Engineer before it is cut for delivery.

- B. The sod shall be delivered and installed within 48 hours of being harvested by the producer.

#### 2.03 FERTILIZER

A complete commercial fertilizer with a 1:2:2 ratio of nitrogen, phosphorus, and potassium shall be furnished. It shall be free flowing and suitable for application with approved equipment. The material shall conform to State fertilizer laws. Bagged fertilizer shall be delivered in sealed standard containers and shall bear the name, trademark, and warranty of the producer.

#### 2.04 LIME

Lime shall be agricultural grade limestone crushed so that no less than 85% will pass a No. 10 sieve.

### PART 3 - EXECUTION

#### 3.01 SEQUENCE OF WORK

All finish grading in a general area shall be complete before fertilizing and seeding or sodding begins.

#### 3.02 SOIL PREPARATION AND SEEDING

- A. The work consists of furnishing all labor, equipment, and materials in all operations in connection with the fertilizing and seeding of all the finished graded areas not occupied by structures, roads, concrete slabs, sidewalks, walls, etc., and including grassed areas destroyed or damaged by the Contractor.
- B. The areas to be seeded shall be thoroughly tilled to a depth of at least 4 inches by discing, harrowing, or other approved methods until the condition of the soil is acceptable to the Engineer or, in the event of work on an existing utility easement, to the satisfaction of the easement holder. After harrowing or discing, the seed bed shall be dragged and/or hand raked to finish grade.
- C. The incorporation of the fertilizer and the agricultural lime may be a part of the tillage operation and shall be applied not less than 24 hours nor more than 48 hours before the seed is to be sown. Fertilizer shall be applied at a rate to provide not less than 2-1/2 pounds of nitrogen, 5 pounds of phosphorus, and 5 pounds of potash per 1,000 square feet. Agricultural limestone shall be applied at a rate of not less than 100 pounds per 1,000 square feet.
- D. Seed shall be broadcast either by hand or approved sowing equipment at the rate of ninety pounds per acre (two pounds per 1,000 square feet), uniformly distributed over the area. Broadcasting seed during high winds will not be permitted. The seed shall be drilled or raked into a depth of approximately 1/2 inch and the seeded areas shall be lightly raked to cover the seed and rolled. Drill seeding shall be done with approved equipment with drills not more

than 3 inches apart. All ridges shall be smoothed out, and all furrows and wheel tracks shall be removed.

- E. Seed may be sown during the following periods:
  - 1. February 1 to April 15.
  - 2. August 15 to October 15.
- F. Seed may not be sown at any other time except with the written approval of Owner.
- G. After the seed has been sown, the areas so seeded shall be mulched with clean straw at the rate of one bale per 2,000 square feet (approximately 1-inch loose depth). Mulch on slopes exceeding 20% shall be held in place with binder twine staked down at approximately 18-inch centers or by other equally acceptable means.
- H. Areas seeded shall be protected until a uniform stand develops, when it will be accepted and the Contractor relieved of further responsibility for maintenance. Displaced mulch shall be replaced or any damage to the seeded area shall be repaired promptly, both in a manner to cause minimum disturbance to the existing stand of grass. If necessary to obtain a uniform stand, the Contractor shall fertilize, seed, and mulch again as needed. Scattered bare spots up to one square yard in size will be allowed up to a maximum of ten percent (10%) of any area.

### 3.03 SOIL PREPARATION AND SOD PLACEMENT

- A. This work consists of furnishing all labor, equipment, and materials and all operations in connection with the placement of sod on all of the finished graded areas not occupied by structures, roads, concrete slabs, sidewalks, walls, etc., and including grassed areas destroyed or damaged by the Contractor.
- B. The areas where sod is to be placed shall be thoroughly tilled to a depth of at least 4 inches by discing, harrowing, or other approved methods until the condition of the soil is acceptable to the Engineer or, in the event of work on an existing utility easement, to the satisfaction of the easement holder. After harrowing or discing, the sod bed shall be dragged and/or hand raked to 1/2" below finish grade.
- C. The incorporation of the fertilizer and the agricultural lime may be a part of the tillage operation and shall be applied not less than 24 hours nor more than 48 hours before the sod is to be placed. Fertilizer shall be applied at a rate to provide not less than 2 1/2 pounds of nitrogen, 5 pounds of phosphorus, and 5 pounds of potash per 1,000 square feet. Agricultural limestone shall be applied at a rate of not less than 100 pounds per 1,000 square feet.
- D. Prior to the sod being placed, the area to be sodded shall be lightly watered to moisten the soil surface. The sod shall be carefully unrolled and trimmed to fit irregular areas, with the edges of the sod strips placed tightly together in such a manner as to conceal the joints between the strips. Following placement, the sod shall be lightly watered (approximately a 1/4" application) and rolled with a medium weight lawn roller to minimize any ridging at the seams.
- E. Sod may be placed whenever the sod is not dormant, and the ground is not frozen or

muddy. Sod may not be placed at any other time.

- F. For a period of first two weeks following placement, the sod shall be maintained by thoroughly watering the entire area covered by the sod every second day, with a 1/2" minimum application by sprinklers or a misting hose. Lawn watering gauges shall be used to measure the application. Flooding or sheet watering will not be allowed. For the third through sixth weeks following placement, the sod shall be maintained by thoroughly watering the entire area covered by the sod twice weekly (three to four days apart), with a 1/2" minimum application by sprinklers or a misting hose. Lawn watering gauges shall be used to measure the application. Flooding or sheet watering will not be allowed.
- G. Actual rainfall event amounts received during the period of watering may be counted towards the required application totals when the amount of the rainfall exceeds 1/4" per event.
- H. In the third through sixth week following placement, the Contractor shall maintain the sodded areas by mowing to a height of not less than three inches, prior to water applications. Contractor shall not allow sod blade height to exceed five inches during this period.
- I. Following the six-week watering period, the area covered by the sod will be rolled one additional time with a medium weight lawn roller, and shall be inspected by HCWD1 for acceptance.

#### 3.04 RETORATION WARRANTY

All restoration work shall carry a warranty period of 18 months upon final acceptance of work. The Contractor shall repair and address all restoration items upon notification during the warranty period at no additional cost to HCWD1.

**END OF SECTION 32 92 00**

## DIVISION 33: UTILITIES

## **SECTION 33 05 23.13 DIRECTIONAL BORING**

### **PART 1 – GENERAL**

#### **1.01 WORK INCLUDED**

The work specified in this section consists of furnishing and installing 2-inch DR 11 HDPE or SCH 40 PVC casing pipe using the directional boring (horizontal directional drilling, HDD) method of installation. This work shall include water services, equipment, materials, and labor for the complete and proper installation, testing, and environmental protection and restoration.

#### **1.02 QUALITY ASSURANCE**

The requirements set forth in this document specify a wide range of procedural precautions necessary to ensure that the very basic, essential aspects of a proper directional bore installation are adequately controlled. Strict adherence shall be required under specifically covered conditions outlined in this specification. Adherence to the specifications contained herein, or the Engineer's approval of any aspect of any directional bore operation covered by this specification, shall in no way relieve the Contractor of their ultimate responsibility for the satisfactory completion of the work authorized under the Contract.

#### **1.03 SUBMITTALS**

- A. Drill Work Plan: Prior to beginning work, the Contractor must submit to the Engineer and Owner a Drill Work Plan outlining the procedure and schedule to be used to execute the project. The plan shall include, but not limited to, the following items:
  - 1. The location of each entry and exit points and pipe layout areas.
  - 2. Proposed depth of cover (minimum 42 inches).
  - 3. Proposed composition of drilling fluid, viscosity, and density.
  - 4. Proposed drilling fluid pumping capacity, pressure, and flowrate.
  - 5. Type of tracking method/system.
  - 6. Diameter of pilot hole, and number and size of pre-ream/backreams.
  - 7. Crew experience.
- B. Equipment: Contractor shall submit specifications on directional drilling equipment to be used to ensure that the equipment will be adequate to complete the project.
- C. Material: Specifications on material to be used shall be submitted to Engineer. Material shall include the pipe, fittings and any other item which is to be an installed component of the project.

### **PART 2 - EQUIPMENT AND MATERIALS**

#### **2.01 EQUIPMENT GENERAL**

The directional drilling equipment shall consist of a directional drilling rig of sufficient capacity to perform the bore and pullback the pipe, a drilling fluid mixing & delivery system of sufficient capacity to successfully complete the trenchless installation, a guidance system to accurately guide boring operations and trained and competent personnel to operate the system. All equipment shall be in good, safe operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this project.

## 2.02 BORING SYSTEM

- A. Directional Bore Machine: The directional boring machine shall consist of a hydraulically powered system to rotate, push and pull hollow drill pipe into the ground at a variable angle while delivering a pressurized fluid mixture to a guidable bore head. The machine shall be anchored to the ground to withstand the pulling, pushing and rotating pressure required to complete the crossing. The hydraulic power system shall be self-contained with sufficient pressure and volume to power drilling operations. Hydraulic system shall be free of leaks. Rig shall have a system to monitor and record maximum pull-back pressure during pull-back operations. The rig shall be grounded during drilling and pull-back operations.
- B. Bore Head: The bore head shall be steerable by changing its rotation and shall provide the necessary cutting surfaces and drilling fluid jets.
- C. Mud Motors (if required): Mud motors shall be of adequate power to turn the required boring tools.
- D. Drill Pipe: Shall be constructed of high quality 4130 seamless tubing, grade D or better, with threaded box and pins. Tool joints should be hardened to 32-36 RC.

## 2.03 GUIDANCE SYSTEM

The Guidance System shall be of a proven type and shall be set up and operated by personnel trained and experienced with this system. If using a magnetic system, the operator shall be aware of any magnetic anomalies and shall consider such influences in the operation of the guidance system.

## 2.04 DRILLING FLUID (MUD) SYSTEM

- A. Mixing System: A self-contained, closed, drilling fluid mixing system shall be of sufficient size to mix and deliver drilling fluid composed of bentonite clay, potable water and appropriate additives. Mixing system shall be able to molecularly shear individual bentonite particles from the dry powder to avoid clumping and ensure thorough mixing. The drilling fluid reservoir tank shall be a minimum of 1000 gallons. Mixing system shall continually agitate the drilling fluid during drilling operations.
- B. Drilling Fluids: Drilling fluid shall be composed of clean water and an appropriate additive. Water shall be from a clean source with a pH of 8.5 - 10. Water of a lower pH or with

excessive calcium shall be treated with the appropriate amount of sodium carbonate or equal. The water and additives shall be mixed thoroughly and be absent of any clumps or clods. No hazardous additives may be used. Drilling fluid shall be maintained at a viscosity sufficient to suspend cuttings and maintain the integrity of bore wall.

- C. Delivery System: Drilling mud pressure in the borehole should not exceed that which can be supported by the overburden to prevent heaving or a hydraulic fracturing of the soil. The delivery system shall have filters in-line to prevent solids from being pumped into the drill pipe. Connections between the pump and drill pipe shall be relatively leak-free. Used drilling fluid and drilling fluid spilled during drilling operations shall be contained and properly disposed of.

## 2.05 OTHER EQUIPMENT

- A. Pipe Rollers: Pipe rollers, if required, shall be of sufficient size to fully support the weight of the pipe while being hydro-tested and during pull-back operations. Sufficient number of rollers shall be used to prevent excess sagging of pipe.
- B. Pipe Rammers: Hydraulic or pneumatic pipe rammers may only be used if necessary and with the authorization of Engineer.
- C. Restrictions: Other devices or utility placement systems for providing horizontal thrust other than those previously defined in the preceding sections shall not be used unless approved by the Engineer prior to commencement of the work. Consideration for approval will be made on an individual basis for each specified location. The proposed device or system will be evaluated prior to approval or rejection on its potential ability to complete the utility placement satisfactorily without undue stoppage and to maintain line and grade within the tolerances prescribed by the particular conditions of the project.

## 2.06 PIPE MATERIAL AND FITTINGS

- A. Polyethylene pipe and fittings shall be made from virgin resins exhibiting a cell classification of 345464C as defined by ASTM D3350 with an established hydrostatic design basis of 1600 psi for water at 73.4 degrees F. The resin shall have a material designation of PE 3408 and shall be listed by the Plastics Pipe Institute (PPI) in the name of the manufacturer. Pipe shall meet the requirements of AWWA C906 and NSF for polyethylene (PE) pressure pipe. Pipe color shall be blue, black with blue stripes or have a thin blue shell for identification as water main.
- B. The pipe supplied under this specification shall have a pressure class of 200 psi and nominal ductile iron pipe size (DIPS) outside diameter (Driscoepipe Prisma 4000 Series or Equivalent), and have a minimum dimension ratio (DR) of 9.
- C. Fittings and valves shown on the plans related to the balance of the system piping shall be supplied by the Contractor.

## 2.07 OTHER MISCELLANEOUS MATERIALS



- A. Special adapters, couplings, saddles and restraint systems to connect HDPE pipe with the balance of the system piping shall be furnished and installed by the Directional Boring System Operator.
- B. Stainless steel wire (1/8" thick) shall be attached to the HDPE pipe during pull back, to function as a tracer wire.

### PART 3 EXECUTION

#### 3.01 PERSONNEL REQUIREMENTS

All personnel shall be fully trained in their respective duties as part of the directional drilling crew and in safety.

#### 3.02 DRILLING PROCEDURE

- A. Site Preparation: Prior to any alterations to work-site, contractor shall photograph or video tape entire work area, including entry and exit points.
- B. Safety: Contractor shall adhere to all applicable state, federal and local safety regulations and all operations shall be conducted in a safe manner. Safety meetings shall be conducted at least weekly with a written record of attendance and topic submitted to Engineer.
- C. Pipe: Pipe shall be welded/fused together in one length, if space permits. Pipe will be placed on pipe rollers before pulling into bore hole with rollers spaced close enough to prevent excessive sagging of pipe.
- D. Pilot Hole: Pilot hole shall be drilled on bore path with no deviations greater than 5% of depth over a length of 100'. In the event that pilot does deviate from bore path more than 5% of depth in 100', contractor will notify Engineer and Engineer may require contractor to pull-back and re-drill from the location along bore path before the deviation. In the event that a drilling fluid fracture, inadvertent returns or returns loss occurs during pilot hole drilling operations, contractor shall cease drilling, wait at least 30 minutes, inject a quantity of drilling fluid with a viscosity exceeding 120 seconds as measured by a Marsh funnel and then wait another 30 minutes. If mud fracture or returns loss continues, contractor will cease operations and notify Engineer. Engineer and contractor will discuss additional options and work will then proceed accordingly.
- E. Reaming: Upon successful completion of pilot hole, contractor will ream bore hole to a minimum of 25% greater than outside diameter of pipe using the appropriate tools. Contractor will not attempt to ream at one time more than the drilling equipment and mud system are designed to safely handle.
- F. Pull-Back: After successfully reaming bore hole to the required diameter, contractor will pull the pipe through the bore hole. In front of the pipe will be a swivel. Once pull-back operations have commenced, operations must continue without interruption until pipe is completely

pulled into bore hole. During pull-back operations contractor will not apply more than the maximum safe pipe pull pressure at any time. In the event that pipe becomes stuck, contractor will cease pulling operations to allow any potential hydro-lock to subside and will commence pulling operations. If pipe remains stuck, contractor will notify Engineer. Engineer and contractor will discuss options and then work will proceed accordingly.

