COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF NORTHERN KENTUCKY WATER DISTRICT FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A 36" LICKING RIVER CROSSING AND APPROVAL OF FINANCING	))))	**CASE NO. 2022-00209**

APPLICATION

Northern Kentucky Water District ("NKWD"), by and through counsel, petitions the Commission for an order authorizing for a Certificate of Public Convenience and Necessity for construction of a 36" Licking River Crossing pursuant to KRS 278.020 and approval of financing pursuant to KRS 278.300. In support of this Application, NKWD states as follows:

GENERAL INFORMATION

1. NKWD states pursuant to **807 KAR 5:001(14)** that its office address is 2835 Crescent Springs Rd., Erlanger, Kentucky 41018-0640. Its principal officers are listed in its current Annual Report, which is filed with the Commission as are its prior years Reports.

2. Pursuant to **807 KAR 5:001(14)**, NKWD states it is a non-profit water district organized under Chapter 74 and has no separate articles of incorporation; its web page is www.nkywater.org. Its contact officers and employees are:

Lindsey Rechtin Incoming President/CEO Vice President of Finance and Support Services 2835 Crescent Spring Road Erlanger, KY 41018 Phone: (859) 578 9898 Fax: (859) 578-3668 Email: lrechtin@nkywater.org	Tom Edge General Counsel and Manager of Legal, Compliance, and Regulatory Affairs 2835 Crescent Spring Road Erlanger, Kentucky 41018 Phone: (859) 578 5457 Fax: (859) 578-3668 Email: tedge@nkywater.org

3. A description of NKWD's water system and its property stated at original cost by accounts is

contained in its Annual Report, which is incorporated by reference.

4. NKWD serves retail customers in Kenton, Boone and Campbell Counties and sells water at wholesale to non-affiliated water distribution systems in Kenton, Boone, Pendleton and Campbell Counties.

CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY

5. NKWD proposes to construct new facilities as described in Exhibit A. A motion for Confidentiality for the plans and drawings, a portion of Exhibit A-6 has been submitted with this Application.

6. The proposed construction project identified in Exhibit A is scheduled to begin construction in upon PSC approval and beginning in October 2022 and completed in October 2023. Board approval of the final bids for the project is included in Exhibit C. The bids were opened June 16, 2022 and are subject to acceptance for 90 days. **The bids will expire September 14, 2022.**

7. This project was recommended as part of the Asset Management Program, updated in 2011, an excerpt of which is attached as Exhibit A-3.

8. The construction is in the public interest and is required to allow NKWD to continue to provide adequate service to its customers. The project, its cost, need and other details are contained in Exhibits A -1 through A-6.

9. NKWD has received approvals from the DOW for the Plans and Specifications and funding for these improvements in addition to approval of a stream crossing permit from the U.S. Army Corp of Engineers. See Exhibit B.

10. A copy of the Bid Tabulation for this project, along with the Engineer's Recommendation of Award and minutes of NKWD's Board of Commissioner's meeting approving the award are contained in Exhibit C-1 through C-3.

11. The project finance information including: (i) customers added and revenue effect; (ii) debt issuance and source of debt; (iii) USoA Accounts; (iv) additional costs for operating and maintenance; and (v) depreciation costs and debt service after construction is contained in Exhibit D.

12. Information on NKWD's Mortgages, Bonds, Notes and Other Indebtedness is included in Exhibit E along with KIA approval letter, Assistance Agreement, and notification to the state local debt officer. NKWD is seeking approval to use a total $3,477,000.01 from KIA Loan F13-012 to partially finance the project. See Exhibit E-2.

13. NKWD's Financial Statements are included as Exhibit F and an Affidavit for this Application is included as Exhibit G.

14. No rate adjustment is being proposed as part of this Application.

15. The following information is provided pursuant to **807 KAR 5:001(15)(2)**:

a. Specifications and descriptions are in Exhibit A. The construction is in the public interest and is required to allow NKWD to continue to provide adequate service to its customers. Facts relied on to justify the public need are included in the project descriptions in Exhibit A-1.

b. No new franchises are required. Copies of permits from the proper public authority for the proposed construction are in Exhibit B.

c. A full description of the proposed location and route of the proposed construction including a description of the manner of the construction and related information is in Exhibit A. The project will not compete against any other public utility in the area.

d. A Project Map is included as Exhibit A-2.

e. This project will be paid from $3,322,999.99 from the Operational Capital Budget Line Number 13-975 "Licking River Crossing" and $3,477,000.01 from an $8,000,000 State Revolving Fund ("SRF") Loan which includes construction cost, engineering, and

contingencies. A summary of the project costs is provided below:

Design Engineering	$201,177.00
Contractor's Bid	$5,787,000.00
Easements & CS Encroachment Permit	$70,048.00
Materials for NKWD to cut in 2 tees	$137,940.00
Misc. & Contingencies	$603,835.00
TOTAL PROJECT COSTS:	$6,800,000.00

The SRF Loan is for $8,000,000 and the draw for this project is $3,477,000.01, at an interest rate of 1.75 percent and an additional loan servicing fee of 0.25 percent, for a term of twenty years as more particularly described in Exhibit E-2. Although the project costs are more expensive due to the additional SRF Loan requirements, the District expects to see overall savings as current market interest rates are significantly higher than the SRF Loan interest rate. Project financial information is outlined Exhibit D and the KIA approval letter is included in Exhibit E-2.

16. Pursuant to **807 KAR 5:001(12)(1)**, Financial operations for the twelve-month period not less than 90 days prior is attached hereto in Exhibit F.

17. The following information is provided pursuant to **807 KAR 5:001(12)(2)**:

a. No stock is authorized.

b. No stock is issued.

c. There are no stock preferences.

d. Mortgages are listed in Exhibit E.

e. Bonds are listed in Exhibit E.

f. Notes are listed in Exhibit E.

g. Other indebtedness is listed in Exhibit E.

h. No dividends have been paid.

i. Current balance sheet and income statement are attached as Exhibit F.

18. Pursuant to **KRS 322.340**, Engineering plans, specifications, drawings, plats and reports for the proposed construction or extension prepared by a registered engineer are signed, sealed and dated by an engineer registered in Kentucky are included as Exhibit A.

FINANCING

19. In addition to the issuance of a Certificate of Public Convenience and Necessity, to the extent that the Commission will permit, NKWD seek Commission authorization to use the remaining proceeds of KIA Loan F13-012 for the construction of 36-inch Licking River Crossing. NKWD will not expend any of the remaining loan proceeds until it has obtained a CPCN for the 36-inch Licking River Crossing and either Commission authorization for such use of the loan proceeds or a Commission Order disclaiming authority to address NKWD's request for authorization. See Exhibit G for summary of KIA Loan F13-012.

20. NKWD desires to finance $3,477,000.01 of the total project costs through a 2013 SRF Loan. See Exhibit E-2 for the Assistance Agreement and Exhibit G for summary of the KIA Loan F13-012. The remaining $3,322,999.99 will be funded through the NKWD's Operational Capital Budget.

21. The following information is provided as required by **807 KAR 5:001(18)(1)**:

a. The information required by **807 KAR 5:001(14)** is contained within this Petition generally and within paragraphs 1-4 specifically as if fully rewritten herein;

b. A general description of the property is contained in the NKWD 2021 Annual Report filed with the Public Service Commission is incorporated and available at: https://psc.ky.gov/UFR_PDF/%5CWater%5C2021%5C7000200_Northern_Kentuck

y Water District.pdf. The Annual Report and attached financial information are the latest available from NKWD.

No stock or bonds are to be issued as part of this case. NKWD desires to enter into a SRF Loan for $8,000,000, with $3,477,000.01 being drawn for this project, at an interest rate of 1.75 percent and an additional loan servicing fee of 0.25 percent, for a term of twenty years as more particularly described in Exhibit E-2. Project financial information is included as Exhibit D.

c. The proceeds of the SRF Loan are to construct the project described in Exhibit A.

d. A detailed description of property to be acquired, constructed, improved or extended is included in Exhibit A and Exhibit B.

e. There is no refunding or refinancing proposed herein.

f. The notice to the state debt officer required by 807 KAR 5:001(18)(1)(g) is attached as Exhibit E-3.

22. The following exhibits are provided pursuant to **807 KAR 5:001(18)(2)**:

a. Financial Exhibits, pursuant to **807 KAR 5:001(12)**, are included as Exhibit F.

b. There are no trust deeds. All notes, mortgages and other forms of indebtedness are included as Exhibit E.

c. Maps and plans of property constructed or acquired are listed in Exhibit A.

23. Pursuant to **KRS 278.300**, this Application is made under oath through an Affidavit located in Exhibit G.

For these reasons, NKWD requests issuance of an order granting authority to construct and finance the facilities and for any other authorizations that may be necessary.

RESPECTFULLY SUBMITTED:

Tom Edge (KBA #95534)
General Counsel
Manager of Legal, Compliance, and Regulatory Affairs
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Counsel for Northern Kentucky Water District

CERTIFICATE OF SERVICE

In accordance with 807 KAR 5:001, Section 8, I certify that this document was submitted electronically to the Public Service Commission on July 22, 2022 and that there are currently no parties that the Public Service Commission has excused from participation by electronic means in this proceeding.

Tom Edge, Esq. (KBA #95534)

EXHIBIT LIST

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Northern Kentucky Water District

EXHIBIT A

ENGINEERING REPORTS AND INFORMATION

Northern Kentucky Water District

EXHIBIT A-1

PROJECT DESCRIPTION

Proposed Licking River Crossing Project
(WX21037003 – Contract 2)
Cities of Wilder / Covington
Campbell / Kenton County, Kentucky
184-0749

PROJECT DESCRIPTION

The Licking River Crossing Project will install approximately 3,140 linear feet of 36-inch ductile iron and high-density polyethylene (HDPE) water main along South Street and Andrews Way in Wilder, under the Licking River, to approximately 250 feet north of Summit Drive in Covington.

The District maintains an existing 36-inch concrete water main that runs under the Licking River between Fredrick's Landing (Campbell County) and Twin Oaks Golf Course (Kenton County). This water main is the primary feed to the pumping station at the Taylor Mill Treatment Plant. This pumping station serves the majority of our Kenton County service area, and this pipe is necessary to convey water to the plant and pumping station.