### 3.03 PIPE TESTING

- A. Filling and cleaning of the main shall be accomplished in accordance with Section 33 11 00, Water Pipe and Fittings. Disinfection of water mains shall be accomplished in accordance with Section 33 13 00, Disinfection of Potable Water Pipe.
- B. Pressure testing of the HDPE main will be required. The hydrostatic test shall be performed in accordance with Alternate 2, Hydrostatic Leak Testing as outlined in Technical Note 802 B Leak Testing, which is attached as a supplement. The ends of the pipe shall be sealed or otherwise blocked to prevent leakage during the test.
  - 1. For purposes of this hydrostatic test, the maximum allowable test pressure shall be determined by the Engineer in compliance with the technical note.
  - 2. The pressure test shall consist of an initial pressurization phase, a three-hour initial expansion phase, and a hydrostatic test consisting of one to three hours. During the performance of the pressure test, measurements of the pipe diameter shall be recorded immediately before and after the application of the specified test pressure.

### 3.04 SITE RESTORATION

Following drilling operations, contractor will demobilize equipment and restore the worksite to original condition. All excavations will be backfilled and compacted to 95% of original density.

### 3.05 RECORD KEEPING

- A. Record Drawings shall be furnished in accordance with Section 01 78 39, Project Record Documents.

**END OF SECTION 33 05 23.13**

## **SECTION 33 05 23.15 JACKING AND BORING**

### **PART 1 - GENERAL**

#### **1.1 DESCRIPTION**

- A. Scope: CONTRACTOR shall provide all labor, materials, equipment, supervision and incidentals required to furnish and install casing pipe and carrier pipe as shown on the Plans or specified herein.
  - 1. The CONTRACTOR'S attention is directed to the methods described herein and shown on the drawings for installing the casing pipe below existing facilities. They are jacking and boring method.
  - 2. Horizontal and vertical tolerance for the crossings shall be limited to the requirements herein. Should the tolerances be exceeded, it shall be at the option of the OWNER to: accept the installation; abandon the installation at the CONTRACTOR'S expense and require a new installation; or require a combination of hand-mined tunnel and casing pipe at the CONTRACTOR'S expense.
- B. Coordination: CONTRACTOR shall carefully coordinate work at crossings to avoid existing utilities.
- C. Related Work Specified Elsewhere:
  - 1. Section 01 57 13, Erosion and Sediment Control
  - 2. Section 31 23 33, Excavating, Backfilling, and Compacting for Utilities.
  - 3. Section 03 30 00, Cast-In-Place Concrete.

#### **1.2 QUALITY ASSURANCE**

- A. Installer's Qualifications and Experience:
  - 1. Installer shall be a specialist in the construction of casing pipes by jacking, and boring and shall have at least 5 years experience in this specialty. Installer shall have satisfactorily constructed completely in his own name, during the past 5 years not less than ten similar installations which are comparable in diameter and length to that shown and specified herein.
  - 2. The CONTRACTOR chosen to perform this work shall present evidence to prove to the satisfaction of the OWNER and ENGINEER that his company and the superintendent he will employ for this Project have experience in boring and jacking through ground similar to that found on the Project. The CONTRACTOR shall keep such a superintendent continuously employed until the boring and jacking work is completed.
  - 3. Use only personnel thoroughly trained and experienced in the skills required. The field supervisor of boring operations and the boring machine operator shall have not less than 12 months experience in the operations of the equipment being used.
  - 4. Welds shall be made only by experienced welders, tackers and welding operators who shall have at least 10 years experience in this specialty. Welders previously qualified by tests as prescribed in the American Welding Society, AWS D.1.1 to perform the type of work required are adequate but a certified welder is not required.

- a. Casing Welding Requirements
  - 1) Conform to AWS D1.1, AWWA C206, approved welding procedures, and referenced welding codes.
  - 2) Rejectable weld defects shall be repaired or redone, and retested until sound weld metal has been deposited in accordance with appropriate welding codes.
- b. Field Welding:
  - 1) Butt Joint Welded: Plain ends beveled as required by AWWA C200 and Contractor's welding procedure.
  - 2) OWNER shall contract with a third party testing agency to visually inspect the welds and the welders procedures and processes. CONTRACTOR shall notify OWNER and ENGINEER at least 48 hours in advance of when welding will begin.
  - 3) OWNER reserves the right to inspect 100 percent of all butt welds with full circumference radiographic inspection performed by approved NDT Quality Control personnel at the CONTRACTOR's sole expense if welds do not appear sound or filled in the field upon OWNER's inspection.
- c. Defective Welds: Remove in manner that permits proper and complete repair by welding.
- d. Retest unsatisfactory welds. Submit test results to OWNER.
- 5. Perform topographical surveys prior to the beginning of any excavation in the area and upon completion of the carrier pipe installation and backfilling. CONTRACTOR shall restore all existing surface and sub-surface facilities damaged due to measurable settlement at no additional cost to the OWNER.
- 6. CONTRACTOR shall submit a plan to monitor vibration, movement, and cracks at nearby structures during the jacking and boring operation. A pre-construction plan to examine existing cracks and install vibration monitors on nearby structures prior to the start of the Work shall also be submitted. Vibration monitors shall record movement continuously and be checked frequently by the CONTRACTOR during the boring and jacking operation. If vibration, movement, or cracking is noticed to a degree that could or is suspected to cause damage, the jacking and boring operation shall be immediately terminated and the CONTRACTOR's operations adjusted to prevent damage to nearby structures.
- 7. The CONTRACTOR shall be completely responsible and liable for protecting the work and adjacent property from vibration, movement, cracking, and other damage and for all costs associated with any damages and repair of damages that result due to the installation operation.

B. Permits:

- 1. Where permits are required, the CONTRACTOR shall be responsible to obtain and pay for all permits, insurance and bonds required completing the work.
- 2. The CONTRACTOR shall obtain copy of the permits and be familiar with all necessary requirements of the agencies having jurisdiction prior to starting any boring or jacking operations. Adequate means shall be provided and dewatering shall be performed prior to excavation to keep the work free from water.

- C. Requirements of Regulatory Agencies: Comply with the OSHA Standards, Underwriter Laboratories, Kentucky Transportation Cabinet and all other authorities having jurisdiction. Requirements set forth in any license, permit or similar agreement issued by the railroad company, highway, or other agency beneath whose facility the casing pipe is to be installed, shall be fully complied with in the event of a conflict with information

given in these specifications or shown on the plans, the requirements stipulated in the license or permit agreement shall govern.

C. Tolerances:

1. The casing pipes shall be installed on the lines and grades shown on the Plans and within tolerances required to allow the sewer pipe to be installed in accordance with the lines and grades shown on the plans.
2. The maximum allowable tolerance are as follows:
  - a. Allowable Horizontal Tolerance (ft): 1.0'
  - b. Allowable Vertical Tolerance (ft): 1.0'
3. Refer to paragraph 3.1, herein.

D. Reference Standards:

1. ANSI B36.10, Welded and Seamless Wrought Steel Pipe.
2. ASTM A 53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
3. ASTM A 106, Standard Specification for Seamless Carbon Steel Pipe for High Temperature Service.
4. ASTM A 139, Electric-Fusion (ARC Welded) Steel Pipe.
5. ASTM A 153, Zinc-Coating (Hot Dip) on Iron and Steel Hardware.
6. ASTM A 252, Welded and Seamless Steel Pipe Piles.
7. ASTM A 307, Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
8. ASTM A 569, Carbon Steel, Hot-Rolled Sheet and Strip, Commercial Quality.
9. AREA Chapter 1, Part 4, "Jacking Culvert Pipe through Fills".
10. AREA Chapter 1, Part 5, "Specification for Pipelines Conveying Non-Flammable Substances".
11. AWS D1.1, Structural Welding Code.
12. OSHA.

### 1.3 SUBMITTALS

- A. Installation Methods: Before starting work, the CONTRACTOR shall submit drawings and descriptions showing methods and equipment for the excavation of the jacking pits and installation of the casing pipes and the carrier pipe for approval by the OWNER. The CONTRACTOR shall prepare a report of anticipated construction method information, dewatering methods, jacking pit elevations and profile of proposed bore. The report shall be submitted to the OWNER.
- B. Technical data, test reports, work schedules and any other information required by the authority having jurisdiction.
- C. Certificates: Certificate of Conformance in accordance with paragraph 21.1. of ASTM A139.

### 1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Delivery:
  1. Exercise special care during delivery not to damage the casing pipe and carrier pipe.
  2. Damaged materials will be rejected by the OWNER'S Project Representative and

- replaced by the CONTRACTOR at his expense.
- 3. Deliver materials to such locations so as to avoid excessive handling.
- 4. The OWNER is not responsible for accepting shipments of any kind.

B. Storage:

- 1. Store casing pipe and carrier pipe on approved blocking for protection from corrosion until incorporation into the Work in accordance with manufacturer's recommendation.
- 2. Store in areas shown on the Plans or as approved by the OWNER'S Project Representative.
- 3. The OWNER shall be permitted access to inspect the materials in storage areas.

C. Handling:

- 1. Handle materials in a manner so as to avoid damage.
- 2. Materials damaged during handling shall be repaired or replaced as ordered by the OWNER'S Project Representative.

## 1.5 JOB CONDITIONS

A. Subsurface Information:

- 1. CONTRACTOR shall refer to the Supplementary Conditions for requirements on subsurface information.
- 2. Data on subsurface conditions is not intended as a representation or warranty of continuity of such conditions between soil borings. ENGINEER will not be responsible for interpretation or conclusions drawn therefrom by CONTRACTOR.
- 3. Additional test borings and other exploratory operations may be made by CONTRACTOR at no cost to OWNER.

B. Existing Structures: The Drawings show certain existing facilities and surface and underground structures located on or adjacent to the Work. This information has been obtained from existing records. It is not guaranteed to be correct or complete and is shown for the convenience of CONTRACTOR. CONTRACTOR shall explore ahead of the required Work to determine the exact location of all structures. They shall be supported and protected from damage by CONTRACTOR. If they are broken or damaged, they shall be restored immediately by CONTRACTOR at his expense.

C. Existing Utilities: Locate existing underground utilities in the areas of Work. If utilities are to remain in place, provide adequate means of protection during all operations.

- 1. Should uncharted or incorrectly charted piping or utilities be encountered during Work, consult ENGINEER immediately for directions as to procedure. Cooperate with OWNER and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
- 2. Do not interrupt existing utilities serving facilities occupied and used by OWNER or others, except when permitted in writing by ENGINEER and then only after acceptable temporary utility services have been provided.
- 3. Coordinate with utility companies for shut-off of services, if required and the lines are active.
- 4. See additional requirements specified on the Contract Drawings.

- D. Protection of Persons and Property: Barricade open excavations occurring as part of this Work. Obtain approval of OWNER prior to use of warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise required, per approval of OWNER.
  - 1. Protect structures, utilities, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.
- E. Topographic mapping shown on plan/profile drawings was derived using photogrammetric survey methods. The mapping should be regarded as accurate within normal tolerance for 2-foot contour interval photogrammetric mapping as of the date of photography.
- F. The ground profiles and vertical alignments shown on plan/profile drawings are derived from the topographic mapping and therefore are approximate.
- G. Use of Explosives: Do not bring explosives onto site or use in the Work. Use of explosive materials is specifically prohibited.
- H. Dust Control: CONTRACTOR shall conduct all operations and maintain the area of activities, including sweeping and sprinkling of roadways, so as to minimize creation and dispersion of dust. Calcium chloride shall be used to control serious or prolonged dust problems, subject to approval of ENGINEER.
- I. All excavations shall be sheeted, shored and braced as required to prevent subsurface subsidence. Refer to Section 31 23 33 for additional requirements.
- J. All jacking and receiving pits shall be kept dewatered, and pumps shall be attended on a 24-hour basis, if conditions so require. Close observation shall be maintained to detect any settlement or displacement of facilities during dewatering operations. Dewater into a sediment trap and comply with applicable environmental protection criteria specified elsewhere in these Contract Documents.
- K. Maintain the air in the pipe, when hand excavating, in a condition suitable for the health of workmen at all times.

## 1.6 GUARANTEE

- A. Guarantee of Work completed by the CONTRACTOR shall be as specified in the General Conditions of these specifications, except that longer periods may be required where noted in the permits or specified by applicable authorities.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Steel Casing Pipe: See Section 33 05 23.17
- B. Inside tunneling or casing pipe, all carrier pipe shall be harnessed or restrained with casing spacers (top, bottom, and sides).
- C. Casing Spacers and End Seals: See Section 33 05 23.17

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Installation of the crossings shall be by jacking and boring and shall conform in all respects to the requirements contained herein and other applicable standards.
- B. Lines and Grades: The CONTRACTOR is responsible for establishing and maintaining proper line and grade at each crossing.
  - 1. The CONTRACTOR shall periodically check his line and grade to assure conformance with line and grade shown on the Plans and within the tolerances indicated in this Section.
  - 2. Extra work required because of the CONTRACTOR'S failure to maintain the proper line and grade, as shown on the Plans, shall be performed, by the CONTRACTOR, at no additional cost to the OWNER.
  - 3. The casing pipe and carrier pipe in its final position shall be straight and true in alignment and grade, as indicated on the drawings. Sufficient deviation from line or grade, in the opinion of the OWNER or ENGINEER, shall be justification for disapproving the installation. No space shall be left unfilled between the earth and the outside of the casing.

### 3.2 PREPARATION

- A. Work pits at each end of the crossings shall be sufficiently large to permit satisfactory installation of the casing pipe or tunnel liner plates. All excavation, backfill, sheeting, shoring, bracing, and dewatering shall comply with the applicable requirements of Section 31 23 33 of these Specifications and the requirements of the applicable authorities.
- B. All pits and their locations necessary in the performance of this work shall be acceptable to the OWNER, ENGINEER, and the agency having jurisdiction prior to starting work. All pits shall be adequately sheeted to protect the work, all persons, and adjacent property. The CONTRACTOR shall provide all additional shields, headers, or stabilization of the pit faces, as required by the OWNER or ENGINEER, to prevent settlement or damage to the areas above the casing. The CONTRACTOR shall be completely responsible and liable for protecting the work and adjacent property and for any damages that may result due to insufficient stabilization.
- C. The CONTRACTOR shall dispose of excess excavated material or drilling mud/cuttings in an approved upland disposal site.

### 3.3 INSTALLATION

- A. Installation of Steel Casing Pipe by Jacking:
  - 1. Install in accordance with current American Railroad Engineering Association Specifications requirements.
  - 2. Design bracing and backstops and use jacks of sufficient rating such that jacking can be accomplished in a continuous manner until the leading edge of the pipe reaches the final positions shown on the Plans.



3. If voids develop around the casing pipe as it is jacked, pump cement grout to fill all such voids, or fill by other means acceptable to the OWNER'S Project Representative.
4. Fill all voids as specified hereafter as soon as possible after completion of jacking operation.