The District's Water Distribution System Master Plan identified the need for a redundant water main parallel to the existing 36-inch concrete water main. If any repairs need to be made to the existing water main under the river, it could take several weeks or even months, which would affect a large part of our customer base.

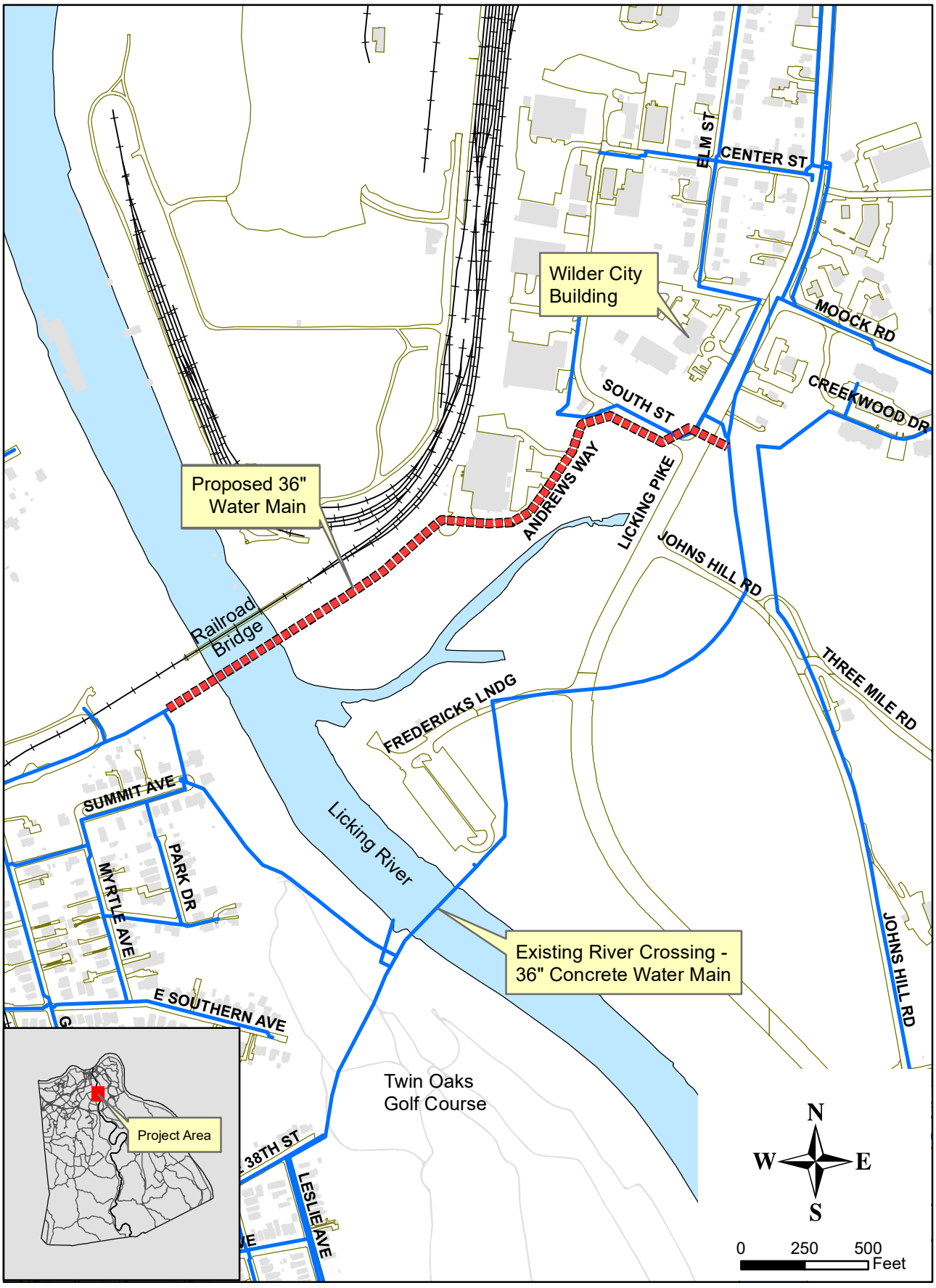
The proposed project involves the use of horizontal directional drilling to install 1,220 linear feet of 36-inch HDPE water main approximately 25 feet below the bottom of the Licking River. To connect the river crossing to the existing system will involve the installation of an additional 1,920 linear feet of 36-inch ductile iron water main via traditional open cut methods on either side of the river.

Bids for this project were opened on June 16, 2022 and are subject to acceptance for until September 14, 2022.

Northern Kentucky Water District

EXHIBIT A-2

PROJECT MAP



Licking River Crossing

EXHIBIT A-3

ASSET MANAGEMENT PROGRAM EXCERPTS

Northern Kentucky Water District

IV. Identified Needs and Improvements

4775-011

GRW, Inc.

MALCOLM PIRNIE

4. Identified Needs and Improvements

4.1. Large Capital Projects in 5-Yr CIP

The results of the asset renewal and replacement planning were combined with evaluations of alternatives to meet the District's needs in areas of increased capacity and regulatory compliance. Areas of focus for this AMP Update included:

- Raw Water Supply
- Water Treatment Plants
- Pumping Stations and Storage Tanks
- Other (including laboratory equipment)

4.1.1. Raw Water Supply Evaluation

4.1.1.1. Ohio River Pump Station No. 2

In the 2004 Asset Management Plan, NKWD identified the Ohio River Pump Station No. 2 (ORPS2) as one of the Districts' assets that was most critically in need of improvements. The 100 plus year old pump station delivers raw water to the Memorial Parkway Water Treatment Plant (MPTP). Currently, ORPS2 contains three 10 MGD pumps with one of the three being inoperable. The remaining two pumps are able to provide the necessary 10 MGD firm capacity of raw water necessary at the MPTP. To accommodate their expanding service population over the foreseeable future, NKWD has decided to upgrade the capacity at the MPTP to 15-20 MGD at some point during the duration of this planning period. The timing of this improvement depends on available treatment plant capacity pending detailed hydraulic analyses. In order to meet that increased raw water demand and address the identified physical condition of the pump station, NKWD has several alternatives to satisfy these necessary improvements. This analysis will evaluate the raw water pumping alternatives and provide preliminary capital cost estimates associated with each alternative to assist NKWD in the critical task of improving their raw water intake asset in ORPS2.

The first alternative available to the District (Alternative A) would be a complete rehabilitation and upgrade of the existing ORPS2. The renovated pump station would house two 12 MGD pumps to meet off-peak pumping capacity needs and a third 12 MGD pump would be added giving ORPS2 a future firm pumping capacity of 24 MGD. The pump station's concrete and brick have significantly deteriorated over the years and rehabilitation would be challenging and unpredictable. Numerous amounts of structural

and destructive testing would have to be performed to accurately assess the condition of the existing superstructure. It is also not conceivable to assume the continued operation of this facility during the rehabilitation process. It is very possible that ORPS2 could be out of service for almost two years during construction. Because of the building's being listed as a historical site by the AWWA, any rehabilitation and upgrade efforts must retain the historical integrity of the structure. This alternative would result in larger design fees and disclaimers associated with the unpredictability and dangers present with the task of renovating a 100 plus year old facility. Further, by providing this summary of probable costs, Malcolm Pirnie and GRW are in no way conclusively stating that a rehabilitation of this facility can actually be accomplished.

Table 4-1.
Probable Costs for Alternative A - Rehabilitate and Upgrade Existing ORPS2

Item	Cost
Structural renovation (floors, walls, roof, etc.)	$10,800,000
Protective Cofferdams in River	$1,600,000
Equipment (HVAC, electrical, etc.)	$1,800,000
Misc. Improvements (bar screens, stairs, etc.)	$2,900,000
Three 12 MGD Pumps	$2,450,000
Back-up Generator	$1,700,000
24" DIP from PS to Top of Hill	$1,700,000
24" DIP from Top of Hill to MPTP	$2,300,000
Design and Fees (40%)	$10,100,000
Subtotal	**$35,350,000**
Contingency (40%)	$14,150,000
Total	**$49,500,000**

The second alternative available to the District (Alternative B) would be to retire the existing ORPS2 and replace it with a new 24 MGD intake structure and pumping facility. The new pump station would also house three 12 MGD pumps giving the ORPS2 a firm pumping capacity of 24 MGD. A large percentage of the cost for this alternative would be in the rock excavation for the superstructure, the building of coffer dams, and the pumping equipment itself. This alternative would provide NKWD a new, reliable source of raw water in comparison to what is currently available. Since there is no retrofitting to an existing facility, this alternative provides minimal effect on current operations during construction. This alternative also provides more flexibility in design and offers a greater accuracy in estimating construction costs.

Table 4-2.
Probable Costs for Alternative B - Replace ORPS2 with a New Intake & Pumping Facility

Item	Cost
Raw Water Intake Structure and Equipment	$22,400,000
Electrical Services Updates	$500,000
Back-up Generator	$1,700,000
24" DIP from PS to Top of Hill	$1,700,000
24" DIP from Top of Hill to MPTP	$2,300,000
Design and Fees (25%)	$7,150,000
Subtotal	**$35,750,000**
Contingency (25%)	$8,900,000
Total	**$44,650,000**

The third alternative available to the District (Alternative C) would be to retire the existing ORPS2 and supply MPTP from the existing Ohio River Pump Station No. 1 (ORPS1). Currently, ORPS1 is nominally sized for six 12 MGD pumps and supplies the District's Fort Thomas Water Treatment Plant (FTTP). The FTTP has a rated capacity of 44 MGD and the firm capacity of ORPS1 is 60 MGD. Due to site constraints, a future expansion of the FTTP has not been considered. If ORPS1 is also to supply MPTP with the future treatment capacity of 15-20 MGD, then an upgrade and possible expansion of ORPS1 would be necessary to circumvent any redundancy and reliability issues. The first option considered was to upgrade the size of the existing pumps at ORPS1 therefore raising the firm capacity at the pump station to supply raw water to both treatment plants. As it currently stands, the weight of each existing pump meets or narrowly exceeds the floor loading design capacity of the pump foundation at ORPS1. Therefore, due to floor loading issues, it is not feasible to just upgrade the size of the pumps currently in ORPS1 without considering methods to increase the floor loading capacity and pipe gallery modifications. This option was not further considered due to the assumption that it is not feasible to remove ORPS1 from service to accomplish the structural and piping modifications. The second option would be to build an addition onto the current ORPS1 structure that could house three 10 MGD pumps giving ORPS1 an additional 20 MGD of firm capacity. This would provide NKWD with the capacity and reliability to now provide MPTP with raw water from ORPS1. In addition to the upgrades at ORPS1, a transmission main would need to be constructed to supply MPTP with raw water from ORPS1. This option is the basis for the costs presented below in Table 4-3. This alternative will no longer provide the District with the redundancy of having two separate raw water intake pumping sources and would require significant hydraulic modeling to ensure proper pumping operations.

Table 4-3.
Probable Costs for Alternative C - Retire ORPS2 and Supply MPWTP from Existing ORPS1

Item	Cost
Pumping Station Structure Upgrades	$17,250,000
Three 10 MGD Pumps	$1,950,000
Changes to ORPS1 Gallery Piping	$1,150,000
24" DIP from ORPS1 to ORPS2	$2,700,000
24" DIP from ORPS2 to Top of Hill	$1,700,000
24" DIP from Top of Hill to MPTP	$2,300,000
Additional Back-up Generator	$1,700,000
Electrical Services Updates	$500,000
Design and Fees (25%)	$7,300,000
Subtotal	**$36,550,000**
Contingency (30%)	$11,000,000
Total	**$47,550,000**

All estimates do not include any costs associated with easement or land acquisition. The costs for Alternatives B and C are similar, but Alternative B is being recommended because it provides more redundancy and less disruption to operations at ORPS1. However, additional detailed evaluation would needed to verify costs for these options.

4.1.1.2. Licking River Pump Station

The following level of service improvements were identified during a site visit to the Licking River Pump Station and are included in the 5-year CIP as 09-05.

- **Improvements to the Building Superstructure** - A large number of structural deficiencies that were identified in the 2004 AMP have been addressed. A number of small cracks were still visible in the concrete and brick on both the interior and exterior of the building. The current condition of the roof is unsatisfactory and operations staff indicated there is no efficient method to remove and service the station's pumps. Current openings in the roof to pull pumps are not sized properly creating difficulties when removed via crane on the Licking River. It is recommended that a new roof be installed with properly sized hatches to facilitate removal of the pumps along with a new 2-ton hoist. Hatches should double as sky lights to improve lighting inside the pump room. Ventilation inside the building is provided by one roof mounted fan and one wall fan with fresh air louvers located on the river side wall. Temperatures inside the building were slightly higher than normal with both ventilation fans running. The operations staff indicated some deterioration in some of the ladders used to maneuver alongside the exterior of the building. The District expressed interest in implementing a programmatic approach to building maintenance allowing a budgeted amount of money to be set aside each year to aide

in the rehabilitation efforts of the building. The estimated annual cost for building rehabilitation is $40,000/year. The estimated cost for roof replacement is $205,000.

- **Replacement of Sluice Gates** - Currently there are three sluice gates located at various points of the intake structure that have not been operated in several years, according to the operations staff, and need to be replaced. The majority of this work would need to be completed in wet conditions by divers. A capital cost was generated to replace the current gates as well as their corresponding electric operators. The estimated cost to replace the sluice gates is $185,000.
- **Raw Water Main Relocation** - The aerial portion of the 16" raw water main that runs across the Licking River was previously identified as a security risk in a vulnerability assessment due to the lack of redundancy. However, discussion on feasibility of building this line suggests this is not a realistic budget and it may not be possible to build a buried main at this site (affordably). This project is being removed from the budget.
- **Variable Frequency Drive Pump Upgrade and Relocation** - NKWD and its operations staff indicated strong interest in moving the existing drives and MCC out of the pump station into a newly constructed, climate controlled electrical building located on the river bank side of the walk bridge (approximately 400 feet from the pumps). This change would also correspond with installation of variable frequency drives on the remaining two pumps. These improvements would improve reliability, provide operational flexibility and result in a facility that is more easily maintained. Also, by moving the existing drives and MCC outside of the pump room, this will improve any current deficiencies in ventilation. The estimated cost for upgrading and relocating the VFD are $940,000. To perform this work the follow tasks are required:

1. New VFD's to control current 150 Hp, 250 Hp and 350 Hp pump motors.
2. New building to house the MCC and VFD drives.
3. New MCC with service rated feed along with TVSS.
4. New service feeds to the pumps out from the new building.
5. Commissioning, tuning and debugging of the new drives.
6. Spare parts needed for the VFD's.
7. The demolition work needed for removal of the drives, conduit and wire, clean up, removal of the old electrical feed to the motors and MCC.
8. Installation of the new motor (need to be at least a class F to handle the VFD requirements).
9. New service feed to the new MCC panel.

4.1.2. Water Treatment Plant Evaluation

4.1.2.1. Memorial Parkway WTP

Regulatory

Regulatory needs at the Memorial Parkway WTP include the addition of granular activated carbon (GAC) for advanced treatment to meet the Stage 2 Disinfectant/Disinfection By-product (D/DBP) Rule and potentially a UV disinfection facility to meet the Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR), or to provide an additional disinfection barrier.

Several site alternatives were analyzed and the selected alternative was to locate the GAC facility in the footprint of Sedimentation Basins No. 5 and No. 6. The following assumptions for capacity and redundancy were made in developing the basis of design for the GAC facilities:

- The GAC facility will include 6 GAC contactors, GAC feed pump station, GAC backwash system, contactor-to-waste function, combination backwash waste/contactor-to-waste equalization basin, and carbon loading/unloading facilities.
- Normal operation will provide at least a 20-minute EBCT with all contactors in-service at a maximum production rate of 20 MGD.
- Duty and standby pumps are provided for each of the pumping systems required for these facilities.
- Provisions to enable incorporation of UV disinfection at the future treatment capacity of 20 MGD.

All six GAC contactors will have the same type of equipment and operational mode as shown in Table 4-4.

Table 4-4.
Design Criteria for GAC Contractors MPTP

Parameter	Value
No. of Contactors	6
Contactor Length (feet)	34
Contactor Width (feet)	15
Surface Area per Contactor (sf)	510
GAC Media Depth (inches to top of underdrain)	144
Design Flow per Contactor at Current Design Capacity (MGD)	3.3
Surface Loading Rate at Current Design Capacity (gpm/sf)	4.5

As the preliminary design progressed, a final opinion of probable costs was developed. The cost opinion is considered a Class 3 estimate in accordance AACE and has a predicted accuracy of -20% to +30%. The detailed cost opinion is shown in Table 4-5, and includes the UV disinfection facility.

Table 4-5.
Opinion of Probable Project Costs-MPTP

Item	Capital Cost ($ Million)
GAC Facilities (Contactor building, site work, GAC PS, EQ Basin)	$18.5
UV Facility	$2.3
Contingency	$4.1
Engineering (Legal, administration)	$3.1
Total	**$28.0**

Capacity

Capacity needs at the MPTP will include an upgrade of the plant capacity from a 10 MGD to 15 MGD or 20 MGD facility sometime between 2020 and 2030. Additional coagulation, sedimentation, filter, clearwell and pumpage capacity is anticipated.

Level of Service

During a recent site visit to the MPTP facility, a number of items were identified in need of repair. The findings of this visit are described in the following paragraphs.

- **Replacement of Raw Water Reservoir suction/discharge piping** - The District indicated, during our site visit, that the original suction/discharge piping located at

both existing raw water lagoons is undersized therefore creating a hydraulic bottleneck that possibly limits the capacity of the treatment plant. This piping supplies the raw water pump station by conventional gravity methods. It is recommended that the existing suction/discharge piping be upsized and replaced to accommodate additional capacity at MPTP. Estimated cost is $285,000.

- **Dredging of Residuals in North and South Raw Water Reservoirs (2012-2013)** - The South Reservoir is currently being used as the raw water presedimentation basin and feeds the plants raw water pump station while the North Reservoir is currently being used only as a sludge and backwash holding basin. Based on comments by the operating staff, it is believed that the North Reservoir is over 80% filled with solids and when the water level reaches a certain height water spills over the dam separating the two reservoirs. Due to possible improvements to the Sludge Handling Facility and implementation of Advanced Treatment facilities at MPTP, the District expressed interest in postponing any possible improvements to the condition of both Raw Water Reservoirs past the year 2012.

- **Addition of Backup Generator** - The District expressed interest in providing MPTP with an additional back-up generator to provide the plant with a source of additional power reliability for the Actiflo® process and plant's general operations. Currently, the existing generator at MPTP only serves the lighting panels for the Filter Building, Chemical Building, Backwash Pump Station, and the Raw Water Pump Station. The generator is part of the Advanced Treatment Project AMP 09-03. The estimated cost for the addition of a backup generator is $900,000.

- **Demolition or Conversion of Current Chemical Building** - The current condition of the Chemical Building's superstructure is unsatisfactory. Visible structural defects are numerous and a large portion of the buildings upper levels have been taken out of service. Over the past several years, the District has had numerous studies completed on the possible demolition of the existing building or possible conversion of the existing building to a single story maintenance shop. Either alternative would be an acceptable recommendation since the District seeks to take some type of action towards the condition of the existing building. A specific project has not been included for this work.

- **Replacement of valve actuators on Filters 4, 5, and 6** - Currently, the District uses pneumatic actuators for all valves involved in the filter process at MPTP. NKWD has stated they would like to replace the current pneumatic valve actuators on Filters 4, 5, and 6 with electrically controlled actuators. This is part of Advanced Treatment Project AMP 09-03.

- **Sludge Process Equipment Rehabilitation (annual programmatic budget and AMP 17-02 & 29-01)** - The residuals handling system at MPTP is currently not in operation due to numerous problems associated with the process equipment in the Sludge Handling Building. Instead of a single project to rehabilitate the residuals handling system and place it back in service, the District expressed strong interest in

supplementing projects with an annual programmatic budget approach to rehab/upgrade the existing inoperable facilities. An upgrade to the following process equipment is recommended - Sludge Press Rehab, Conveyer System Rehab, Sludge Pump Replacement, Electrical Upgrade, and Dumpster Area Rehab. Once the recommended improvements are addressed and the facility is put back in service, the current practice of using the North Raw Water Reservoir for residuals storage may be eliminated. The estimated annual cost associated with rehabilitation of the sludge process equipment is $120,000/year.