B. Installation of Steel Casing Pipe by Boring:

1. The boring method shall consist of pushing the pipe into the fill with a boring auger rotating inside the pipe to remove the soil.
2. Provide the front of the casing pipe with suitable mechanical arrangements or devices that will positively prevent the auger and cutting head from leading the pipe so that there will be no unsupported excavation ahead of the pipe.
3. The equipment and mechanical arrangements or devices used to bore and remove the earth shall be removable from within the casing pipe in the event an obstruction is encountered.
4. The face of the cutting edge shall be arranged to provide reasonable obstruction to the free flow of soft or poor soil.
5. Do not use water or other liquids to facilitate casing emplacement or spoil removal.
6. If voids develop around the casing pipe as it is bored, pump cement grout to fill all such voids, or fill by others means acceptable to the OWNER'S Project Representative.
7. Fill all voids as specified hereinafter as soon as possible after completion of boring operation.

C. Obstructions: If an obstruction is encountered during installation to stop the forward action of the casing pipe, and it becomes evident that it is impossible to advance the pipe, the CONTRACTOR shall continue the casing pipe by hand tunneling and installation of tunnel liner plates. The continuation by the tunneling method shall be at the CONTRACTOR'S expense and at no additional cost to the OWNER.

C. Installation of the Water Main:

1. After completion of the tunnel or steel casing pipe, the Water Main pipe shall be installed and pressure tested by an approved method.
2. Care shall be taken to prevent undue disturbances of the joints.
3. The water main pipe shall be blocked in place, using stainless steel casing spacers as specified below:
  - a. Centered/Restrained Casing spacers shall be installed to position the carrier pipe within the center of the casing pipe or at a slope as required to meet the specified slope of the carrier pipe as shown on the Drawings, except that for PVC carrier pipe, a minimum of 3 spacers shall be installed on each length of pipe with a maximum 6 feet spacing between spacers. The required spacing and installation shall be per the manufacturer's recommendation and shall be 304 or 316 stainless steel as manufactured by Cascade Waterworks MFG Co., Advance Products and Systems (APS) or other approved equal. Casing spacers shall be provided with height field-adjustment capability for installation of Water Main on a constant slope.
4. The water main pipe shall be installed with casing spacers in a centered/restrained position.
5. The CONTRACTOR shall repair, replace or take whatever action is deemed necessary by the OWNER to correct all disturbed joints at no additional cost to the OWNER.

D. End Seals:

1. After the sewer pipe is installed in the steel casing, and successfully pressure tested, construct end seals as shown on the Plans and as specified below:
    - a. Casing pipe end seals shall be installed at each end of the casing pipe and shall consist of a proper sized rubber seal and attached to the carrier and casing pipe with stainless steel bands per the manufacturers recommendation. Casing pipe end seals shall be manufactured by Cascade Waterworks MGG Co., Advanced Products and Systems (APS) or other approved equal.
  2. Prior to the installation of end seals, the sewer pipe shall be properly and sufficiently secured against flotation and against all movement, which would disturb joints.
    - a. The CONTRACTOR shall be responsible for all joints.
- F. The CONTRACTOR shall repair, replace, or take whatever action is deemed necessary by the OWNER'S Project Representative to correct all disturbed joints at no additional expense to OWNER.

**END OF SECTION 33 05 23.15**

## **SECTION 33 05 23.17 ENCASEMENT PIPE**

### **PART 1 - GENERAL**

#### **1.01 WORK INCLUDED**

The Contractor shall furnish all labor, material, and equipment necessary to install encasement pipe together with all appurtenances as shown and detailed on the Drawings and specified herein.

#### **1.02 RELATED WORK**

- A. Section 31 23 33 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 33 11 00 - Water Pipe and Fittings.

### **PART 2 - PRODUCTS**

#### **2.01 STEEL PIPE**

- A. Steel seamless pipe shall be new Grade B steel material, with a minimum yield of 35,000 psi and a wall thickness as shown below unless otherwise required by a permitting authority. The material shall conform to the chemical and mechanical requirements of the latest revision of ASTM A139 "Electric-Fusion (ARC) - Welded Steel Pipe (NPS 4 and Over)," unless otherwise stated herein.
- B. The minimum wall thickness shall be in accordance with the following table:

Steel Casing Pipe Wall Thickness

Casing Diameter (inches)	(Minimum Wall Thickness Under Railroads (inches)	Minimum Wall Thickness All Other Uses (inches)
16 and under	0.250	0.250
18	0.281	0.250
20 and 22	0.312	0.281
24	0.344	0.312
26	0.375	0.344
28	0.406	0.375
30	0.438	0.406
32	0.469	0.438
34 and 36	0.500	0.469

- C. Welds of the steel casing pipe shall be solid butt-welds with a smooth non- obstructing joint inside and conform to all specifications as required by American Welding Society (AWS). The casing pipe shall be installed without bends. All welders and welding operators shall be qualified as prescribed by AWS requirements.
- D. Hydrostatic testing shall not be necessary.
- E. A protective coating shall be applied to each length of pipe. Following an SSPC SP-7 "Brush-Off Blast Cleaning" surface preparation, 3 (dry) mils of Tnemec-Primer 10-99 (red), or Porter International Primer 260FD (red), or an equivalent thickness of an approved equivalent paint shall be applied in the manner recommended by the respective paint manufacturer.
- F. Each length of pipe shall be legibly marked, stating: manufacturer, diameter, wall thickness and primer.
- G. Precaution shall be taken to avoid deforming the pipe and damaging the primer during shipping.

## 2.02 CARRIER PIPE SPACERS

- A. Carrier pipes installed inside encasement pipes shall be centered throughout the length of encasement pipe. Centering shall be accomplished by the installation of polyethylene pipeline spacers attached to the carrier pipe in such manner as to prevent the dislodgement of the spacers as the carrier pipe is pulled or pushed through the encasement pipe. Spacers shall be of such dimensions to provide: full supportive load capacity of the pipe and contents; of such thickness to allow installation and/or removal of the pipe; and to allow no greater than 2 inch movement of the carrier pipe within the cover pipe after carrier pipe is installed.
- B. Spacers shall be located immediately behind each bell and at a maximum spacing distance as follows:

Carrier Pipe Diameter (inches)	Maximum Spacing (feet)
2 - 2-1/2	4
3 - 8	7
10 - 26	10
28	9
30	8
32	7
34	6

The materials and spacing to be used shall be accepted by the Engineer prior to installation. The polyethylene pipeline spacers shall be manufactured by Pipeline Seal and Insulator, Inc. (PSI), Raci Spacers, Inc., or equivalent. Installation shall be in accordance with manufacturer-s recommendations.

## 2.03 ENCASEMENT PIPE END SEALS

After installation of the carrier pipe within the encasement pipe, the ends of the casing shall

be sealed with either a wraparound or a pull-on casing end seals fabricated of minimum 1/8-inch thick neoprene rubber. The seals shall be attached to the encasement pipe and the carrier pipe by 304 stainless steel band clamps not less than 1/2-inch wide. The casing end seals shall be as manufactured by Advance Products & Systems, Inc., or approved equivalent.

## PART 3 - EXECUTION

### 3.01 INSTALLATION

- A. Where shown on the Drawings, the Contractor shall install encasement pipe. Install encasement pipe to maintain alignment, grade and the circular shape of the encasement pipe. The encasement pipe shall be straight and true in alignment; and any significant deviation from line or grade, in the opinion of the Engineer or permitting authority, shall be sufficient cause for disapproving or rejecting the installation.
- B. Two methods of installation are designated, the open-cut method and the boring method.
  - 1. The open-cut method shall consist of placing the encasement pipe in the excavated trench, then installing the carrier pipe inside the encasement pipe. Excavation, bedding and backfilling shall be in accordance with Section 31 23 33.
  - 2. The boring and jacking method consists of pushing or jacking the encasement pipe into the subsurface material as an auger cuts out the material or after the auger has completed the bore. Where designated on the drawings, crossings beneath state maintained roads, railroads, or other surfaces not to be disturbed, shall be installed by boring and jacking of steel casing pipe followed by installation of the carrier pipe within the casing pipe. The Contractor shall provide a jacking pit, bore through the earth, and/or rock, jack the casing pipe into proper line and grade and then install the carrier pipe within the casing pipe. The approach trench shall be large enough to accommodate one section of casing pipe, the jacks and blocking. The Contractor shall furnish and use adequate equipment to maintain the line and grade.
- C. The carrier pipe shall be ductile iron, polyvinyl chloride, or polyethylene pipe as designated on the Drawings. The carrier pipe shall be installed using pipe spacers as described in this Section. Carrier pipe shall be restrained through the encasement with harness type restraints for PVC pipe and field locking style gasket for DI pipe. Carrier pipe will not be permitted to rest on bells or couplings.
- D. Following installation of the carrier pipe, the ends of the encasement pipe shall be sealed with products of the type described in this Section.

3.02 DAMAGE

The cost of repairing damage to the highway or railroad which is caused by a boring and jacking installation shall be borne by the Contractor.

**END OF SECTION 33 05 23.17**

## **SECTION 33 11 00 WATER PIPE AND FITTINGS**

### **PART 1 – GENERAL**

#### **1.01 WORK INCLUDED**

The Contractor shall furnish all labor, material, and equipment necessary to install water main piping together with all appurtenances as shown and detailed on the Drawings and specified herein.

#### **1.02 RELATED WORK**

- A. Section 31 23 33 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 33 05 23.17 - Encasement Pipe.
- C. Section 33 12 16 - Water Valves and Gates.
- D. Section 33 13 00 - Disinfection of Potable Water Pipe.

### **PART 2 - PRODUCTS**

#### **2.01 DUCTILE IRON PIPE (DIP) AND FITTINGS**

- A. Ductile iron pipe (DIP) shall conform to ANSI/AWWA C150/A21.50, ANSI/AWWA C151/A21.51 Standard. The pipe shall conform to pressure class 350 minimum unless noted otherwise. All fittings and joints should be capable of accommodating pressure of not less than 250 psi. DIP is required for all new water mains 14-inch diameter and larger and for all fire hydrant lateral and fire service lines.
- B. Fittings shall be ductile iron in accordance with AWWA C153 and have a body thickness and radii of curvature conforming to ANSI A21.10 or ANSI A21.53 for compact fittings and shall conform to the details and dimensions shown therein. Fittings shall have rubber gasket joints meeting the requirements of AWWA C111. Fittings shall be cement-mortar lined and bituminous coated to conform to the latest revision of ANSI/AWWA standards.
- C. DIP shall be installed within 200 feet of fuel station or contaminated soils. Joints shall be installed with petroleum resistant nitrile gaskets.
- D. Ductile iron mechanical joint fittings shall be in accordance with AWWA C153 and have a body thickness and radii of curvature conforming to ANSI A21.10 (or A21.53 for compact fittings) and have joints in accordance with ANSI/AWWA C111/A21.11. Fittings and joints shall be supplied with all accessories.
- E. All fittings and valves shall be restrained with a friction type retainer gland, as manufactured by Ford, Romac or approved equal.

- F. All ductile fittings shall be rated at 250 psi water working pressure plus water hammer. Ductile iron fittings shall be ductile cast-iron grade 70-50-05 per ASTM Specification A339-55.
- G. Cement mortar lining and seal coating for pipe and fittings, where applicable shall be in accordance with ANSI/AWWA C104/A21.4. Bituminous outside coating shall be in accordance with ANSI/AWWA C151/A21.51 for pipe and ANSI/AWWA C110/A21.10 for fittings.
- H. No separate pay item has been established for fittings and no determination of the number of fittings required on the job has been made. The Contractor, during the bidding phase, shall determine the number of fittings required on the job and include the cost of the fittings and installation in the unit price for pipe.
- I. Ductile iron pipe and fittings shall be as manufactured by U.S. Pipe & Foundry Company, American Cast Iron Pipe Company, or approved equivalent.

## 2.02 POLYVINYL CHLORIDE (PVC) WATER PIPE - C.I. PIPE SIZE

- A. This pipe shall meet the requirements of AWWA C900-75 for Polyvinyl Chloride (PVC) Pressure Pipe. The pipe shall be PVC 1120 pipe with cast iron pipe equivalent ODs. Pressure class (PC) 235 pipe shall meet the requirements of DR 18 and PC 305 pipe meet the requirements of DR 14.
- B. Provisions must be made for expansion and contraction at each joint with a rubber ring. The bell shall consist of an integral wall section with a solid cross-section rubber ring which meets the laboratory performance of ASTM D3139. The bell section shall be designed to be at least as strong as the pipe wall.
- C. Standard laying lengths shall be 20 feet + for all sizes. At least 85 percent of the total footage of pipe of any class and size shall be furnished in standard lengths, the remaining 15% in random lengths. Random lengths shall not be less than 10 feet long. Each standard and random length of pipe shall be tested to four times the class pressure of the pipe for a minimum of 5 seconds. The integral bell shall be tested with the pipe.
- D. Fittings for all lines shall be ductile iron and in accordance with AWWA C153 and have a body thickness and radii of curvature conforming to ANSI A21.10 or ANSI A21.53 for compact fittings. Cement mortar lining and seal coating shall be in accordance with ANSI/AWWA C104/A21.4. Bituminous outside coating shall be in accordance with ANSI/AWWA C110/A21.10. All fittings shall be rated at 250 psi water working pressure plus water hammer and be ductile cast-iron grade 70-50-05 per ASTM Specification A339.
- E. All fittings and valves shall be restrained with a friction type retainer gland, as manufactured by Ford, Romac or approved equal.
- F. No separate pay item has been established for fittings and no determination of the number of fittings required on the job has been made. The Contractor during the bidding phase shall determine the number of fittings required and include the cost of the fittings and installation in the unit price for pipe.



## PART 3 - EXECUTION

### 3.01 LAYING DEPTHS

In general, water mains shall be laid with a minimum cover of 36 inches and a maximum depth of 60 inches, except as otherwise indicated on the Drawings. Under existing and future highway ditches the cover depth shall be 48 inches, as measured from the ditch flowline to the top of pipe.

### 3.02 SEWER/CONTAMINANT PIPE CROSSING

- A. At locations shown on the Drawings, required by the Specifications, or as directed by the Engineer, encasement shall be used when the clearance between the proposed water pipe and any existing sewer or contaminant carrying pipe is 18 inches or less. Contaminant carrying pipe includes underground petroleum, slurry, food processing, and other pipe as determined by the Engineer. Encasement may be concrete or an encasement pipe.
- B. Whether the proposed water pipe is above or below the existing sewer/contaminant pipe, the concrete shall fully encase the sewer/contaminant pipe and extend to the spring line of the water pipe. Encasement shall extend in each direction along the sewer/contaminant pipe until the encased sewer/contaminant pipe is 10 feet from the proposed water main, measured perpendicular to the water main.
- C. The pipe segment of the water main shall be installed so that it centers at the crossing with the contaminant pipe.
- D. Concrete shall be 3,000 psi and shall be mixed sufficiently wet to permit it to flow between and under the pipes to form a continuous bridge. In tamping the concrete, care shall be taken not to disturb the grade or line of either pipe or damage the joints. Sack concrete is not acceptable.
- E. Concrete for this Work is not a separate pay item and will be considered incidental to water pipe installation.