4.1.2.2. Fort Thomas WTP

Regulatory

Regulatory needs at the FTTP include the addition of granular activated carbon (GAC) for advanced treatment to meet the Stage 2 Disinfectant/Disinfection By-product (D/DBP) Rule and potentially a UV disinfection facility to meet the Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) or to provide an additional disinfection barrier.

Several site alternatives were analyzed and the selected alternative was to locate the GAC facility adjacent to the existing laboratory building. The following assumptions for capacity and redundancy were made in developing the basis of design for the GAC facilities:

- The GAC facility will include 8 GAC contactors, a GAC feed pump station, GAC backwash system, contactor-to-waste function, combination backwash waste/contactor-to-waste/filter-to-waste equalization basin, and carbon loading/unloading facilities.
- Normal operation will provide at least a 20-minute EBCT with all contactors in-service at a maximum production rate of 44 MGD.
- Duty and standby pumps are provided for each of the pumping systems required for these facilities.
- Provisions to enable incorporation of UV disinfection at the current treatment capacity of 44 MGD.
- A GAC supplier will provide virgin carbon to the site and truck the spent GAC off-site.

All eight GAC contactors will have the same type of equipment and operational mode as shown in Table 4-6.

Table 4-6.
Design Criteria for GAC Contactors-FTTP

Parameter	Value
No. of Contactors	8
Contactor Length (feet)	44
Contactor Width (feet)	20
Surface Area per Contactor (sf)	880
GAC Media Depth (inches to top of underdrain)	144
Design Flow per Contactor at Design Capacity (MGD)	5.5
Surface Loading Rate at Design Capacity (gpm/sf)	4.3

As the preliminary design progressed, a final opinion of probable cost was developed. The cost opinion is considered a Class 3 estimate in accordance AACE and has a predicted accuracy of -20% to +30%. The detailed cost opinion in 2007 dollars is shown in Table 4-7, and includes the UV disinfection facility.

Table 4-7.
Opinion of Probable Project Costs-FTTP

Item	Capital Cost ($ Million)
GAC Facilities (Contactor building, site work, GAC PS, EQ Basin)	$33.5
UV Facility	$2.8
Contingency	$7.3
Engineering (Legal, administration)	$5.4
Total	**$49.0**

Capacity

There were no assets identified at the FTTP that required improvements to provide capacity for meeting future growth through the year 2030.

Level of Service

During a recent site visit to the FTTP facility, a number of items were identified in need of repair. The findings of this visit are described in the following paragraphs.

- **Repair of Concrete Flocculation/Sedimentation Basins #2 & #3 -** Visual inspection of sedimentation basins #2 & #3 showed numerous areas of deterioration in the concrete and similar deteriorations were apparent in the corresponding flocculation basins. It is recommended that the District take the necessary measures to

repair the concrete as part of capital improvement planning at FTTP before the condition worsens. The estimated cost for these repairs is $900,000.

- **Improvements to Flocculation Process Equipment** - NKWD expressed interest in revising the current flocculation arrangement for three of the four existing basins. It is recommended that NKWD revise current flocculator drive arrangements in basins #1, #2 & #3 similar to the direct drive assembly in basin #4. The current two stage horizontal flocculator arrangement should be converted to a three stage vertical flocculator arrangement to alleviate current alignment issues, age, and system wear. The estimated cost associated with revising the drive arrangement on flocculation basins #1, #2 & #3 is $71,500. The estimated cost associated with revising the flocculation paddle arrangement is $42,500.

- **Addition of Protective Covers to all Four Sedimentation Basins** - NKWD expressed interest in the addition of protective covers over all four existing sedimentation basins at FTTP. This capital improvement will aide in blocking sunlight which is a proven and effective method for algae control. By covering the basins, it may no longer be necessary to feed copper sulfate to all four sedimentation basins. Upon further investigation, the cost to span the dimension with support members to cover the basin was higher than anticipated. This project will not be carried forward.

- **Replacement of Filter Backwash Tank** - During our site visit, NKWD indicated that the current condition of the underground Filter Backwash Tank is unsatisfactory and may still leak even after recent attempts to recondition the aging tank. The District expressed strong interest in replacing the existing underground tank with a slightly larger tank. A lower cost alternative, with less functionality, would be to make remedial repairs to the existing tank. The District may elect to cancel this project if the new backwash pumps installed with the Advanced Treatment Project are found to be reliable. The estimated cost for upgrading and replacing the Filter Backwash Tank is $460,000.

- **Perform Comprehensive Hydraulic Analysis of FTTP** - NKWD expressed strong interest in completing a comprehensive hydraulic analysis of the operations at FTTP. There may be hydraulic bottlenecks that are preventing the Plant from operating at its optimal capacity. One area of concern that was specifically mentioned by the District was the Filter Influent Flume.

- **Replacement of Sludge Building Interior Process Equipment** - NKWD indicated that, even though there are no current operational issues with any of the existing sludge handling process equipment, the aging equipment is quickly approaching the end of its useful life and should be considered for scheduled replacement. Two new sludge belt filter presses, conveyor system, decant valves, and repairs to the dumpster room were all specifically mentioned by the District and are recommended to be addressed as part of the capital improvements at FTTP. NKWD recommended delaying the above mentioned capital improvements until the year 2012-2013 in order

to concentrate solely on Advanced Treatment improvements in the near future. The estimated cost associated with replacing the sludge belt filter press is $1,600,000 and the estimated cost associated with replacement of the sludge press process equipment is $270,000.

4.1.2.3. Taylor Mill WTP

Regulatory

Regulatory needs at the TMTP include the addition of granular activated carbon (GAC) for advanced treatment to meet the Stage 2 Disinfectant/Disinfection By-product (D/DBP) Rule.

Both basin-style and vessel-style contactors were investigated for the GAC facility to be located west of the current treatment processes at the TMTP. Vessel-style contactors were selected and the following assumptions for capacity and redundancy were made in developing the basis of design for the GAC facilities:

- The GAC facility will include 28 GAC pressurized vessels, GAC feed pump station, GAC backwash system, contactor-to-waste function, combination backwash waste/contactor-to-waste equalization basin, and carbon loading/unloading facilities.
- Normal operation will provide at least a 20-minute EBCT with all contactors in-service at a maximum production rate of 10 MGD.
- Duty and standby pumps are provided for each of the pumping systems required for these facilities.

Twenty-eight pressurized contactors will be provided. It is anticipated that the contactors will have the following characteristics as shown in Table 4-8.

Table 4-8.
Design Criteria for GAC Contactors-TMTP

Parameter	Value
No. of Contactors	28
Contactor diameter (feet)	10
Approximate Contactor height (feet)	22
Design Flow per Contactor at Design Capacity (MGD)	0.42

As the preliminary design progressed, a final opinion of probable costs in 2007 dollars was developed. The cost opinion is considered a Class 3 estimate in accordance AACE

and has a predicted accuracy of -20% to +30%. The detailed cost opinion, which includes the UV disinfection facility, is shown in Table 4-9.

Table 4-9.
Opinion of Probable Project Costs-TMTP

Item	Capital Cost ($ Million)
GAC Facilities (Contactor building, site work, GAC PS, EQ Basin)	$15.3
Contingency	$3.1
Engineering (Legal, administration)	$2.3
Total	**$20.7**

Capacity

There were no assets identified at the TMTP that required improvements to provide capacity for meeting future growth through the year 2030.

Level of Service

During a recent site visit to the TMTP facility, a number of items were identified in need of repair. The findings of this visit are described in the following paragraphs.

- **Replacement of Concrete Sedimentation, Flocculation, and Rapid Mix Basins -** Recent tests by a concrete testing company have validated the operations staff's concerns that both the north and south sedimentation basins are rapidly deteriorating. Visual inspection showed similar, but less severe, deterioration in the concrete of the adjoining flocculation and rapid mix basins. It is recommended that the District replace the concrete sedimentation, flocculation, and rapid mix basins as part of capital improvement planning at TMTP. The existing rapid mixer was last replaced in 1989 and should also be replaced with a new mixer as part of the basin replacement. The District has expressed interest in replacing the existing tube settlers in both basins but has elected to wait until replacement of the existing basins is completed. This project is combined with the Advanced Treatment Project. The estimated cost for replacing the concrete basins is $3,405,000. The estimated cost for replacing the rapid mixer is $4,500. The estimated cost for replacing the tube settler is $235,000.
- **Replacement of Sludge Building Interior Process Equipment -** NKWD indicated that, even though there are no current operation issues with any of the existing sludge

handling process equipment, the aging equipment is quickly approaching the end of its useful life and should be considered for scheduled replacement. A new belt filter press, conveyor system, decant valves, and repairs to the dumpster room were all specifically mentioned by the District and are recommended to be addressed as part of the capital improvements at TMTP. NKWD recommended delaying the above mentioned capital improvements until the year 2014 in order to concentrate solely on Advanced Treatment improvements in the near future. The estimated cost for the sludge belt filter press replacement is $800,000. The estimated cost for replacing the sludge press process equipment is $175,000.

4.1.3. Pumping Station Evaluation

Regulatory

There were no regulatory improvements identified for any of the pump stations through the year 2030.

Capacity

A pump station capacity analysis was conducted as part of the Hydraulic Model Update, see Section 1 of this report.

Level of Service

Bromley Pump Station

During a recent site visit to the Bromley Pump Station, a number of items were identified in need of repair. These items are included in the R&R portion of the CIP. The findings of this visit are described in the following paragraphs.