### 3.03 PIPE LAYING

- A. Slip Jointed Pipe:
  - 1. All pipes shall be laid with ends abutting and true to the lines and grades indicated on the plans. Pipe shall be fitted and matched so that when laid in the Work, it will provide a smooth and uniform invert. Supporting of pipe shall be as set out in Section 31 23 33 and in no case shall the supporting of pipe on blocks be permitted.
  - 2. Before each piece of pipe is lowered into the trench, it shall be thoroughly swabbed out to insure it is clean. Any piece of pipe or fitting which is known to be defective shall not be laid or placed in the lines. If any defective pipe or fittings shall be discovered after the pipe is laid, it shall be removed and replaced with a satisfactory pipe or fitting without additional charge. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe. Bevel can be made with hand or power tools.

3. Joint deflection for slip joint or mechanical joint pipe shall be no more than 75% of the maximum deflection recommended by the manufacturer. No pipe bending on 4-inch or larger. Joint deflection must be shown on shop drawing submittals.
4. The interior of the pipe, as the Work progresses, shall be cleaned of dirt, jointing materials, and superfluous materials of every description. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be closed with a plywood plug fitted so as to exclude earth or other material and precautions taken to prevent floatation of pipe by runoff into trench.
5. Anchorage of Bends:
  - a. At all tees, plugs, valves, caps and bends of 11-1/4 degrees and over, and at reducers or in fittings where changes in pipe diameter occur, movement shall be prevented by providing both a friction type restrainer gland and poured concrete thrust blocking. Thrust blocks shall be as shown on the Drawings, with sufficient volumes of poured concrete being provided; however, care shall be taken to leave weep holes unobstructed and allow for future tightening of all nearby joints. Unless otherwise directed by the Engineer, thrust blocks shall be placed so that pipe and fitting joints will be accessible for repair. Polyethylene wrap shall be provided around all fittings, including retainer glands before pouring concrete thrust blocks. Sack concrete is not acceptable.
  - b. No extra pay shall be allowed for work on proper anchorage of pipe, fittings or other appurtenances. Such items shall be included in the price bid for the supported item.
6. No backfilling (except for securing pipe in place) over pipe will be allowed until the Engineer has the opportunity to make an inspection of the joints, alignment and grade in the section laid, but such inspection shall not relieve the Contractor of further liability in case of defective joints, misalignment caused by backfilling and other such deficiencies that are noted later.
7. All joint surfaces shall be cleaned immediately before jointing the pipe. The joint shall be lubricated in accordance with the pipe manufacturer's recommendations. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket. All pipe shall be provided with home marks to insure proper gasket seating. Details of gasket installation and joint assembly shall follow the manufacturer's direction for the joint type and material of the pipe. The resulting joints shall be watertight and flexible.

### 3.04 TESTING OF WATER PIPE

- A. The completed work shall comply with the provisions listed herein, or similar requirements which will insure equal or better results. Suitable test plugs, water pump or other equipment and apparatus, and all labor required to properly conduct the tests shall be furnished by the Contractor at no expense to HCWD1.
- B. Only HCWD1 personnel are permitted to operate active hydrants and valves. There will be no charge to the Contractor for water or labor for contracts with HCWD1.
- C. Water main piping shall be pressure tested to 250 percent of the normal system

operating pressure or to 100 percent of the rated working pressure of the pipe, whichever is less. At no time shall the test pressure exceed 100 percent of the pipe's rated working pressure. A chart recorder provided by HCWD1 shall be installed on the pump discharge connection to the new water main to record pressure and time. A pipe section shall be accepted if the test pressure does not fall more than 5 psi during the minimum 2-hour test period. The pipe shall be tested for allowable leakage according to AWWA C-600 or C-605, as applicable, concurrently with the pressure test.

- D. Where practicable, pipelines shall be tested between line valves or plugs in lengths of not more than 6,000 feet. Testing shall proceed from the source of water toward the termination of the line. The line shall be tested upon the completion of the first 6,000 feet. After the completion of two (2) consecutive tests without failure, the Contractor, at his option and with the Engineer's approval, may discontinue testing until the system is complete.
- E. All pipe, fittings and other materials found to be defective under test shall be removed and replaced at the Contractor's expense.
- F. Before applying the specified test pressure, air shall be expelled completely from the pipe, valves and hydrants. If permanent air vents are not located at high points within the test section, the Contractor shall install corporation cocks at such points so that the air can be expelled as the line is filled with water.
- G. All piping shall be tested for leakage at a pressure no less than that specified for the pressure test. The leakage shall be defined as the quantity of water that must be supplied to the tested section to maintain pressure within 5 psi of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled with water. The leakage shall be less than an allowable amount determined by the following equation:

$$\frac{SD(P)^{1/2}}{133,200}$$

Where:

- L = 133,200
- L = allowable leakage (gallons/hour)
- S = length of pipe tested, in feet
- D = nominal diameter of pipe (inches)
- P = test pressure (psig)

- H. Should the sections under test fail to meet the requirements, the Contractor shall do all work of locating and repairing the leaks and retesting as the Engineer may require without additional compensation. All visible leaks are to be repaired regardless of the amount of leakage.
- I. If in the judgment of the Engineer, it is impracticable to follow the foregoing procedures for any reason, modifications in the procedures shall be made as required and as acceptable to the Engineer, but in any event, the Contractor shall be responsible for the ultimate tightness of the line within the above test requirements.

3.06 PLACEMENT OF IDENTIFICATION TAPE

Detectable underground marking tape shall be placed over all water mains as specified in Section 31 23 33.

3.07 PLACEMENT OF LOCATION WIRE

Detectable underground location wire shall be placed above all non-metallic water main as specified in Section 31 23 33.

3.08 Granular HTH shall be placed in appropriately measured quantities of each pipe segment to facilitate disinfection, see Section 33 13 00.

**END OF SECTION 33 11 00**

**SECTION 33 12 13**  
**DOMESTIC WATER DISTRIBUTION CONNECTIONS**

**PART 1 - GENERAL**

**1.01 WORK INCLUDED**

The Contractor shall furnish all labor and equipment necessary to install water service piping together with tapping saddle and corporation stop as shown and detailed on the Drawings and specified herein.

**1.02 RELATED WORK**

- A. Section 31 23 33 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 33 12 16 - Water Valves and Gates.
- C. Section 33 13 00 - Disinfection of Potable Water Pipe.

**PART 2 - PRODUCTS**

**2.01 SADDLES**

- A. Saddles for PVC pipe shall be equal to the Ford S70 series.
- B. No service saddles shall be used on Ductile Iron Pipe. For Ductile Iron Pipe,  $\frac{3}{4}$  - inch and 1- inch services shall have direct insertion of corporation stops.

**2.02 CORPORATION STOP**

- A. Corporation stops to be used with HDPE service pipe with compression style CTS service pipe outlet for HDPE. Stops shall be Ford F-1000Q or pre-approved equal.
- B. Corporation stops shall be factory tested to 150 psi to be compatible with the pipes in which they are installed.

**2.03 WATER METERS AND SETTERS**

- A. Water meters and setters shall be purchased directly from HCWD1.

**2.05 METER BOX**

- A. Meter box shall be high density polyethylene conforming to the minimum requirements of cell classification 424420 B as described in ASTM D3350. The box shall be able to withstand 1,200 pounds compression and shall be used for both single and tandem setters.
- B. The meter box sizes shall be as follows: 36 inch ID for 2 inch meter; 30 inch ID for 1½

meter; and 18 inch ID for 1 inch meter or less. Length (depth) shall be minimum 24 inches. Meter box shall be manufactured by Hancor or approved equivalent.

- C. Cast iron meter box and lid shall be provided for each meter box in the following sizes: 20 inch for 36 inch ID box and 18 inch for 30 inch ID box and less. CI meter box and lid shall be manufactured by Tyler and Ford. Lid shall read "Water Meter".

## 2.06 HDPE SERVICE PIPE AND FITTINGS

- A. HDPE pipe for sizes 3/4-inch and 1-inch water service piping shall be CTS, CL 200 (DR 9) HDPE 3408 with blue stripes or blueshell manufactured in accordance with AWWA C901 and NSF 61.
- C. Service pipe shall be installed in 2 inch Schedule 40 PVC casing pipe across under roadways.

## 2.07 PRESSURE REDUCING VALVE (PRV)

Pressure reducing valves for water service shall be single seated for dead-end or continuous service. Size 3/4-inch shall have bronze bodies with screwed ends. The cup packing and valve seat shall be of high grade leather; the diaphragm of nylon-inserted neoprene. The valves shall be equal to Wilkins #600 or Watts Regulator Series US #35130.

# PART 3 - EXECUTION

## 3.01 INSTALLATION

- A. All service connections shall be installed in the locations shown, rigidly supported.
- B. After installation, all service connections shall be tested at least one hour at the working pressure corresponding to the class of pipe, unless a different test pressure is specified. If any joint proves to be defective, it shall be repaired to the satisfaction of the Engineer with main services on to the meter setter.
- C. All materials shall be carefully inspected for defects in workmanship and materials; all debris and foreign material cleaned out of valve openings, etc.; all operating mechanisms operated to check their proper functioning, and all fittings checked for tightness. All materials which do not operate easily, or are otherwise defective, shall be repaired or replaced at no additional cost to the Owner.

## 3.02 INSPECTION AND TESTING

All service connections shall be tested to demonstrate their conformance with the specified operational capabilities and any deficiencies shall be corrected, device replaced or otherwise made acceptable to the Engineer.

**END OF SECTION 33 12 13**

## **SECTION 33 12 16 WATER VALVES AND GATES**

### **PART 1 – GENERAL**

#### **1.01 WORK INCLUDED**

The Contractor shall furnish all labor, material, and equipment necessary to install valves together with all appurtenances as shown and detailed on the Drawings and specified herein.

#### **1.02 RELATED WORK**

- A. Section 31 23 33 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 33 11 00 - Water Pipe and Fittings.
- C. Section 33 12 19 – Hydrants.

#### **1.03 SUBMITTALS**

- A. Complete shop drawings of all valves and appurtenances shall be submitted to the Engineer in accordance with the requirements of Section 01 33 00.
- B. The manufacturer shall furnish the Engineer an affidavit stating that the valve and all materials used in its construction conform to the applicable requirements of the latest revision of the applicable AWWA Standard, and that all tests specified therein have been performed and that all test requirements have been met.

### **PART 2 - PRODUCTS**

#### **2.01 GATE VALVES**

- A. All gate valves shall be of the resilient seat type in accordance with the latest revision of AWWA C509 Standard. The valve body, bonnet and gate castings shall be ductile iron or cast iron. The valve shall have a non-rising stem (NRS), fully bronze mounted or stainless steel with o-ring seals. Valve body and bonnet, inside and out, shall be fully coated with fusion bonded epoxy coating in accordance with AWWA C550 Standard. Valves shall have a rated working pressure of 200 psi. Gate valves shall be installed on lines 6-inch through 12-inch.
- B. Gate valves for buried service shall be furnished with mechanical joint end connections, unless otherwise shown on the Drawings or specified herein. The end connection shall be suitable to receive ductile iron or PVC pipe.
- C. Gate valves for meter pits, pump stations, or other installations as shown on the Drawings

shall be furnished with flanged joint and connections, non rising stem and handwheel operator. The gate valve shall have the direction of opening cast on the rim of the handwheel and provided with chain and lock.

- D. Buried service gate valves shall be provided with a 2-inch square operating nut and shall be opened by turning to the left (counterclockwise).
- E. Buried service gate valves shall be installed in a vertical position with valve box as detailed on the Drawings. They shall be set vertically and properly adjusted so that the cover will be in the same plane as the finished surface of the ground or street.
- F. Valves shall be those manufactured by Mueller, Kennedy or approved equivalent.

## 2.02 TAPPING VALVES

- A. Standard MJ x MJ valve, per paragraph 2.01, shall be used with tapping sleeves. Tapping sleeves shall have mechanical joint outlet.
- J. See Detail Sheet W2.01 of Drawings.

## 2.03 TAPPING SLEEVES

- A. Tapping sleeves shall be stainless steel and capable of containing pressure within the full volume of the sleeve. Sleeve shall be mechanical joint suitable for use with ductile iron or PVC pipe.
- B. Sleeve shall be rated at 200 psi working pressure through 12-inch size and 150 psi for sleeves 14-inch through 24-inch.
- C. Mechanical joint throat section of mechanical joint sleeves through 12-inch size shall conform to MSS SP60 Standard. For throat sections larger than 12 inches, flanged section shall mate valves of same manufacture as sleeves.
- D. Tapping sleeves shall be capable of withstanding their rated pressure without leakage past the side gaskets and end gaskets of the sleeve. Tapping sleeves shall be fast-tap stainless steel with mechanical joint outlet.
- E. Tapping sleeve shall be manufactured by Mueller, Kennedy, M & H, American Flow Control or approved equivalent.
- F. See Detail Sheet W2.01 of Drawings.

## 2.04 BUTTERFLY VALVES (BURIED)

For Valves 14-inch and larger: The butterfly valve shall be DeZurik or M&H Valve Company AWWA C504 series (or approvable equivalent), mechanical joint, resilient seat, cast iron body and disk, stainless steel shaft and seating edge (ring), Chloroprene seat, Class 150B, cast iron housing with 2-inch operator nut in vertical position for use with a valve box. The valve shall be fully coated, inside and out, with fusion bonded epoxy in accordance with the latest revision of



AWWA C550 Standard.

## 2.05 AIR RELEASE AND AIR/VACUUM VALVES

- A. Air release valves shall be installed at high points along the water main as shown on the Drawings and directed by the Engineer. Size shall be determined by main size and operating pressure. Valve shall be manufactured by Valve and Primer Corp, APCO Series 200A or approved equivalent.
- B. The valves shall be in accordance with ANSI/AWWA C512.
- C. At air release valve locations the water line or force main shall be installed at 48-inch cover. The increase in depth shall be gradual toward and away from the valve installation.
- D. Valves shall be constructed of cast iron body and cover, stainless trim and float with a Buna-N seat for positive seating. The baffle shall be ductile iron and shall protect float from direct impact of air and water. The seat shall slip fit into the baffle or cover and lock in place without any distortion. The float and baffle assembly shall be shrouded with a water diffuser. The float shall be stainless steel center guided for positive seating and be rated at 1,000 psi non-shock service.
- E. The discharge orifice shall be fitted with a double-acting throttle device to regulate and restrict air venting.
- F. All parts of the valves and the operating mechanisms shall be made of non-corrodible materials.
- G. See Detail Sheet W2.01 of Drawings.

## 2.06 REDUCED PRESSURE ZONE BACKFLOW PREVENTOR

- A. Backflow preventors shall have FDA approved epoxy coated cast iron check valve bodies with bronze seats, and FDA approved epoxy coated cast iron relief valve with stainless steel trim. Test cocks shall be bronze body ball valves. Features shall include replaceable bronze seats, non-rising stem resilient wedge gate valve shut-offs, epoxy coated check and relief valves (inside and out), and stainless steel internal parts.
- B. Backflow preventors shall be suitable for continuous use for water supply pressure to 175 psi and water temperature up to 110 degrees Fahrenheit. They shall comply with the latest revision of AWWA C-511.
- C. Markings shall be in accordance with AWWA C-508 and include size, working pressure, and cast arrow to indicate direction of flow, name of manufacturer, and year of manufacturer.
- D. End configurations shall be furnished with 125 pound ANSI flanged ends with accessories.
- E. Painting the inside and outside of all valves, together with the working parts except bronze and machined surfaces, shall be coated in accordance with the latest revision of AWWA C-550.

- F. The backflow preventor shall be Series 909 Reduced Pressure Zone Backflow Preventor as manufactured by WATTS Regulator, or an acceptable equivalent product.

## 2.07 VALVE BOXES

- A. Each buried stop and valve shall be provided with a suitable valve box. Boxes shall be of the screw type, adjustable, telescoping, heavy-pattern type with the lower part of cast iron and the upper part of steel or cast iron. They shall be so designed and constructed as to prevent the direct transmission of traffic loads to the pipe or valve.
- B. The upper or screw section of the box shall be provided with a flange having sufficient bearing area to prevent undue settlement. The lower section of the box shall be designed to enclose the operating nut and stuffing box of the valve and rest on the valve bonnet.
- C. The boxes shall be adjustable through at least 6 inches vertically without reduction of the lap between sections to less than 4 inches.
- D. The inside diameter of boxes for valves shall be at least 4-1/2 inches, and the lengths shall be as necessary for the depths of the valves or stops with which the boxes are to be used.
- E. Covers for valves shall be close fitting and substantially dirt-tight. The top of the cover shall be flush with the top of the box rim. An arrow and the word OPEN to indicate the direction of turning to open the valve shall be cast in the top of the valve covers with "WATER" cast into lid.
- F. A 24-inch square concrete collar, 4-inches thick shall be installed around the cover in earth areas.
- G. See Detail Sheet W2.02 of Drawings.

## 2.08 COUPLING ADAPTER

- A. The pipe couplings shall be of a gasketed, sleeve-type with diameter to properly fit the pipe. Each coupling shall consist of one (1) steel middle ring, of thickness and length specified, two (2) steel followers, two (2) rubber- compounded wedge section gaskets and sufficient track-head steel bolts to properly compress the gaskets. Field joints shall be made with this type of coupling. The middle ring and followers of the coupling shall be true circular sections free from irregularities, flat spots, or surface defects. They shall be formed from mill sections with the follower-ring section of such design as to provide confinement of the gasket. After welding, they shall be tested by cold expanding a minimum of 1 percent beyond the yield point. The coupling bolts shall be of the elliptic-neck, track-head design with rolled threads. The manufacturer shall supply information as to the recommended torque to which the bolts shall be tightened. All bolt holes in the followers shall be oval for greater strength. The gaskets of the coupling shall be composed of a crude or synthetic rubber base compounded with other products to produce a material which will not deteriorate from age, from heat, or exposure to air under normal storage conditions. It shall also possess the quality of resilience and ability to resist cold flow of the material so that the joint will remain sealed and tight indefinitely when subjected to shock, vibration, pulsation and temperature or other adjustments of the pipe line. The

couplings shall be assembled on the job in a manner to insure permanently tight joints under all reasonable conditions of expansion, contraction, shifting and settlement, unavoidable variations in trench gradient, etc.

- B. Nuts and bolts shall be in accordance with AWWA C111.
- C. Couplings shall be shop primed and field painted in accordance with Division 9 (or one coat of coal tar epoxy if not specified in Division 9).
- D. Compression couplings shall be equivalent to Style 38 manufactured by Dresser. Flanged couplings shall have flanges in accordance with AWWA C207 and be equivalent to Style 128 manufactured by Dresser.

## 2.09 FIBERGLASS LINE MARKER FOR BURIED VALVES

### A. General:

- 1. Design: The continuous fiberglass reinforced composite line marker shall be a single piece marker capable of simple, permanent installation by one person using a manual driving tool. The marker, upon proper installation, shall resist displacement from wind and vehicle impact forces. The marker shall be of a constant flat "T" cross-sectional design with reinforcing support ribs incorporated longitudinally along each edge to provide sheeting protection and structural rigidity. The bottom end of the marker shall be pointed for ease of ground penetration.
- 2. Material: The marker shall be constructed of a durable, UV resistant, continuous glass fiber and marble reinforced, thermosetting composite material which is resistant to impact, ozone, and hydrocarbons within a service temperature range of -400 F to +1400 F.
- 3. Marking: Each marker shall be permanently marked "Water Line Below." The letters shall be a minimum of 2 inches in height. A black line shall be stamped horizontally across the front of the marker near the bottom to indicate proper burial depth as shown in the standard detail. The marker shall be a CRM-375 as manufactured by Carsonite International, or approved equivalent.

### B. Physical and Mechanical Requirements:

- 1. Dimensions: The marker shall conform to the shape and overall dimensions shown in the standard detail.
- 2. Mechanical Properties: The marker shall have the minimum mechanical properties as follows:

Property	ASTM Test Method	Minimum Value
Ultimate Tensile Strength	D-638	50,000 psi
Ultimate Compressive Strength	D-638	45,000 psi
Specific Gravity	D-792	1.7
Weight % Glass Reinforcement	D-2584	50%
Barcol Hardness	D-2583	47

3. Color Fastness: The marker shall be pigmented throughout the entire cross-section so as to produce a uniform color which is an integral part of the material. Ultraviolet resistant materials shall be incorporated in the construction to inhibit fading or cracking of the delineator upon field exposure.
- C. Reflectors:
1. The reflector shall be of impact resistant, pressure sensitive retro- reflective sheeting which shall be subject to approval by the Engineer. The sheeting shall be of appropriate color to meet MUTCD requirements.
  2. Mounting: The retro-reflective sheeting shall consist of a minimum of a 3-inch wide strip placed a maximum of 2 inches from the top of the post unless otherwise specified.

## PART 3 - EXECUTION

### 3.01 INSTALLATION

- A. Valves shall be installed as nearly as possible in the positions indicated on the Drawings consistent with conveniences of operating the handwheel or wrench. All valves shall be carefully erected and supported in their respective positions free from all distortion and strain on appurtenances during handling and installation.
- B. All material shall be carefully inspected for defects in workmanship and material, all debris and foreign material cleaned out of valve openings and seats, all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness.
- C. Valves and other equipment which do not operate easily or are otherwise defective shall be repaired or replaced at the Contractor's expense. Valves shall not be installed with stems below the horizontal.
- D. Valves shall be provided with extension stems where required for convenience of operation. Extension stems shall be provided for valves installed underground and elsewhere so that the operating wrench does not exceed 6 feet in length.

### 3.02 PAINTING

- A. Valves shall be factory primed and fully coated, inside and out, with fusion bonded epoxy in accordance with the latest revision of AWWA C550 Standard.

**END OF SECTION 33 12 16**

## **SECTION 33 12 17 VALVE AND METER VAULTS**

### **PART 1 - GENERAL**

#### **1.01 WORK INCLUDED**

The Contractor shall provide all materials and labor to install a valve and meter vaults as shown on the Drawings and specified herein.

#### **1.02 RELATED WORK**

- A. Section 31 23 33 - Excavating, Backfilling, and Compacting for Utilities.
- B. Section 33 11 00 - Water Pipe and Fittings.
- C. Section 33 12 16 - Water Valves and Gates.

### **PART 2 - PRODUCTS**

#### **2.01 VALVE VAULT AT CREEK CROSSING/ ARV VAULT**

##### **A. Concrete Manholes - General:**

- 1. Manholes shall conform in shape, size, dimensions, materials, and other respects to the details indicated on the Drawings or bound in the Specifications.
- 2. All concrete manholes shall have precast reinforced concrete developed bases. No other type of base will be allowed.
- 3. The concrete manhole walls (barrels and cones) shall be precast concrete sections. The top of the cone shall be built of reinforced concrete adjustment rings to permit adjustment of the frame to meet the finished surface. Minimum strength of the concrete for the precast sections shall be 4,000 psi at the time of shipment.
- 4. For concrete manholes, the cast-iron frames and covers shall be the standard frame and cover as indicated on the Drawings and specified hereinafter in this Section.

##### **B. Precast Concrete Sections:**

- 1. Precast concrete sections and appurtenances shall conform to the ASTM Standard Specifications for Precast Reinforced Concrete Manhole Sections, Designation C478, latest revision, with the following exceptions and additional requirements.
- 2. The base section shall be monolithic for 4-foot diameter manholes. Manholes with diameter of 5 feet or larger shall have base slab.
- 3. The wall sections shall be not less than 5 inches thick.
- 4. Type II cement shall be used except as otherwise permitted.
- 5. Joints between sections shall be made watertight through the use of rubber O-ring gaskets or rubber profile gaskets such as Forsheda 138. Gaskets shall conform to the

ASTM Standard C-443, latest revision. Rope mastic or butyl mastic sealant will not be allowed except as noted in Article 2.01 B.6.

6. Butyl mastic sealant shall be installed between the cone section, any adjusting sections or rings, and casting.

C. Concrete Manhole Frames and Covers:

1. The Contractor shall furnish all cast-iron manhole frames and covers conforming to the details shown on the Drawings, or as hereinbefore specified.
2. The castings shall be of good quality, strong, tough, evengrained cast iron, smooth, free from scale, lumps, blisters, sandholes, and defects of every nature which would render them unfit for the service for which they are intended. Contact surfaces of covers and frame seats shall be machined to prevent rocking of covers.
3. All castings shall be thoroughly cleaned and subject to a careful hammer inspection.
4. Castings shall be at least Class 25 conforming to the ASTM Standard Specifications for Gray Iron Casting, Designation A48, latest revision.
5. Unless otherwise specified, manhole covers shall be 22-3/4 inches in diameter, weighing not less than 350 pounds per frame and cover. Manhole covers shall set neatly in the rings, with contact edges machined for even bearings and tops flush with ring edge. They shall have sufficient corrugations to prevent slipperiness. The covers shall have two (2) pick holes about 1-1/4 inches wide and 1/2 inches deep with 3/8 inch undercut all around. Covers shall not be perforated. Frames and covers shall be J.R. Hoe and Sons, Mc-350, or approved equal.
6. All covers shall be marked in large letters "WATER" in the center.

- D. Pre-molded Elastomeric-sealed Joints: All holes for pipe connections in concrete barrels and bases shall have a factory-installed flexible rubber gasket to prevent infiltration. The manhole boots shall conform to the latest revision of ASTM-C973. The boots shall be Contour Seal or Kor-N-Seal made by National Pollution Control Systems, Inc., Nashua, NH; A-Lok Manhole Pipe Seal made by A-Lok Corporation, Trenton, NJ; or an approved equal.

2.02 PRV/PSV AND MASTER METER VAULT

- A. General: A pre-cast concrete valve vault shall be furnished and installed in accordance with the details and dimensions as shown on the Plans. Concrete for the vault shall be Type I, 4,500 psi at 28 days, and shall conform to the applicable requirements of ACI 301-72 in all respects. Reinforcement shall conform to the requirements of ASTM A-615, A-616, or A-617. Minimum yield strength of the reinforcement shall be 60,000 psi.
- B. Access Hatch: Aluminum access hatch assemblies shall be installed in the top slab of the valve pit at the location shown on the Drawings. Frames and covers shall be fabricated of aluminum. Frame shall be securely mounted over the valves. Covers shall be provided with lifting handle and safety latch to hold the cover in the 90 degrees open position. Locking hasps shall be provided. Covers shall be of the checkered plate design. Access frame and cover shall be sized in accordance with the Drawings. Access frame and cover shall be Model KD-2 as manufactured by the Bilco Company, New Haven, CT, or approved equal.

2.04 VALVES

Valves are specified in Section 33 12 16.

2.05 CORPORATION STOP

Corporation stop shall be in accordance with Section 33 12 13.

## PART 3 - EXECUTION

### 3.01 FABRICATION - PRECAST SECTIONS

- A. No manholes steps shall provided in the manhole sections.
- B. Sections shall be cured in an enclosed curing area and shall attain strength of 4,000 psi prior to shipment.
- C. No more than two (2) lift holes or inserts may be cast or drilled in each section.
- D. Flat slab tops shall have a minimum thickness of 6 inches and reinforcement in accordance with ASTM C478.
- E. The date of manufacture and the name or trademark of the manufacturer shall be clearly marked on the precast sections.
- F. Acceptance of the sections will be on the basis of material tests and inspection of the completed product and test cylinders if requested by the Engineer.
- G. Cones shall be precast sections of similar construction.

### 3.02 SETTING PRECAST MANHOLE SECTIONS

- A. Precast-reinforced concrete manhole sections shall be set so as to be vertical and with sections and steps in true alignment.
- B. Rubber gaskets shall be installed in all manhole joints in accordance with the manufacturer's recommendations.
- C. All holes in sections used for their handling shall be thoroughly plugged with rubber plugs made specifically for this purpose.

### 3.03 ADJUSTING MANHOLE FRAMES AND COVERS TO GRADE

- A. Unless otherwise shown on the Drawings, the top of the precast concrete eccentric cone of a standard manhole or the top of the flat slab of a shallow manhole shall terminate not less than 4 inches below existing grade in an unpaved non-traffic area (except in a residential yard) and not less than 13 inches below existing grade in a paved or unpaved traffic area and in a residential yard. The frame and lid shall be adjusted to the required final grade as described hereinafter.
- B. Only clean adjusting sections shall be used. Each adjusting section shall be laid in a bead of butyl mastic sealant and shall be thoroughly bonded.
- C. When a manhole is located in an unpaved non-traffic area (other than a residential yard), the frame and cover shall be adjusted to a final elevation of 3 inches to 5 inches above the existing grade at the center of the cover. If field changes have resulted in the installed

manhole invert elevation being lower than the invert elevation shown on the Drawings, the adjustment to the required final elevation of 3 inches to 5 inches above existing grade shall be accomplished by the use of precast concrete adjusting rings. If field changes have resulted in the completed manhole invert being higher than the invert shown on the Drawings and the top of the frame and cover being higher than 5 inches above the existing grade, then the Contractor shall substitute, at no additional cost to HCWD1, a shorter barrel section on the manhole so that the frame and lid may be adjusted to the proper final elevation through the use of precast concrete adjusting rings.

- D. When a manhole is located in a bituminous, concrete, or crushed stone traffic area, or in a residential yard, the frame and cover shall be adjusted to the grade of the surrounding area by the use of precast concrete rings. The adjusted frame and lid shall conform to the elevation and slope of the surrounding area. If field changes have resulted in the completed manhole invert being higher than the invert shown on the Drawings and the top of the eccentric cone, when used, or the top of the flat slab, when used, being less than the height of the frame and lid below the grade of the surrounding area, then the Contractor shall substitute, at no additional cost to HCWD1, a shorter barrel section on the manhole so that the frame and lid may be adjusted to the proper final elevation through the use of precast concrete adjusting rings.
- E. The Contractor shall coordinate elevations of manhole covers in paved streets with HCWD1. If resurfacing of the street in which sewers are laid is expected within twelve (12) months, covers shall be set 1-1/2 inches above the existing pavement surface in anticipation of the resurfacing operations.

#### 3.04 ADJUSTING SECTIONS

Only clean adjusting sections shall be used. Each adjusting section shall be laid in a bead butyl mastic sealant and shall be thoroughly bonded.

#### 3.05 SETTING MANHOLE FRAMES AND COVERS

- A. Manhole frames shall be set with the tops conforming to the required elevations set forth hereinbefore. Frames shall be set concentric with the top of the concrete and in a full bead of butyl mastic sealant so that the space between the top of the masonry and the bottom flange of the frame shall be completely watertight.
- B. Only clean adjusting sections shall be used. Each adjusting section shall be laid in a bead butyl mastic sealant and shall be thoroughly bonded.
- C. Manhole covers shall be left in place in the frames on completion of other work at the manholes.