- **Improvements to Interior of Pump Room Building -** Unlike at the Carothers Pump Station, the renovations to the Bromley Pump Station had not been completed at the time of out site visit. It could be assumed that similar renovations would have a similar impact on the capital improvement recommendations at this pump station. According to the operations staff, the Bromley Pump Station is at the top of the District's renovations list. The current condition of the interior of the building was fair and the staff indicated no problems with daily operations of the pump station. All pumps have been recently refurbished by NKWD staff. All three concrete pump support blocks were in poor condition, with significant concrete deterioration visible at the Pump #1 support block. All non-buried piping showed extensive corrosion and, according to the operations staff, is to be painted as part of the renovations program. Piping supports underneath control valves were either non-existent or crude

pieces of wood and should be addressed. One of the three pump motors in use appeared to be much older than the other two pump motors. It is recommended to phase out the old pump motor in order to standardize the existing pump motors therefore minimizing spare parts. There was not an adequate method to maneuver around the pump room without jumping over non-buried piping. In case of an emergency, this would present safety concerns. The District expressed interest in implementing a programmatic approach to building maintenance, above and beyond the existing O&M capital budget, allowing a budgeted amount of money to be set aside each year to aide in the rehabilitation efforts of the building. The estimated annual cost for building rehabilitation is $10,000. The estimated cost associated with pump motor standardization is $50,000

- **HVAC Improvements to Pump Room** - Ventilation within the pump room is provided by a single fan located in the ceiling of the pump room. Temperatures inside the pump room were well above normal, with the fan running, during summer month operation. It should also be noted that the discharge damper was disconnected during the site visit and should be addressed. It is recommended that at least one additional ceiling fan be installed to help improve cross-flow ventilation. The fans should be operable either by a local thermostat or by manual switch. The estimated cost for HVAC improvements is $2,700.

Carothers Pump Station

During a recent site visit to the Bromley Pump Station, a number of items were identified in need of repair. These items are included in the R&R portion of the CIP. The findings of this visit are described in the following paragraphs.

- **Improvements to Interior of Pump Room Building** - Currently, NKWD is in the process of a systematic program of renovating and rehabilitating all of their distribution pump stations. The District did not divulge a schedule or criticality assessment but stated rather that the program is driven on an "as needed basis" and as O&M capital funds are made available. At the time of our site visit, the Carothers Pump Station renovations had recently been completed, therefore this pump station had little or no capital improvement needs. The current condition of the interior of the building was satisfactory and every piece of non-buried piping was painted recently and in fairly good condition. The restroom in the building was not in service and, according to the operations staff, has been that way for numerous years. The District expressed little interest in improving the operation of the stations lavatory.
- **Addition of a Back-up Generator** - NKWD expressed interest in providing this pump station with a back-up generator. Due to space limitations on the property this improvement might not be feasible. An existing generator at the FTTP will become redundant since a new generator is included as part of the recent Advanced Treatment project at that site. Therefore the old generator may possibly be moved to the Carothers Pump Station. There is discussion of also moving that same generator to

service the TMPS or the Central Facilities Building. For the purposes of this planning document, it will be assumed that because of the space limitations at this site that a new nominally sized, portable generator will be purchased to satisfy this capital improvement. The estimated cost for the back-up generator is $220,000

Dudley 1040 & 1080 Pump Stations

During a recent site visit to the Bromley Pump Station, a number of items were identified in need of repair. These items are included in the R&R portion of the CIP. The findings of this visit are described in the following paragraphs.

- **Improvements to Interior Process Equipment of Pump Room Building 1080 -** The interior of the buildings was in overall good condition. All pumps have been recently rebuilt by NKWD staff within the last 4 years and all control valves have been reconditioned within the last 5 years. The operations staff indicated that all four pumps are in good operating condition. Some non-buried piping showed minor corrosion and, according to the operations staff, is scheduled to be painted. At this time, there are no identified capital improvement recommendations and any minor improvements to this pump station can be addressed within the O & M budget.
- **Improvements to Interior Process Equipment of Pump Room Building 1040 -** The current condition of the interior of the buildings was satisfactory. The operations staff indicated that all four pumps are in good operating condition and have been recently refurbished by NKWD staff within the last 7 years. The District expressed concern about the age (originally installed in 1965) and lack of efficient hydraulic performance of three of the four station's vertical can pumps. It is recommended that all three of the existing vertical can pumps be systematically replaced as part of the on-going capital improvements to this station. All non-buried piping showed minor corrosion along with small patches of moss growth and, according to the operations staff, is scheduled to be painted. NKWD also expressed interest in implementing new soft start instrumentation at this pump station for all four pumps similar to that currently in use at the 1080 station. This improvement would help cut down on peak power demand during pump run time and start-up. The estimated cost associated with pump replacement is $800,000. The estimated cost for soft start RVAC retrofit is $60,000. The estimated cost for soft start auto transformer overhaul is $240,000.
- **HVAC Improvements to Pump Room 1080 & 1040 -** During our site visit, it was observed that NKWD consistently placed the insect screens/bird screens on the inside of the existing pump station louvers. This creates an ideal spot for insects and birds to build nests between the louver blades and the screens and may create a serious health hazard associated with droppings. It is recommended that the District possibly replace these louvers with the screen on the outside. The estimated cost for louver replacement is $1,500.

- **Replacement and Upgrade of Isolation Valves for both 1040 & 1080 Tanks -** NKWD expressed strong interest in replacing isolation valves located on the inlet side of the two 5 MGD storage tanks. The operation of these isolation valves should be tied into and controlled by the District's existing SCADA system. Currently, in case of a transmission main break, the District has no preventative measures in place to reduce the volume of water lost. The estimated cost for replacing the isolation valves and upgrading SCADA is $55,000.

4.1.4. Storage Tank Evaluation

Within the 5-Year planning window the only new tank recommended is the replacement of the Rossford Tank due to age and condition. Additional storage capacity is projected to be needed to meet future demand increases beyond the 5-year horizon as discussed in Section 1, Hydraulic Model Update. Recommendations for storage tank maintenance can be found in Section 4.2.4, Storage Tank Evaluation.

4.1.5. Other

4.1.5.1. Laboratory Equipment

The replacement of laboratory equipment was included in the evaluation of the capital improvements plan as shown in Table 4-10. The equipment was assigned a service life of either 10 or 15 years. Equipment was assumed to be replaced with the same model or equivalent. This evaluation assumed that the exact same number and type of equipment would continue to be needed throughout the planning horizon.

Table 4-10
Laboratory Equipment Replacement Schedule

Replacement Year	Purchase Year	Equipment	Make/Model	Location	Instrument Service Life	2008 Cost	Annual Replacement Cost	Final Cost (including inflation)
2008	2000	TOC Analyzer No. 1	Tekmar Fusion **	Organics Lab	10 years	$37,000		
2009	1988	Incubator No. 1	Fisher Scientific CO2 incubator/ 605	Micro Lab	15 years	$26,000		
2009	1988	Autoclave No. 1	Market Forge Sterilmatic/STME	Micro Lab	15 years	$12,000		
2009	2000	AA Varian No. 1	Spectra AA 280 **	Analytical Chemistry Lab	10 years	$75,000		
2009	1997	AA Perkin Elmer No. 1	Furnace 41102L, Flame AA analyst 400 **	Analytical Chemistry Lab	10 years	$22,000	$172,000	$172,000
2011	1996	Autoclave No. 1	Market Forge Sterilmatic/STME	Micro Lab	15 years	$12,000	$12,000	$13,230
2012	1997	Muffle Furnace No. 1	Lindberg	Wet Chem Lab	15 years	$7,000	$7,000	$8,103
2014	1999	D.I. Unit	Barnstead Infinity/D9011	Micro Lab	15 years	$4,000		
2014	2005	GC (for HAAs) No. 2	Thermo Trace GC Ultra	Organics Lab	10 years	$37,000		
2014	2005	Ion Chromatograph No. 2	Dionex	Analytical Chemistry Lab	10 years	$60,000	$101,000	$128,904
2016	2007	GC Mass Spec No. 2	Agilent GC 7890A, MS 5975C	Organics Lab	10 years	$50,000	$50,000	$70,355
2017	2008	Discrete Analyzer No. 2	OI Analytical DA3500 **	Wet Chem Lab	10 years	$58,000	$58,000	$85,692
2018	2008	TOC Analyzer No. 2	Tekmar Fusion **	Organics Lab No. 2	10 years	$37,000		
2018	2003	Muffle Furnace	Lindberg Blue	Wet Chem Lab	15 years	$7,000	$44,000	$68,258
2019	2009	AA Varian No. 2	Spectra AA 280 **	Analytical Chemistry Lab	10 years	$75,000		
2019	2009	AA Perkin Elmer No. 2	Furnace 41102L, Flame AA analyst 400 **	Analytical Chemistry Lab	10 years	$22,000		
2019	2004	D.I. Unit	Barnstead Diamond/D12651	Micro Lab	15 years	$5,000	$102,000	$166,147
2024	2009	Incubator No. 2	Fisher Scientific CO2 incubator/ 605	Micro Lab	15 years	$26,000		
2024	2009	Autoclave No. 2	Market Forge Sterilmatic/STME	Micro Lab	15 years	$12,000		
2024	2014	GC (for HAAs) No.2	Thermo Trace GC Ultra	Organics Lab	10 years	$37,000		
2024	2014	Ion Chromatograph No. 2	Dionex	Analytical Chemistry Lab	10 years	$60,000	$135,000	$280,655
2026	2011	Autoclave No. 2	Market Forge Sterilmatic/STME	Micro Lab	15 years	$12,000		
2026	2016	GC Mass Spec No.e 2	Agilent GC 7890A, MS 5975C	Organics Lab	10 years	$50,000	$62,000	$142,105
2027	2012	Muffle Furnace No.e 2	Lindberg	Wet Chem Lab	15 years	$7,000		
2027	2017	Discrete Analyzer No. 2	OI Analytical DA3500 **	Wet Chem Lab	10 years	$58,000	$65,000	$156,430
2028	2018	TOC Analyzer No. 3	Tekmar Fusion **	Organics Lab	10 years	$37,000	$37,000	$93,497
2029	2019	AA Varian No. 3	Spectra AA 280 **	Analytical Chemistry Lab	10 years	$75,000		
2029	2019	AA Perkin Elmer No. 3	Furnace 41102L, Flame AA analyst 400 **	Analytical Chemistry Lab	10 years	$22,000	$97,000	$257,370

4.1.6. Project Recommendations

A brief description of all the recommended projects in the 5-Year CIP can be found in Table 4-11 followed by a table of the project costs and projected dates when projects will be needed are presented in Table 4-12. A map of all the recommended improvements is provided as Figure 4-1.