**END OF SECTION 33 12 17**



## **SECTION 33 12 19 HYDRANTS**

### **PART 1 – GENERAL**

#### **1.01 WORK INCLUDED**

The Contractor shall furnish all labor, materials, and equipment required to complete the work of installing fire hydrants with all appurtenances as shown on the Drawings and specified herein.

### **PART 2 - PRODUCTS**

#### **2.01 FIRE HYDRANTS**

- A. Fire hydrants shall be improved AWWA compression model with 4-1/2 inch hydrant valve, two (2) 2-1/2 inch hose outlets, one (1) 4-1/2 inch pumper nozzle, national standard threads, national standard pentagon operating nut opening left. Fire hydrant shall be equipped with safety flanges designed to prevent barrel breakage when struck by a vehicle, flanged inlets and auxiliary gate valves. Fire hydrants shall be installed off mains 6-inches and larger and have 6-inch inlets and shall be Mueller Super Centurion 200 as manufactured by Mueller Company, or approved equivalent.
- B. Each fire hydrant shall be installed with an auxiliary gate valve and valve box. Valve box cover shall be marked "WATER".
- C. Inlet cover depth shall be minimum of 36 inches and the minimum dimension from ground to centerline of lowest opening shall be 18 to 24 inches. Fire hydrants shall be supported on a poured-in-place concrete thrust block and provided with a drainage pit as indicated on Sheet W2.01 of the Drawings.
- D. All fire hydrants shall be fully coated, inside and out, with fusion bonded epoxy coating in accordance with AWWA C550 Standard and color shall be as selected by the Owner.

#### **2.02 SPARE PARTS**

- A. The Owner shall be furnished with two (2) hydrant barrel wrenches, four (4) spanner wrenches and two (2) operating nut wrenches at Owner's request.

### **PART 3 - EXECUTION**

#### **3.01 INSTALLATION**

Fire hydrants shall be installed in accordance with the manufacturer's directions and as detailed on the Drawings.

- 3.02 Fire hydrants shall be fully restrained from the barrel through the shut-off valve to the main line with an anchor tee, friction type restraint glands and poured concrete thrust blocking.
- 3.03 Temporary out of service tags shall be placed on all newly installed fire hydrants until such time the water line is put into service.
- 3.02 No bollards are allowed on state roads.
- 3.05 During pressure testing of the main line, the hydrant isolation valve shall be open and pressure tested to the hydrant valve.

**END OF SECTION 33 12 19**

## **SECTION 33 13 00 DISINFECTION OF POTABLE WATER PIPE**

### **PART 1 - GENERAL**

#### **1.01 WORK INCLUDED**

The Contractor shall furnish all labor and material necessary to disinfect and flush the newly installed or repaired potable water mains as shown on the Drawings and specified herein. Included are materials for temporary blowoff and sampling taps. Only HCWD1 personnel shall operate active hydrants and valves. For contracts with HCWD1, there will be no charge for water or labor.

#### **1.02 RELATED WORK**

- A. Section 31 23 33 - Excavating, Backfilling and Compacting for Utilities
- B. Section 33 11 00 - Water Pipe and Fittings
- C. Section 33 12 13 - Domestic Water Distribution Connections
- D. Section 33 12 16 – Water Valves and Gates

#### **1.03 REFERENCES**

- A. AWWA C651-14 Disinfecting Water Mains

### **PART 2 - PRODUCTS (NOT USED)**

### **PART 3 - EXECUTION**

#### **3.01 DISINFECTION AND FLUSHING OF WATER LINES**

- A. Sterilization of pipe line shall be in accordance with the American Water Works Association Specification C651-14 using granular HTH. The pipe line shall be disinfected by using a 50 mg/l chlorine solution for a contact period of 24 hours. Not before the end of the 24 hour retention period, the residual will be tested and the concentration shall be at least 25 ppm. Pipes shall be thoroughly flushed upon meeting the chlorine residual requirements.
- B. Before the main is chlorinated, it shall be filled to eliminate air pockets and flushed to remove particulates.
- C. Preliminary and final flushing velocity in the main shall not be less than 2.5 ft/sec unless

waived by HCWD1. The required flow and opening size to flush pipelines at 40 psi residual pressure is provided below.

<u>Pipe Dia (in)</u>	<u>Size of Tap/Hydrant Outlet (in)</u>
4	1
6	1.5
8	2
10	2
12	2.5 (two)
16	2.5 (two)

- D. The environment to which the chlorinated water is to be discharged shall be inspected. All flushing of high chlorinated mains need to be dechlorinated prior to discharging.
- E. Before the pipes are placed in service, samples of the water must be taken by the Contractor and submitted to a state-certified laboratory for testing. No pipes shall be placed in service until the samples have been approved by the agency. The Contractor shall obtain prior approval lab services from HCWD1 and bear all the cost of sampling, testing and postage.
- F. Sampling locations shall be approved by HCWD1.
- G. A satisfactory report for the section(s) under test must be submitted to HCWD1 and the Engineer before authorizing domestic consumption of the water.
- H. Sterilization procedures shall be continued until approved samples have been obtained.

**END OF SECTION 33 13 00**

## APPENDIX A: PERMITS AND APPROVALS

MATTHEW G. BEVIN  
GOVERNOR



CHARLES G. SNAVELY  
SECRETARY

**ENERGY AND ENVIRONMENT CABINET**  
**DEPARTMENT FOR ENVIRONMENTAL PROTECTION**

AARON B. KEATLEY  
COMMISSIONER

300 SOWER BOULEVARD  
FRANKFORT, KENTUCKY 40601

October 14, 2016

Mr. James Bruce  
Hardin Co Water District 1  
1400 Rogersville Rd  
Radcliff, KY 40160

RE: Hardin Co Water District 1  
AI # 1673, APE20160004  
PWSID # 0470393-16-004  
Hwy 313 & 1882 Transmission main  
Hardin County, KY

Dear Mr. Bruce:

We have reviewed the plans and specifications for the above referenced project. The plans include the construction of approximately 8,020 feet of 16-inch DIP water main. This is to advise that plans and specifications for the above referenced project are APPROVED with respect to sanitary features of design, as of this date with the requirements contained in the attached construction permit.

If you have any questions concerning this project, please contact Mr. Mohammed Mohiuddin at 502-782-7020.

Sincerely,

A handwritten signature in black ink, appearing to be "T. Humphries".

Terry Humphries, P.E.  
Supervisor, Engineering Section  
Water Infrastructure Branch  
Division of Water

TH: MM

Enclosures

C: Cannon & Cannon Inc.  
Hardin County Health Department  
Public Service Commission  
Division of Plumbing



## Distribution-Water Line Extension

Hardin Co Water District 1

Facility Requirements

Activity ID No.:APE20160004

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### PORT0000000077 (Water Main Extension) 8,020 feet of 16-inch DIP Water main:

#### Narrative Requirements:

Condition No.	Condition
T-1	Construction of this project shall not result in the water system's inability to supply consistent water service in compliance with 401 KAR 8:010 through 8:600. [401 KAR 8:100 Section 5]
T-2	The public water system shall not implement a change to the approved plans without the prior written approval of the cabinet. [401 KAR 8:100 Section 4(3)]
T-3	A proposed change to the approved plans affecting sanitary features of design shall be submitted to the cabinet for approval in accordance with Section 2 of this administrative regulation. [401 KAR 8:100 Section 4(2)]
T-4	During construction, a set of approved plans and specifications shall be available at the job site. Construction shall be performed in accordance with the approved plans and specifications. [401 KAR 8:100 Section 3(1)]
T-5	Unless construction begins within two (2) years from the date of approval of the final plans and specifications, the approval shall expire. [401 KAR 8:100 Section 3(3)]
T-6	Upon completion of construction, a professional engineer shall certify in writing that the project has been completed in accordance with the approved plans and specifications. [401 KAR 8:100 Section 4(1)]
T-7	The system shall be designed to maintain a minimum pressure of 20 psi at ground level at all points in the distribution system under all conditions of flow. [Recommended Standards for Water Works 8.2.1, Drinking Water General Design Criteria IV.1.a]
T-8	Water lines should be hydraulically capable of a flow velocity of 2.5 ft/s while maintaining a pressure of at least 20 psi. [Drinking Water General Design Criteria IV.1.b]
T-9	The normal working pressure in the distribution system at the service connection shall not be less than 30 psi under peak demand flow conditions. Peak demand is defined as the maximum customer water usage rate, expressed in gallons per minute (gpm), in the pressure zone of interest during a 24 hour (diurnal) time period. [Drinking Water General Design Criteria IV.1.d]
T-10	When static pressure exceeds 150 psi, pressure reducing devices shall be provided on mains or as part of the meter setting on individual service lines in the distribution system. [Drinking Water General Design Criteria IV.1.c]
T-11	The minimum size of water main in the distribution system where fire protection is not to be provided should be a minimum of three (3) inch diameter. Any departure from minimum requirements shall be justified by hydraulic analysis and future water use, and can be considered only in special circumstances. [Recommended Standards for Water Works 8.2.2, Drinking Water General Design Criteria IV.2.b]

## Distribution-Water Line Extension

Hardin Co Water District 1

Facility Requirements

Activity ID No.:APE20160004

Page 2 of 4

### PORT0000000077 (Water Main Extension) 8,020 feet of 16-inch DIP Water main:

#### Narrative Requirements:

Condition No.	Condition
T-12	Water mains not designed to carry fire-flows shall not have fire hydrants connected to them. [Recommended Standards for Water Works 8.4.1.b]
T-13	Flushing devices should be sized to provide flows which will give a velocity of at least 2.5 feet per second in the water main being flushed. [Recommended Standards for Water Works 8.2.4.b, Recommended Standards for Water Works 8.4.1.b]
T-14	No flushing device shall be directly connected to any sewer. [Recommended Standards for Water Works 8.2.4.b, Recommended Standards for Water Works 8.4.1.b]
T-15	Pipe shall be constructed to a depth providing a minimum cover of 30 inches to top of pipe. [Drinking Water General Design Criteria IV.3.a]
T-16	Water mains shall be covered with sufficient earth or other insulation to prevent freezing. [Recommended Standards for Water Works 8.7]
T-17	A continuous and uniform bedding shall be provided in the trench for all buried pipe. Backfill material shall be tamped in layers around the pipe and to a sufficient height above the pipe to adequately support and protect the pipe. Stones found in the trench shall be removed for a depth of at least six inches below the bottom of the pipe. [Recommended Standards for Water Works 8.7]
T-18	Water line installation shall incorporate the provisions of the AWWA standards and/or manufacturer's recommended installation procedures. [Recommended Standards for Water Works 8.7]
T-19	All materials used for the rehabilitation of water mains shall meet ANSI/NSF standards. [Recommended Standards for Water Works 8.1]
T-20	Packing and jointing materials used in the joints of pipe shall meet the standards of AWWA and the reviewing authority. [Recommended Standards for Water Works 8.1]
T-21	All tees, bends, plugs and hydrants shall be provided with reaction blocking, tie rods or joints designed to prevent movement. [Recommended Standards for Water Works 8.7]
T-22	All materials including pipe, fittings, valves and fire hydrants shall conform to the latest standards issued by the ASTM, AWWA and ANSI/NSF, where such standards exist, and be acceptable to the Division of Water. [Recommended Standards for Water Works 8.1]
T-23	Water mains which have been used previously for conveying potable water may be reused provided they meet the above standards and have been restored practically to their original condition. [Recommended Standards for Water Works 8.1]



## Distribution-Water Line Extension

Hardin Co Water District 1

Facility Requirements

Activity ID No.:APE20160004

Page 3 of 4

### PORT0000000077 (Water Main Extension) 8,020 feet of 16-inch DIP Water main:

#### Narrative Requirements:

Condition No.	Condition
T-24	Manufacturer approved transition joints shall be used between dissimilar piping materials. [Recommended Standards for Water Works 8.1]
T-25	The minimum size of water main which provides for fire protection and serving fire hydrants shall be six-inch diameter. [Recommended Standards for Water Works 8.2, Drinking Water General Design Criteria IV.2.a]
T-26	Pipes and pipe fittings containing more than 8% lead shall not be used. All products shall comply with ANSI/NSF standards. [Recommended Standards for Water Works 8.1]
T-27	Gaskets containing lead shall not be used. Repairs to lead-joint pipe shall be made using alternative methods. [Recommended Standards for Water Works 8.1]
T-28	Pipe materials shall be selected to protect against both internal and external pipe corrosion. [Recommended Standards for Water Works 8.1]
T-29	Dead end mains shall be equipped with a means to provide adequate flushing. [Recommended Standards for Water Works 8.2]
T-30	The hydrant lead shall be a minimum of six inches in diameter. Auxiliary valves shall be installed on all hydrant leads. [Recommended Standards for Water Works 8.4.3]
T-31	A sufficient number of valves shall be provided on water mains to minimize inconvenience and sanitary hazards during repairs. [Recommended Standards for Water Works 8.3]
T-32	Wherever possible, chambers, pits or manholes containing valves, blow-offs, meters, or other such appurtenances to a distribution system, shall not be located in areas subject to flooding or in areas of high groundwater. Such chambers or pits should drain to the ground surface, or to absorption pits underground. The chambers, pits and manholes shall not connect directly to any storm drain or sanitary sewer. Blow-offs shall not connect directly to any storm drain or sanitary sewer. [Recommended Standards for Water Works 8.6]
T-33	At high points in water mains where air can accumulate provisions shall be made to remove the air by means of air relief valves. [Recommended Standards for Water Works 8.5.1]
T-34	Automatic air relief valves shall not be used in situations where flooding of the manhole or chamber may occur. [Recommended Standards for Water Works 8.5.1]
T-35	The open end of an air relief pipe from automatic valves shall be extended to at least one foot above grade and provided with a screened, downward-facing elbow. [Recommended Standards for Water Works 8.5.2.c]