Additionally, in order to provide options within the CIPs, multiple approaches were developed to evaluate the timing of projects, and how this timing affects the capital required to fund the AMP throughout the 20-year planning horizon. These approaches are defined below:

Minimum Approach. The minimum approach includes projects required to meet regulations and replace failing critical assets. The minimum approach also includes what is considered to be a minimum amount of funding for maintenance and repairs just to keep the facilities in operation.

Moderate Approach. The moderate approach includes projects required to meet or exceed regulations, replace aging assets at levels below highest level, and improve reliability. The moderate approach also includes funding for what is considered to be an average level of maintenance and repairs for all facilities.

Aggressive Approach. The aggressive approach includes projects required to exceed regulations, replace all categories of aging assets at highest level and significantly improve reliability at the earliest timeframe practical. The aggressive approach also includes adequate funding for maintenance and repairs required for all facilities as well as funding for unanticipated maintenance.

Appendix F contains the results of this analysis for all recommended improvements from 2009-2030.

Table 4-11.
5-Year CIP Project Description

Designation	Description
Yearly	Distribution System R&R This program involves the systematic replacement of water mains in areas which the District has experienced problems such as discolored water, poor flows, or failures.
Yearly	Coordinated Main Replacement This program involves working with various cities and agencies in the service area to replace water mains in streets that are being resurfaced. Working together saves the District restoration costs and coordinates our work with the street work.
Yearly	Mains to Unserved Areas These funds are utilized to extend water mains into unserved areas. The total project funding may include these funds along with grant funds, county funds, and surcharges to the customers.
Yearly	Annual General Facility R&R – Plants, Tanks, and Pump Stations This program involves rehabilitation and replacement of aging infrastructure and miscellaneous improvements at the treatment plants, tanks, pump stations, and regulator and meter pits. This may include improvements to address recommendations such as adding flow meters on the discharge of all pumps and gravity feed lines from FTTP and MPTP, surge suppression at pump stations, and connecting pressure regulating valves and large meter pits into SCADA.
09-01	FTTP – Advanced Treatment Project NKWD must comply with Stage 2 of the Disinfection By-Product Rule (DBPR) in April 2012. The DBPR will require all water systems to comply with a local running annual average of 80 ug\L and 60 ug|L for THM and HAA5 respectively at worst-case sampling points in the distribution system. NKWD will not be able to comply with this new regulation with the existing treatment processes at the FTTP. This project will install granular activated carbon (GAC) and ultraviolet (UV) disinfection at the FTTP. The standby generator will also be replaced.
09-02	TMTP – Advanced Treatment Project The preliminary treatment process housing the rapid mix, flocculation basins, and sedimentation basins at the TMTP are approximately 50 years old and need to be replaced because they are failing. The existing basins will be demolished and a granular activated carbon (GAC) feed pump station and emergency power generators installed in their place. The preliminary design report for advanced treatment options includes GAC at TMTP in order to meet the 2012 regulations. The ultraviolet (UV) disinfection units will be moved to the new GAC building.

Table 4-11.
5-Year CIP Project Description

Designation	Description
09-03	MPTP – Advanced Treatment Project This project will add granular activated carbon (GAC) and ultraviolet (UV) disinfection at MPTP in order to meet new regulations. The improvements will be located in the abandoned sedimentation basins. The project also includes replacing the standby power generator and upgrading filter control valves on 3 of the 6 filters as the other 3 were upgraded in 2007 with the underdrain and media installation.
09-04	FTTP Filter Renovations Industry standards recommend that filter media be changed out approximately every 20 years. The filter media in the 12 filters at FTTP is all older than 20 years and has started to exhibit performance problems. For example, 6 of the 12 filters significantly underperform, resulting in increased turbidity breakthrough and more frequent and longer backwashing. In this project the filter media will be replaced along with the surface wash system which will be replaced by an air scour system. The filters at the two other treatment plants all have air scour which reduces backwashing by about 50%, resulting in savings of finished water.
09-05	LRPS Structural Improvements, Roof Replacement, Sluice Gates, Actuators, and VFD This project will repair small cracks in the concrete and brick on the interior and exterior of the building and the ladders on the outside of the building that are deteriorating. This project will replace the roof that is in unsatisfactory condition and will upsize the hatches to facilitate removal of pumps. This project will replace the existing inoperable sluice gates that are located at multiple levels of the intake with new electrically actuated gates. The addition of a variable speed drive for increased pumping flexibility will be evaluated as well.
09-06	TMTP Valves and Actuators This project will replace aging valves and actuators in the pump station at the Taylor Mill Treatment plant.
09-07	Dudley 1040 – Pump Replacement This project will replace up to four pumps in the Dudley 1040 pump station and may add variable speed drives to two of the pumps. This station is the primary supply of water for northern Kenton County service area. The pumps were installed in 1965 and are at the end of its useful service life.

Table 4-11.
5-Year CIP Project Description

Designation	Description
09-08	Washington Trace from Twelve Mile to Hwy 1996 The proposed project involves construction of a new 12-inch water main along Oneonta and Washington Trace Roads from Stonehouse to Carthage Road in Campbell County, Kentucky. The length of this project is approx. 14,300 LF. Several new right-of-ways of easements will be needed. This project is designed to strengthen and improve the transmission system and local distribution system to meet population growth and commercial development needs. This project is designed to extend water service to additional customers, support existing water systems, improve water quality, and improve fire protection in the area. The District's Master Plan identified this as a needed hydraulic improvement.
09-09	US 27 from East Alexandria Pike to Main Street The proposed project involves constructing a new 24-inch water main along AA Highway from East Alexandria Pike to Four Mile Pike, Alexandria, Campbell County, Kentucky. The length of this project is approx. 9,700 LF. No new right-of-ways of easements will be needed. This project is designed to strengthen and improve the transmission system and local distribution system to meet population growth and commercial development needs. This project is designed to support existing water systems, improve water quality, and improve fire protection in the area. The District's Master Plan identified this as a needed hydraulic improvement.
09-14	Dolwick 1080/1040 Interconnect This project involves consructing a new 12-inch water main along Dolwich from the existing 12-inch on Dolwick to Turfway Road. This project is designed to provide a back-up feed to the Airport and the surrounding commercial and industrial area. The project will connect two different pressure zones together through a special valve.
09-15	42-inch Transmission from FTTP to Moock Road The proposed project involves constructing a new 42-inch water main along U.S. 27 and Moock Road from the FTTP to the Moock Road 36-inch in the City of Wilder and Southgate, Campbell County, Kentucky. The length of this project is approx. 8,500 LF. New right-of-ways of easements will needed. The estimated cost for the project is $2,900,000. This project will replace the existing 24-inch main which is approximately 100 years old. This project is designed to strengthen and improve the transmission system to meet population growth and commercial development needs. The District's Master Plan identified this as a needed hydraulic improvement.

Table 4-11.
5-Year CIP Project Description

Designation	Description
09-16	Siry to Flatwoods (Subdistrict F) These remaining funds from Subdistrict F will be utilized to extend water mains along Siry & Flatwoods Roads. This project will provide an additional feed to Pendleton County Water and is part of the District Hydraulic Master Plan. The total project funding will include these funds along with grant funds, county funds and surcharges. The approx. length of the project is 3.6 miles.
10-01	Dudley Discharge Redundancy – Phases 1, 2, and 3 This project involves constructing a new 36-inch/24-inch/16-inch water main through the City of Crestview Hills, Kenton County, Kentucky. This project is designed to strengthen the District's water transmission system and provide some redundancy for the District's existing 36-inch water main. The District's Master Plan Addendum for Reliability and Redundancy Analyses identified this as a needed improvement.
10-02	Stonehouse Rd (Twelve Mile Road) from KY 10 to KY 1566 The proposed project involves constructing a new 8-inch water main along Twelve Mile Road from Ky. 10 to Ky. 1566 in Campbell County, Kentucky. The length of this project is approx. 8,200 LF. No new right-of-ways of easements should be needed. This project is designed to strengthen and improve the transmission system and local distribution system to meet population growth and commercial development needs. This project is designed to extend water service to additional customers, support existing water systems, improve water quality, and improve fire protection in the area. The District's Master Plan identified this as needed hydraulic improvement.
10-06	Senour Avenue West of Clover Ridge This project involves construction a 16-inch transmission water main along Senour Road from the existing 16-inch on Senour to Taylor Mill Road. This project is designed to provide additional water to the Independence area. The District's newest Master Plan identified this as a needed improvement.
11-01	Replace PLCs at TMTP This project will replace the existing PLCs at the Taylor Mill Treatment Plant installed in 1992 that have reached the end of their useful service life. The PLCs are used to control the filter operations including normal filtering flow rates and monitoring points, filter backwash, and filter-to-waste operation.
11-02	FTTP Filter Building Improvements This project will repair the walls, windows, and coatings that are failing due to condensation in the filter bays at the FTTP.
11-07	IT Improvements – Year 1 This project includes implementation of improvents to the WAN, conversion to GeoDatabase, inventory control, and IT Tracking system.

Table 4-11.
5-Year CIP Project Description

Designation	Description
12-01	Rossford Tank The project involves the replacement of the current 300,000 gallon Rossford tank with a larger 1 million gallon tank. The District has already secured land adjoining the existing tower for the replacement tower. The existing Rossford Tank will be retired and the Lumley Tank could also be retired.
12-02	MPTP Reservoir Pump Station Suction Piping Replacement A review of the Memorial Parkway Treatment Plant by CH2MHill and later by Quest/JJG showed that the suction piping for the reservoir pumping station has deteriorated and needs to be replaced. This pipe will be upsized to facilitate future capacity expansion of the plant.
12-03	Carothers Road Pump Station Generator This project will provide backup power to the Carothers Road Pump Station which serves as the sole supply of water to the southern part of the Newport service area under normal operations. This area may be served through emergency interconnections from the Ft. Thomas system. This project will reduce our risk of being without power at this station.
12-04	FTTP Residuals Handling Improvements The residuals processing system at the Fort Thomas Treatment Plant was built in the early 1990s and the equipment is reaching the end of its service life. The preliminary concept for this project includes replacing the two existing belt filter presses, belt conveyors, and polymer feed system; adding a third dumpster bay to provide additional storage of pressed cake prior to hauling; improving HVAC to reduce condensation; adding two flow equalization tanks ahead of the presses to maintain a more constant feed consistency; upsizing the recyled water line to the reservoirs; adding a new pipe to return settled water from the sedimentation basins to the reservoirs for routine cleaning; and adding a lamella plate settler housed in a building to treat water prior to returning to the reservoirs or allowing discharge to a creek under a KPDES permit.
12-06	Burns Rd. Between Persimmon Grove & Flatwoods This project involves constructing a new 8-inch water main along Burns Road from Persimmon Grove to Flatwoods Road. This project is designed to strengthen the District's water transmission system. The District's Master Plan Addendum for Reliability and Redundancy Analyses identified this as a needed improvement.
12-07	KY 1280 Between US 27 & Burns Rd. This project involves construction a new 8-inch water main along Ky. 1280 from Burns Road to U.S. 27. This project is designed to strengthen the District's water transmission system. The District's Master Plan Addendum for Reliability and Redundancy Analyses identified this as a needed improvement.

Table 4-11.
5-Year CIP Project Description

Designation	Description
12-08	Madison Ave. Parallel 24-inch Main Between Dudley & Hands Pike This project involves constructing a new large transmission water main along Madison Pike from the existing 42-inch at Dudley Pike to Hands Pike. This project is designed to provide additional water to the Richardson Road Pump Station and Hands Pike Pump Station. The District's newest Master Plan identified this as needed improvement.
12-9	Orphanage Rd. Parallel 24-inch Main Between Redwood & Valley Plaza This project involves constructing a 24-inch transmission water main along Orphanage Road from the existing 24-inch at Horsebranch Road between Redwood School and Valley Plaza. This project is designed to provide additional water to the 1040 pressure zone. The District's newest Master Plan identified this as needed improvement.
12-10	Hands Pike Between KY16 & Edwin The proposed project involves constructing a new 12-inch water main along Hands Pike from Ky. 16 to Edwin Drive, Covington, Kenton County, Kentucky. The length of this project is approx. 2,500 LF. No new right-of–ways of easements will be needed. This project is designed to strengthen and improve the transmission system and local distribution system to meet population growth and commercial development needs. This project is designed to support existing water systems, improve quality, and improve fire protection in the area. The District's Master Plan identified this as a needed hydraulic improvement.
12-11	KY 16 Between Hands Pike & Klette Rd The proposed project involves constructing a new 12-inch water main along Ky. 16 from Hands Pike to Klette Road, Covington/Independence, Kenton County, Kentucky. The length of his project is approx. 3,000 LF. No new right-of-ways of easements will be needed. This project is designed to strengthen and improve the transmission system and local distribution system to meet population growth and commercial development needs. This project is designed to support existing water systems, improve water quality, and improve fire protection in the area. The District's Master Plan identified this as a needed hydraulic improvement.
12-15	Highland Avenue 12-inch from Kyles Lane to new reg pit near Hanser pit The proposed project involves constructing a new 12-inch water main along Highland Ave. from Kyles Lane to regulator pit at Hanser Drive in Fort Wright, Kenton County, Kentucky. New right-of-ways of easements may be needed. This project is designed to strengthen and improve the transmission system and local distribution system to meet population growth and commercial development needs. This project is designed to support existing water systems, improve water quality, and improve fire protection in the area. The District's Master Plan identified this as a needed hydraulic improvement.

Table 4-11.
5-Year CIP Project Description

Designation	Description
12-16	KY 16 from I-275 to TM Swim Club upgrade 16-inch with KDOT project This project involves constructing a new 16-inch water main along the new alignment of KY 16. This project is designed to strengthen the District's water transmission system. The District's Master Plan Addendum for Reliability and Redundancy Analyses identified this as a needed improvement.
12-17	KY 16 from TM Swim Club to TM Standpipe upgrade 16-inch with KDOT project This project involves constructing a new 16-inch water main along the new alignment of KY 16. This project is designed to strengthen the District's water transmission system. The District's Master Plan Addendum for Reliability and Redundancy Analyses identified this as a needed improvement.
12-18	IT Improvements - Year 2 This project includes implementation of improvents to the WAN, conversion to GeoDatabase, inventory control, IT Tracking system, and intergration with software systems.
13-01	FTTP Backwash Tank Replacement The existing backwash supply tank was constructed in 1936 and is a rectangular basin that is mostly buried. This structure is in need of significant concrete repair and needs to be replaced with a new tank.
13-02	Dudley - Install Isolation Valves This project will install valves to isolate the two 5 million gallon Dudley tanks in the event of a rapid loss of water such as a large water main failure. The valves would be SCADA controlled so that they would close automatically and signal the pumps at the Taylor Mill Pump Station to turn off as well.
13-03	Taylor Mill PS Pump Replacement (proposed 1, 5, 6 and 2 or 3) This project will replace four of the six pumps at the Taylor Mill Pump Station. The new pumps will replace pumps at the end of their useful service life. The proposed pumps to replace are numbers 1, 5, 6 and either 2 or 3.
13-04	LRPS New Generator & Walkbridge Upgrade This project will make improvements to the walkbridge and install standby power to the Licking River pump station which supplies water to the Taylor Mill Treatment Plant.
13-05	Improvements to FTTP Flocculation/Sedimentation Basins 2 & 3 Sedimentation basins 2 and 3 were constructed in 1936 and presently have two-stage flocculation. It is recommended to modify the basins for three-stage flocculation with vertical flocculation paddles instead of horizontal. This configuration is preferred for improving the effectiveness of removing the particulates through sedimentation. It is also recommended to replace the rakes and repair the concrete walls that are deteriorating.

Table 4-11.
5-Year CIP Project Description

Designation	Description
13-07	Low Gap Rd. Between Tollgate Rd & 8-inch Dead End The proposed project involves construction a new 8-inch water main along Low Gap Road from Ky. 9 to existing water main dead-end in the City of Alexandria, Campbell County, Kentucky. The length of this project is approx. 1,300 LF. No new right-of-ways of easements will be needed. This project is designed to strengthen and improve the transmission system and local distribution system to meet population growth and commercial development needs. This project is designed to extend water service to additional customers, support existing water systems, improve water quality, and improve fire protection in the area. The District's Master Plan identified this as a needed hydraulic improvement.
13-08	Interconnect 1080 & 1017 The proposed project involves constructing a new 12-inch water main along KY 536 (Pond Creek Road) from KY 1936 (Pond Creek Road) to Decoursey Pike in Campbell & Kenton Counties, Kentucky. The length of this project is approx. 2,000 LF. New right-of-ways of easements should be needed. This project is designed to strengthen and improve the transmission system and local distribution system to meet population growth and commercial development needs. This project is designed to support existing water systems, improve water quality, and improve fire protection in the area. This water main will need to cross the Licking River. The District's Master Plan identified this as a needed hydraulic improvement.
13-12	US 27 24-inch from Sunset to Martha Lane Collins This project involves constructing a 24-inch transmission water main along U.S. 27 from Sunset Ave. to Martha Lane Collins. This project is designed to provide additional water to the 1017 pressure zone. The District's newest Master Plan identified this as a needed improvement.
13-13	Independence Rd. Between KY17 & 12-inch Pipe This project involves constructing a new 12-inch water main along Independence Road from Ky. 17 to the existing 12-inch main. This project is designed to strengthen the District's water transmission system. The District's Master Plan Addendum for Reliability and Redundancy Analyses identified this a needed improvement.
13-14	IT Improvements - Year 3 This project includes implementation of improvents to the WAN, IT Tracking system, and intergration with software systems.
14-01	Laboratory Generator This project will install standby power to the laboratory at the Ft. Thomas Treatment Plant that performs the analyses of water for the entire system that is necessary for compliance with KDOW testing requirements.

Table 4-11.
5-Year CIP Project Description

Designation	Description
14-02	TMTP Sludge Pumps, Conveyors & Press This project will replace the existing sludge processing equipment at the Taylor Mill Treatment Plant that has reached the end of its useful service life. A new belt filter press, conveyor, decant valves and repairs to the dumpster room are recommended.
14-03	ORPS2 Replacement Design and Construction This project will replace the existing Ohio River Pump Station No. 2 that supplies water to the Memorial Parkway Treatment Plant because the existing station was built in the late 1800s and has reached the end of its useful service life. The facility has numerous structural issues that need addressed to remain in operation and would take significant work to bring into current building code compliance if altered. The first year budget includes design engineering services for all improvements and installation of two phases of raw water main. The second and third year budgets include engineering services during construction and the contractor's construction cost for the station.
14-05	36-inch Licking River Crossing This project involves constructing a new 36-inch redundancy water main across the Licking River between Kenton & Campbell Counties. This project is designed to strengthen the District's water transmission system and provide additional redundancy for the District's existing 36-inch concrete water main. The District's Master Plan Addendum for Reliability and Redundancy Analyses identified this as a needed improvement.
14-09	Vineyard (Gunkel Rd.) Between Eight Mile & Fender Rd. The proposed project involves constructing a new 8-inch water main along Gunkel Road from Eight Mile Road to Fender Road in southern Campbell County, Kentucky. The length of this project is approx. 9,000 LF. No new right-of–ways of easements will be needed. This project is designed to strengthen and improve the transmission system and local distribution system to meet population growth and commercial development needs. This project is designed to extend water service to additional customers, support existing water systems, improve water quality, and improve fire protection in the area. The District's Master Plan identified this as a needed hydraulic improvement.
14-10	IT Improvements - Year 4 This project includes implementation of improvents to the WAN, IT Tracking system, and intergration with software systems.