## Distribution-Water Line Extension

Hardin Co Water District 1

Facility Requirements

Activity ID No.:APE20160004

Page 4 of 4

### PORT0000000077 (Water Main Extension) 8,020 feet of 16-inch DIP Water main:

#### Narrative Requirements:

Condition No.	Condition
T-36	Discharge piping from air relief valves shall not connect directly to any storm drain, storm sewer, or sanitary sewer. [Recommended Standards for Water Works 8.5.2.d]
T-37	Water pipe shall be constructed with a lateral separation of 10 feet or more from any gravity sanitary or combined sewer measured edge to edge where practical. If not practical a variance may be requested to allow the water pipe to be installed closer to the gravity sanitary or combined sewer provided the water pipe is laid in a separate trench or undisturbed shelf located on one side of the sewer with the bottom of the pipe at least 18 inches above the top of the gravity sanitary or combined sewer pipe. [Drinking Water General Design Criteria IV.3.b]
T-38	Water lines crossing sanitary, combined or storm sewers shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sanitary, combined or storm sewer with preference to the water main located above the sanitary, combined or storm sewer. [Drinking Water General Design Criteria IV.3.c]
T-39	At crossings, one full length of water pipe shall be located so both joints will be as far from the sewer as possible. [Recommended Standards for Water Works 8.8.3.b]
T-40	There shall be no connection between the distribution system and any pipes, pumps, hydrants, or tanks whereby unsafe water or other contaminating materials may be discharged or drawn into the system. [Recommended Standards for Water Works 8.10.1]
T-41	Water utilities shall have a cross connection program conforming to 401 KAR 8. [Recommended Standards for Water Works 8.10.1]
T-42	Installed pipe shall be pressure tested and leakage tested in accordance with the appropriate AWWA Standards. [Recommended Standards for Water Works 8.7.6]
T-43	New, cleaned and repaired water mains shall be disinfected in accordance with AWWA Standard C651. The specifications shall include detailed procedures for the adequate flushing, disinfection, and microbiological testing of all water mains. In an emergency or unusual situation, the disinfection procedure shall be discussed with the Division of Water. [Recommended Standards for Water Works 8.7.7]
T-44	A minimum cover of five feet shall be provided over pipe crossing underwater. [Recommended Standards for Water Works 8.9.2]
T-45	Valves shall be provided at both ends of water crossings so that the section can be isolated for testing or repair; the valves shall be easily accessible, and not subject to flooding for pipes crossing underwater. [Recommended Standards for Water Works 8.9.2.b]
T-46	Permanent taps or other provisions to allow insertion of a small meter to determine leakage and obtain water samples on each side of the valve closest to the supply source for pipes crossing. [Recommended Standards for Water Works 8.9.2.c]

MATTHEW G. BEVIN  
GOVERNOR



CHARLES G. SNAVELY  
SECRETARY

**ENERGY AND ENVIRONMENT CABINET**  
**DEPARTMENT FOR ENVIRONMENTAL PROTECTION**

AARON B. KEATLEY  
COMMISSIONER

300 SOWER BOULEVARD  
FRANKFORT, KENTUCKY 40601

**STREAM CONSTRUCTION PERMIT**  
**For Construction In Or Along A Stream**

Issued to: **Hardin County Water District 1**  
Address: **1400 Rogersville Rd**  
**Radcliff, KY 40160**

Permit expires on  
**October 27, 2017**

Permit No. **26335P**

AI: **1673**

In accordance with KRS 151.250 and KRS 151.260, the Energy and Environment Cabinet approves the application dated **September 27, 2016** for **installation of 8,020 LF of 16" class 360 ductile iron transmission main in the floodplain of Otter Creek at about stream mile 16.9, with coordinates 37.824776, -86.011514, in Hardin County.**

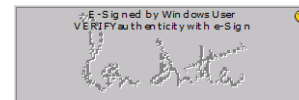
There shall be no deviation from the plans and specifications submitted and hereby approved unless the proposed change shall first have been submitted to and approved in writing by the Cabinet. This approval is subject to the attached limitations. **Please read these limitations carefully!** If you are unable to adhere to these limitations for any reason, please contact this office prior to construction.

This permit is valid from the standpoint of stream obstruction only. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet and other state, federal and local agencies. Specifically if the project involves work in a stream, such as bank stabilization, dredging, relocation, or in designated wetlands, a 401 Water Quality Certification from the Division of Water will be required.

This permit is nontransferable and is not valid unless actual construction of this authorized work is begun prior to the expiration date noted above. Any violation of the Water Resources Act of 1966 as amended is subject to penalties as set forth in KRS 151.990.

If you have any questions regarding this permit, please call Mr. Ross Bishop at 502-782-6891.

Issued October 27, 2016.



**Ron Dutta, P.E., Supervisor**  
Floodplain Management Section  
Surface Water Permit Branch  
Division of Water

RD/RB/kec

pc: Louisville Regional Office  
Melvin Atcher – Vine Grove  
Charlie Allgeier – Meade County  
File



## Stream Construction Permit

Hardin Co Water District 1

Facility Requirements

Permit Number: 26335P

Activity ID No.:APE20160003

Page 1 of 3

**STRC0000000017 (AI: 1673 - Water Main) installation of 8,020 LF of 16" class 360 ductile iron transmission main:**

### Submittal/Action Requirements:

Condition No.	Condition
S-1	Hardin County Water District No. 1 must submit final construction report within 90 days after completion of construction. Hardin County Water District No. 1 must certify in writing that the project has been completed in accordance with the approved plans and specifications. A Final Construction Report Form is enclosed. [401 KAR 4:060 Section 6]

### Narrative Requirements:

Condition No.	Condition
T-1	The issuance of this permit by the cabinet does not convey any property rights of any kind or any exclusive privilege. [KRS 151.250 & 401 KAR 4:060]
T-2	This permit is issued from the standpoint of stream obstruction only and does not constitute certification of any other aspect of the proposed construction. The applicant is liable for any damage resulting from the construction, operation, or maintenance of this project. This permit has been issued under the provisions of KRS Chapter 151.250 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet and other state, federal and local agencies. [KRS 151.250]
T-3	A copy of this permit must be available at the construction site. [KRS 151.250]
T-4	Any work performed by or for Hardin County Water District No. 1 that does not fully conform to the submitted application or drawings and the limitations set forth in this permit, is subject to partial or total removal and enforcement actions pursuant to KRS 151.280 as directed by the Kentucky Department for Environmental Protection. [KRS 151.280]
T-5	Any design changes or amendments to the approved plans must be submitted to the Division of Water and approved in writing prior to implementation. [KRS 151.250]
T-6	Since Hardin and Meade Counties participates in the National Flood Insurance Program, a local floodplain permit must be obtained prior to beginning of construction. Upon completion of construction Hardin County Water District No. 1 must contact the local permitting agencies for final approval of the construction for compliance with the requirements of the local floodplain ordinance. [401 KAR 4:060 Section 9(c)]
T-7	Areas disturbed by the boring equipment in the regulatory floodplain, on both banks shall be restored to its approximate original ground surface level. [401 KAR 4:060]

## Stream Construction Permit

Hardin Co Water District 1

Facility Requirements

Permit Number: 26335P

Activity ID No.:APE20160003

Page 2 of 3

**STRC0000000017 (AI: 1673 - Water Main) installation of 8,020 LF of 16" class 360 ductile iron transmission main:**

### Narrative Requirements:

Condition No.	Condition
T-8	To prevent collapse of the stream bed, sufficient cover shall be maintained between the channel bottom and the bore hole tunnel. [401 KAR 4:060]
T-9	Hardin County Water District No. 1 or its successor shall maintain the crossing in good condition and keep it free of drift and debris at all times. [401 KAR 4:060 Section 3(1), KRS 151.250]
T-10	Erosion prevention measures, sediment control measures, and other site management practices shall be designed, installed, and maintained in an effective operating condition to prevent migration of sediment off site. [KRS 224.70-110]
T-11	To avoid secondary adverse impacts, all materials used shall be stable and inert, free from pollutants and floatable objects, and shall meet all appropriate engineering standards. (Inert here means materials that are not chemically reactive and that will not rot or decompose, such as soil, rock, broken concrete or similar materials.). [401 KAR 4:060 Section 7]
T-12	Stream bank restoration and stabilization shall be limited to that necessary to restore the stream bank as closely as possible to its original location and configuration, and shall be completed without compromising the conveyance capacity of the stream at any time. [401 KAR 4:060]
T-13	All debris and excess material shall be removed for disposal outside of the base floodplain. [401 KAR 4:060]
T-14	Upon completion of construction all disturbed areas shall be seeded and mulched or otherwise stabilized to prevent erosion. [401 KAR 4:060]
T-15	The entry of mobile equipment into the stream channel shall be limited as much as reasonably possible to minimize degradation of the waters of the Commonwealth. [401 KAR 4:060]
T-16	The existing stream flow shall be maintained at all times during construction using standard flow diversion or pump around methods. Cofferdams or other structures placed in the stream shall be removed immediately if adverse flooding conditions result or if a flooding event is imminent. [401 KAR 4:060 Section 4]

## Stream Construction Permit

Hardin Co Water District 1

Facility Requirements

Permit Number: 26335P

Activity ID No.:APE20160003

Page 3 of 3

**STRC0000000017 (AI: 1673 - Water Main) installation of 8,020 LF of 16" class 360 ductile iron transmission main:**

### Narrative Requirements:

Condition No.	Condition
T-17	The Sub-fluvial crossing must meet the following criteria whichever is applicable: (1) During the construction of the crossing, no material may be placed in the stream or in the flood plain of the stream to form construction pads, coffer dams, access roads, etc., unless prior approval has been obtained from the cabinet. (2) The trench shall be backfilled as closely as possible to the original contour. All excess material from construction of the trench shall be disposed of outside of the flood plain unless the applicant has received prior approval from the cabinet to fill within the flood plain. (3) For subfluvial crossings of erodible channels, there shall be at least thirty (30) inches clear to the top of the pipe or conduit at all points. (4) For subfluvial crossings of nonerodible channels, there shall be at least six (6) inches of clear cover above the top of the pipe or conduit at all points, and the pipe or conduit shall be encased on all sides by at least six (6) inches of concrete. (5) The weight of a pipe and its contents during normal operating conditions at all points must exceed that of an equal volume of water, or the applicant must provide the division with sufficient information to show that the pipe and joints have sufficient strength. [401 KAR 4:050 Section 2]



September 23, 2016

Floodplain Management Section  
Division of Water  
200 Fair Oaks Lane  
Frankfort, KY, 40601

**RE: Hwy 1882 & Hwy 144 Water Transmission Main Replacement  
Hardin County Water District No. 1  
Application for Permit to Construct Across a Stream and Water Quality Certification**

Dear Sir or Madam:

Please find attached the following documents for your review and approval:

- Application for Permit to Construct Across or Along a Stream and / or Water Quality Certification
- Applicable plan sheets sealed by a professional engineer
- USGS Topo Map
- Copy of Application for Corps Permit which has also been submitted to US Army Corps of Engineers

The project includes approximately 8,020 LF of 16 inch ductile iron water main within the right-of-way (ROW) of KY 313/ Joe Prather Highway and KY 1882/ Old Fort Ave. The crossing of Otter Creek will be perpendicular and below the stream bed. The crossing will be installed by trenchless method (bore) with no disturbance to the stream bank or bed.

Please do not hesitate to contact me at 865-670-8555 or [sfischer@cannon-cannon.com](mailto:sfischer@cannon-cannon.com) if you have any questions or require any additional information. Thank you in advance for your consideration of this application.

Sincerely,

Seth Fischer, P.E.  
Project Manager

CC: Mr. Daniel Clifford, Engineering Manager, Hardin County Water District No. 1  
Attachments

**COMMONWEALTH OF KENTUCKY  
ENERGY AND ENVIRONMENT CABINET  
DEPARTMENT FOR ENVIRONMENTAL PROTECTION  
DIVISION OF WATER**

**APPLICATION FOR PERMIT TO CONSTRUCT ACROSS OR ALONG A STREAM  
AND / OR WATER QUALITY CERTIFICATION**

Chapter 151 of the Kentucky Revised Statutes requires approval from the Division of Water prior to any construction or other activity in or along a stream that could in any way obstruct flood flows or adversely impact water quality. *If the project involves work in a stream, such as bank stabilization, dredging or relocation, you will also need to obtain a 401 Water Quality Certification (WQC) from the Division of Water.* This completed form will be forwarded to the Water Quality Branch for WQC processing. The project may not start until all necessary approvals are received from the KDOW. For questions concerning the WQC process, contact the WQC section at 502/564-3410.

If the project will disturb one or more acres of land, or if the project is part of a larger common plan of development or sale that ultimately will disturb one or more acres, you will also need to complete a Notice of Intent for general permit coverage for storm water discharges associated with construction activities (NOI-SWCA). This general permit will require you to create and implement an erosion control plan for the project. You may find the forms for Kentucky Pollution Discharge Elimination System (KPDES) at the KPDES Web site [http://www.water.ky.gov/homepage\\_repository/kpdes\\_permit\\_aps.htm](http://www.water.ky.gov/homepage_repository/kpdes_permit_aps.htm). Return forms to the Floodplain Management Section of the KDOW.

1. OWNER: Hardin County Water District No. 1  
Give name of person(s), company, governmental unit, or other owner of proposed project.  
MAILING ADDRESS: 1400 Rogersville Rd, Radcliff, KY 40160

TELEPHONE #: 270-351-3222 EMAIL: dclifford@hcwd.com

2. AGENT: Seth Fischer, P.E.  
Give name of person(s) submitting application, if other than owner.  
ADDRESS: 8550 Kingston Pike Knoxville, TN 37919

TELEPHONE #: 865-670-8555 EMAIL: sfischer@cannon-cannon.com

3. ENGINEER: Timothy F. Tucker P.E. NUMBER: 27141  
Contact Division of Water if waiver can be granted.  
TELEPHONE #: 865-670-8555 EMAIL: ttucker@cannon-cannon.com

4. DESCRIPTION OF CONSTRUCTION: \_\_\_\_\_  
Describe the type and purpose of construction and describe stream/wetland impact

Installation of 8,020 LF of 16" class 350 ductile iron transmission main to serve wholesale customer and meet increased demand. Includes perpendicular trenchless crossing by bore beneath Otter Creek.

5. COUNTY: Hardin/Meade NEAREST COMMUNITY: Vine Grove

6. USGS QUAD NAME Flaherty LATITUDE/LONGITUDE: 37.824776, -86.011514

7. STREAM NAME: Otter Creek WATERSHED SIZE (in acres): 12,546

8. LINEAR FEET OF STREAM IMPACTED AND/OR ACRES OF WETLAND IMPACT: 20

9. DIRECTIONS TO SITE: \_\_\_\_\_

From I-65 take exit 102 for KY-313N/Joe Prather Hwy. Follow KY-313N/Joe Prather Hwy for 15.2 miles. Stream crossing is just past Ditto Lane and before you reach KY-1882/Old Fort Ave



10. IS ANY PORTION OF THE REQUESTED PROJECT NOW COMPLETE? ☐ Yes ☒ No If yes, identify the completed portion on the drawings you submit and indicate the date activity was completed. DATE: \_\_\_\_\_
11. ESTIMATED BEGIN CONSTRUCTION DATE: October 2016
12. ESTIMATED END CONSTRUCTION DATE: October 2017
13. HAS AN APPLICATION BEEN SUBMITTED TO THE US ARMY, CORPS of ENGINEERS? ☒ Yes ☐ No
14. AN APPLICANT FOR A PERMIT TO CONSTRUCT ACROSS OR ALONG A STREAM MUST ADDRESS PUBLIC NOTICE:
- (a) PUBLIC NOTICE HAS BEEN GIVEN FOR THIS PROPOSAL BY THE FOLLOWING MEANS:
- \_\_\_\_\_ Public notice in newspaper having greatest circulation in area (provide newspaper clipping or affidavit)
- \_\_\_\_\_ Adjacent property owner(s) affidavits (Contact Division of Water for requirements.)
- (b) X I REQUEST WAIVER OF PUBLIC NOTICE BECAUSE:
- \_\_\_\_\_ water line will be entirely under ground and will not impact flood levels. No change to floodplain.
- \_\_\_\_\_ Contact Division of Water for requirements.

**\* PUBLIC NOTICE FOR 401 WATER QUALITY CERTIFICATIONS IS GOVERNED BY 401 KAR 9:010**

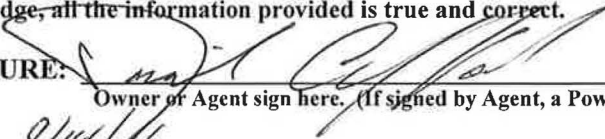
15. I HAVE CONTACTED THE FOLLOWING CITY OR COUNTY OFFICIALS CONCERNING THIS PROJECT:
- Melvin Atcher Planning & Development (Local Floodplain Coordinator) Vine Grove, KY 270-272-2800
- \_\_\_\_\_ Give name and title of person(s) contacted and provide copy of any approval city or county may have issued.

16. LIST OF ATTACHMENTS: USGS Topographic map, plan, profile
- \_\_\_\_\_ List plans, profiles, or other drawings and data submitted. Attach a copy of a 7.5 minute USGS topographic map clearly showing the project location.

17. I, James Bruce (owner) CERTIFY THAT THE OWNER OWNS OR HAS EASEMENT RIGHTS ON ALL PROPERTY ON WHICH THIS PROJECT WILL BE LOCATED OR ON WHICH RELATED CONSTRUCTION WILL OCCUR (for dams, this includes the area that would be impounded during the design flood).

18. REMARKS: \_\_\_\_\_

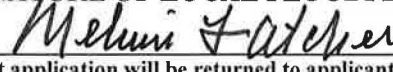
I hereby request approval for construction across or along a stream as described in this application and any accompanying documents. To the best of my knowledge, all the information provided is true and correct.

SIGNATURE: 

Owner or Agent sign here. (If signed by Agent, a Power of Attorney should be attached.)

DATE: 9/14/16

SIGNATURE OF LOCAL FLOODPLAIN COORDINATOR:

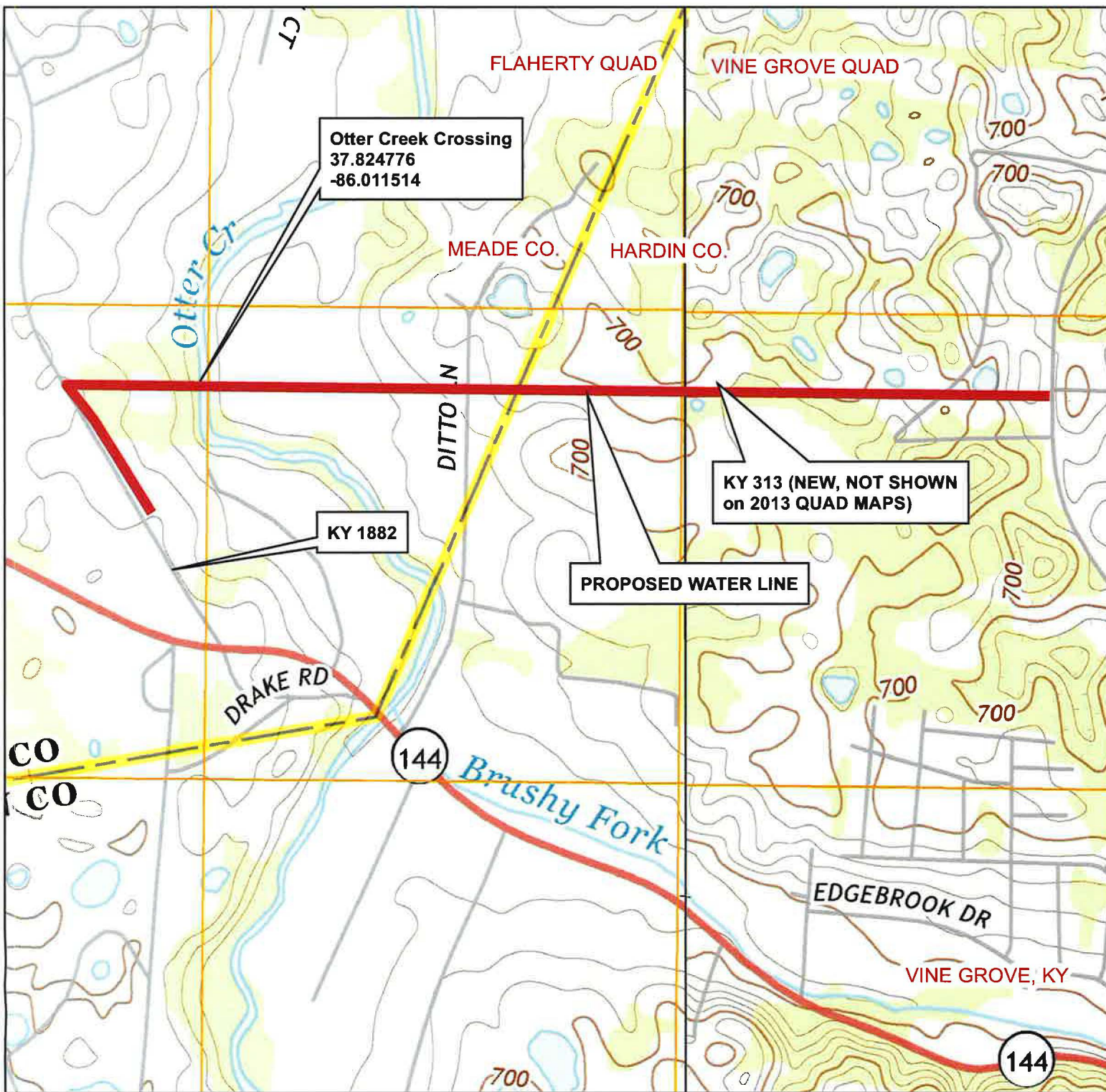


Permit application will be returned to applicant if not properly endorsed by the local floodplain coordinator.

DATE: 9/14/16

SUBMIT APPLICATION AND ATTACHMENTS TO:

Floodplain Management Section  
Division of Water  
200 Fair Oaks Lane  
Frankfort, KY 40601



N

**Legend**  
 Proposed Water Line

05001,000

Feet

Scale: 1" = 1,000 feet

4187

Hardin

County

1

Water

District

**CANNON & CANNON** INC

CONSULTING ENGINEERS • FIELD SURVEYORS

Tel: 865.670.8555

8550 Kingston Pike

www.cannon-cannon.com

Knoxville, TN 37918

HWYS 1882 & 144 WATER

TRANSMISSION MAIN

REPLACEMENT

EXHIBIT 1 USGS QUAD

FLAHERTY / VINE GROVE QUADS



**DEPARTMENT OF THE ARMY**  
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE  
CORPS OF ENGINEERS  
P.O. BOX 59  
LOUISVILLE KY 40201-0059  
FAX: (502) 315-6677  
<http://www.lrl.usace.army.mil/>

September 27, 2016

Operations Division  
Regulatory Branch (South)  
ID No. LRL-2016-00997-teh

Mr. Seth Fischer  
Cannon & Cannon, Inc.  
8555 Kingston Pike  
Knoxville, Tennessee 37919

Dear Mr. Fischer:

This is in regard to your application of September 27, 2016, submitted on behalf of Hardin County Water District No. 1, concerning a proposal to boring under Otter Creek along Hwy 313 near Vine Grove, Hardin County, Kentucky. We have reviewed the submitted application in accordance with the provisions of Section 404 of the Clean Water Act.

Based on the information submitted by you, it does not appear that a Department of the Army permit will be needed since the project referenced above would not involve a discharge of dredged and/or fill material below the Ordinary High Water elevation of any "waters of the United States (U.S.)" or any wetlands. "Waters of the U.S." include all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce. This jurisdictional determination is valid for a period of 5 years from the date of this letter unless new information warrants revision of the determination before the expiration date.

If the project would necessitate the discharge of dredged or fill material into "waters of the U.S.," including wetlands, plans should be submitted for our review.

Our comments on this project are limited to only those effects which may fall within our area of jurisdiction and thus does not obviate the need to obtain other permits from State or local agencies. Lack of comments on other environmental aspects should not be construed as either concurrence or nonconcurrence with stated environmental effects.

If we can be of any further assistance, please contact us by writing to the above address, ATTN: CELRL-OPF-S, or by calling me at 502-315-6683. Any correspondence on this matter should refer to our ID Number LRL-2016-00997.

Sincerely,

*Todd E. Hagman*

Todd E. Hagman  
Project Manager  
South Section  
Regulatory Branch



**Matthew G. Bevin**  
Governor

**COMMONWEALTH OF KENTUCKY**  
**TRANSPORTATION CABINET**  
Department of Highways, District 4 Office  
634 East Dixie Highway  
Elizabethtown, Kentucky 42701  
(270) 766-5066  
[www.transportation.ky.gov/](http://www.transportation.ky.gov/)

**Greg Thomas**  
Secretary

October 21, 2016

Hardin County Water District #1  
Daniel Clifford  
1400 Rogersville Rd.  
Radcliff, Kentucky 40160

Subject: Permit #: 04-2016-00331  
Permit Type: Utilities - Water  
Approval

Dear Applicant:

Attached is your permit approval and documentation for the subject permit.

Be advised that all work must be done in conformity with permit and application conditions. If you have any questions, please contact the Permits Section at this office.

Sincerely,

Kevin Blain  
D4 Permits - Supervisor

Attachments



An Equal Opportunity Employer M/F/D





Kentucky Transportation Cabinet  
Department of Highways  
Division of Maintenance  
Permits Branch

TC 99-1 (B)  
03/2016  
Page 1 of 1

**ENCROACHMENT PERMIT**

**KEPT No.:** 04-2016-00331  
**Permittee:** Hardin County Water District #1  
**Permit Type / Subtype:** Utilities / Water  
**Work Completion Date:** 9/15/2017

INDEMNITIES		
Type	Amount Required	Tracking Number
Performance Bond	\$0.00	
Cash / Check	\$0.00	
Self-Insured	\$0.00	
Payment Bond	\$0.00	
Liability Insurance	\$0.00	

This permit has been: **APPROVED** ☒ **DENIED** ☐

Kevin Blain	D4 Permits - Supervisor	10/20/2016
<b>SIGNATURE</b>	<b>TITLE</b>	<b>DATE</b>

The TC 99-1(B), including the application TC-99 1(A) and all related and accompanying documents and drawings make up the permit. It is not a permit unless both the TC 99-1(A) and TC 99-1(B) are both present.

LOCATION(S)			
Description	County - Route	Latitude	Longitude
	Hardin - KY 313	37.811875	-85.952108



Kentucky Transportation Cabinet  
Department of Highways  
Permits Branch

TC 99-1 (A)  
1/2015  
Page 1 of 4

APPLICATION FOR ENCROACHMENT PERMIT

Permittee Information		KYTC No.	
Name	Hardin County Water District No. 1	Permit Information	
Address	1400 Rogersville Rd	Address	Joe Prather Hwy/KY 313
		City	Vine Grove
City	Radcliff	State	KY Zip 40175
State	KY Zip 40160	County	Hardin/Meade
Phone#	270-351-3222	Route No.	313 Mile-Point
Contact	Seth Fischer	Longitude (X)	-86.005493
Phone	865-670-8555 Cell	Latitude (Y)	37.824729
Email	sfischer@cannon-cannon.com	Information below to be filled out by KYTC	
Contact	Daniel Clifford	<input type="checkbox"/> Air Right	<input type="checkbox"/> Entrance
Phone	270-351-3222 Cell	<input type="checkbox"/> Utilities	<input type="checkbox"/> Other: _____
Email	dclifford@hcwd.com	<input type="checkbox"/> Left	<input type="checkbox"/> Right <input type="checkbox"/> X-ing
		Access:	<input type="checkbox"/> Full <input type="checkbox"/> Partial <input type="checkbox"/> by Permit

General Description of Work:

Install approximately 8,020 LF of 16" DIP water transmission main parallel encroachment along KY 313/Joe Prather Hwy from KY 1500/Knox Ave to KY 1882/Old Fort Ave and along KY 1882/Old Fort Ave from KY 313/Joe Prather Hwy to KY 144/Flaherty Rd. Water line will generally be installed 5 feet inside the ROW fence. Involves a trenchless, perpendicular crossing of Otter Creek by bore.

THE UNDERSIGNED PERMITTEE(s) (being duly authorized representative(s) or owner(s)) DO AGREE TO ALL TERMS AND CONDITIONS ON THE TC 99-1 (A).

Signature

Date

This is not a permit unless and until the permittee(s) receives an approved TC 99-1(B) from KYTC. This application shall become void if not approved by the cancellation date. The cancellation date shall be one year from the date the permittee submits their application.

# Hardin County Water District No. 1

*Serving Radcliff and Hardin County for Over 60 Years*

1400 Rogersville Road  
Radcliff, KY. 40160

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September 8, 2016

Mr. Kevin Blain  
Kentucky Transportation Cabinet  
Department of Highways, District 4  
Permit Section Supervisor  
634 East Dixie, P.O. Box 309  
Elizabethtown, KY 42702

**SUBJECT: HWY 1882 & HWY 144 Water Transmission Main Replacement  
Encroachment Permit Package - Hardin County Water District No. 1**

Dear Mr. Blain,

Please find attached the following documents for your review and approval:

- Application for Encroachment Permit
- Water Main Construction Plans
- Waterline Standard Details

The project includes approximately 8,020 LF of 16 inch ductile iron water main within the right-of-way (ROW) of KY 313/ Joe Prather Highway and KY 1882/ Old Fort Ave. The encroachment will be parallel with no crossings of state highways. The water line will generally be installed approximately five feet inside the ROW fence and a minimum of 25 feet from the edge of shoulder (often more).

Hardin County Water District No. 1 and Cannon & Cannon, Inc. are requesting to install the water line in the ROW instead of private easement due to the following conditions:

1. The project is federally funded through an RD loan. Eliminating the need for private easements allows a greater percentage of funding to be applied toward construction of the critical water line. The purpose of the water line is to provide a new wholesale interconnection with Meade County Water District, allowing them to meet current and projected demands and encourage development in rural Meade and Hardin County.



2. The water line will closely follow the ROW fence with a 5 foot offset and will be a minimum of 25 feet from the edge of shoulder and often over 50 feet.
3. Construction and maintenance will have minimal impact to traffic and no impact to the existing highways.
4. The water line will be installed on the south ROW of KY 313/ Joe Prather Highway. The majority of existing ROW available for future widening of the highway is on the north side. Our design intent is that the water line would not be affected by any future widening projects.
5. Vine Grove has an existing sanitary sewer force main just outside ROW. In order to maintain the required 10 foot separation between drinking water and sanitary sewer, the water line would have to be at least 30 to 40 feet onto private property.
6. There will be no above ground structures to interfere with ROW maintenance and mowing. Fire hydrants will be placed on or outside the ROW line. Butterfly valves, air release valves, and leak detection stations will be flush with the existing grade to avoid interference with maintenance equipment.
7. Installation in previously cleared ROW will eliminate the need for clearing additional trees/habitat.

The encroachment permit and any special provisions issued by KYTC will be included with the Special Conditions of the Contract Documents.

Please do not hesitate to contact me at 270-351-3222 or [DClifford@hcwd.com](mailto:DClifford@hcwd.com) if you have any questions or require any additional information. Thank you in advance for your consideration of this application.

Sincerely,



Daniel Clifford, HCWD No. 1, Engineering Manager

Cf; Seth Fisher, P.E., Cannon & Cannon Inc.