Table 4-11.
5-Year CIP Project Description

Designation	Description
15-04	Bromley Pump Replacement and Misc. Improvements This project will replace the existing pumps at the Bromley Pump Station that have reached the end of their useful service life. The smaller pump was installed in 1968 and the two larger pumps in 1986. The chlorine storage and feed facility will be replaced along with various electrical and security improvements, replacement of valves and actuators.
15-05	Upgrade SCADA/Instrumentation/Security Equipment at Plants and PS This project will upgrade the SCADA operating system, replace the PLCs at the plants and pump stations that were installed between approximately 1998 and 2003 as they will have reached the end of their useful life, and replace security systems that were installed primarily from the Vulnerability Assessment recommendations in the same time period.
15-07	IT Improvements - Year 5 This project includes implementation of improvents to the WAN, IT Tracking system, and intergration with software systems.
16-05	Hands Pike Pumps and Misc Improvements The pumps, motors, and motor control centers installed in 1983 will be at the end of their useful lives and due to be replaced. It is recommended the lighting, electrical, and exhaust fans be inspected and replaced if needed. As an option to improving Hands Pike, the station could be retired when the new Richardson Road Pump Station is in place (proposed 2018).
16-06	Horsebranch Road 24-inch from 36-inch to Thomas More Parkway This project involves construction of a approximately 1,800 feet of 24-inch main along Horsebranch Road to Thomas More Parkway.
17-01	Raw water line to FTTP South Reservoir This project involves replacing the 30-inch raw water main installed in 1936 feeding the south reservoir at FTTP with a new 36-inch line. This improvement will bring more water to the south reservoir.
17-02	MPTP Residuals Handling Improvements This project will allow the residuals handling building to be placed back into operation. Improvements include adding a gravity thickener to process settled process solids and solids removed from the reservoir by a dredge, installation of 3 positive displacement pumps, modifications to truck loading area roof height, conversion of the existing sludge holding tank to a holding tank for belt filter press filtrate and gravity thickener supernatant and return pumps, and electrical upgrades.

Table 4-11.
5-Year CIP Project Description

Designation	Description
17-04	SR17 From Hands Pike to Apple Drive This project involves the construction of approximately 28,000 feet of 24-inch water main along SR 17 between Hands Pike and Apple Drive. It will serve as a primary north/south water main to increase flow to both the existing Independence Tank and a new tank east of Independence.
17-08	Replace Bellevue Tank The Bellevue Tank was built around 1930 and is approaching the end of its useful service lives. Since the tank was painted in 1999, it is recommended a detailed inspection of the tanks be performed when the coatings reach 15 to 20 years old. Based on the condition of the tanks, the District will need to decide if the condition is adequate for repainting and keeping the tank in service for at least another 15 to 20 years or whether a new tank is needed.
18-01	New KY17 PS To Replace Richardson Rd. PS The pumps at Richardson Road station are currently running at much lower head than their design and will need to be replaced to meet future demand conditions. Due to limited capacity in the discharge pipe it is recommended this station be replaced with a new station at a different location along SR 17. The existing Richardson Road Pumping Station would be retired and the Hands Pike Pumping Station could also be retired.
18-02	1.0 MG Elevated Storage Tank East of Independence Based on demand projections and a storage gap analysis additional storage in the southern Kenton County area will be needed sometime between 2015 and 2020. This project consists of building a new 1.0 MG tank east of Independence.
18-03	Replace Dayton Tank The Dayton Tank was built around 1930 and is approaching the end of its useful service lives. Since the tank was painted in 2001, it is recommended a detailed inspection of the tanks be performed when the coatings reach 15 to 20 years old. Based on the condition of the tanks, the District will need to decide if the condition is adequate for repainting and keeping the tank in service for at least another 15 to 20 years or whether a new tank is needed.
18-04	US 27 Pump Station VFDs It is recommended that variable frequency drives be added to at least 2 of the pumps to reduce pressure surges in the system.
18-09	SR17 to Stephens Rd cross country 16-inch to New Tank in Independence This approximately 4,500 feet of 12-inch pipe between SR 17 and Stephens Road is needed to connect the new 1.0 MG Tank east of Independence.
18-10	24-inch on US 27 Between FTTP and Martha Layne Collins replace 16-inch It is recommended that the existing 16-inch main between the FTTP and Martha Layne Collins be replaced with a 24-inch main for approximately 16,000 feet.

Table 4-11.
5-Year CIP Project Description

Designation	Description
19-01	1.0 MG Elevated Storage Tank – Southern Campbell County Based on demand projections and a storage gap analysis, additional storage will be needed in the southern Campbell County area between 2015 and 2020. This project will construct a new 1.0 MG tank in southern Campbell County near KY 9 and Lick Hill. The Main Street Tank may need retired for water quality reasons when this new tank is in place.
19-03	New Pump Station near the existing Ripple Creek PS The existing Ripple Creek Pump Station will be unable to supply enough water to all of southern Campbell County at some time between 2020 and 2030. A new pump station is recommended at the same location or in very close proximity to the existing station.
19-07	24-inch along US 27 from Martha Layne Collins to Ripple Creek PS It is recommended a new parallel 24-inch main be constructed from Martha Layne Collins to the Ripple Creek Pumping Station. The distance is about 12,000 feet.
19-08	16-inch along AA Highway from Hwy 547 & California Cross Rd. This project involves the construction of approximately 32,000 feet of 16-inch water main along the AA Highway (KY 9) between Hwy 547 and California Cross Road that will extend transmission capacity into southern Campbell County. At this time the Main Street Tank could be retired.
19-09	36-inch Redundancy from 42-inch at Moock Rd to 36-inch Licking River Crossing This project consists of constructing 6,300 feet of 36-inch main along Moock Road and across the Licking River into Covington.
19-10	Replace Lumley Tank The tank was built in 1934 and will be at the end of its service life. The tank was last coated in 1999 and will need repainted between 2014 and 2019. This tank can be retired following the construction of the larger Rossford Tank.
20-01	Electrical Upgrades at FTTP It is anticipated that upgrades to the power supply and distribution within the plant will be needed to replace systems at the end of their useful life.
20-02	Retire TM Standpipe Build Elevated 1040 Tank The tank was last coated in 2006 and would be due to be repainted around 2021. In order to increase pressure in Taylor Mill, it is recommended the existing standpipe be retired and a new elevated tank be constructed in its place. The system would be served directly from the 1040 pressure zone be removing the Sandman PRV. The new tank would be about 175 feet tall and should be in the same general vicinity as the existing standpipe. The recommended volume is not confirmed but is estimated to be about 500,000 gallons.

Table 4-11.
5-Year CIP Project Description

Designation	Description
20-03	Pump Station Improvements at Dudley 1040 It is recommended the pumps be retrofitted with variable speed drives and the motor control centers and electrical, mechanical, and lighting systems be upgraded.
20-08	Replacement Ida Spence Tank (or retire and serve from 1040) This tank was last coated in 2005 and will need repainted around 2020. The tank is approaching the end of its useful life having been built in 1953. The tank will need replaced, or it could be retired along with Latonia Pumping Station and the area served through a regulator off the 1040 pressure zone. Some system improvements would be needed to facilitate this conversion.
21-01	Chemical Feed Systems Upgrades at TMTP It is anticipated that chemical feed systems installed in 1998 will need rehabilitated or replaced. Systems include corrosion inhibitor, coagulants, caustic soda, fluoride, polymer, sodium hypochlorite, and sodium bisulfite. Components include piping, valves, actuators, tanks, and pumps.
21-02	Filter Valves and Actuators at FTTP It is recommended the filter valves and actuators at FTTP be replaced as they will be at the end of their useful life.
21-03	Pump Station Improvements at Carothers The pumps, motors, and motor control centers and electrical systems should be replaced.
22-01	20-inch Gravity Discharge from MPTP The two 20-inch gravity discharge lines from MPTP into Newport are over 100 years old. It is recommended these mains be replaced given their importance as the sole supply to Newport and future greater dependency when on these mains when Covington is served by MPTP. The total length is estimated to be 32,000 feet of two parallel 20-inch mains.
22-02	Pump Station Improvements at Bristow Road This project consists of replacing the 3 pumps with new 4,200 gpm pumps rated at 50 feet of head. The new pumps will be better matched to demand conditions and feeding the tanks in the 1080 system. The pumps should be installed with VFDs.
23-010	Chemical Feed Systems Upgrades at FTTP It is anticipated that chemical feed systems installed in 2001 will need rehabilitated or replaced. Systems include copper sulfate, corrosion inhibitor, coagulants, caustic soda, fluoride, polymer, sodium hypochlorite, and potassium permanganate at ORPS1. Components include piping, valves, actuators, tanks, and pumps.

Table 4-11.
5-Year CIP Project Description

Designation	Description
23-02	Pump Station Improvements at Dudley 1080 It is recommended the pumps, motors, and motor control centers be replaced along with upgrades to the mechanical, electrical, and lighting systems.
24-01	Pump Station Improvements at Latonia It is recommended the pumps, motors, and motor control centers be replaced along with upgrades to the mechanical, electrical, and lighting systems.
25-01	Pump Station Improvements at Waterworks Road It is recommended the pumps, motors, and motor control centers be replaced along with upgrades to the mechanical, electrical, and lighting systems. An emergency generator will also be installed.
25-02	MPTP Expand to 20 MGD In order to meet additional demand requirements in the system, the MPTP will be used to supply water to northern Kenton County and Campbell County. Improvements will include addition of a larger raw water pump in the Reservoir Pumping Station and replacement of the existing 24-inch discharge line with a 36-inch main, addition of another ACTIFLO® train,
26-01	Pump Station Improvements and Electrical Improvements at TMTP This project will replace two of the six pumps at the Taylor Mill Pump Station. The new pumps will replace pumps at the end of their useful service life. The proposed pumps to replace are numbers 4 and either 2 or 3. Power distribution at the plant may need replaced and should be evaluated to prioritize needs.
27-05	20-inch to Connect 11th Street in Newport to 12th Street in Covington This project consists of extending one of the gravity lines from MPTP down 11th Street in Newport to supply a new pump station near the Licking River and then connecting back into the main at 12th and Wheeler in Covington. The addition of 5,700 feet of 20-inch is needed.
27-06	12-inch Parallel Main Btwn Vulcan and Lytle The addition of a 12-inch parallel main approximately 6,300 feet in length is needed between Vulcan and Lytle Roads. This main will provide additional capacity needed to serve the Industrial and Devon Tanks.
28-01	New pump station from Newport to Covington This station will utilize Memorial Parkway Treatment Plant as a second supply to serve northern parts of Kenton County along with FTTP. Currently MPTP cannot be used to supply any water to Kenton County.
28-03	24-inch Parallel Main Persimmon Grove from AA Hwy to Jerry Wright Additional transmission is needed to provide adequate turnover and maintain the South County Tank and Claryville Tank water levels under future demand. This project consists of building 16,000 feet of 24-inch parallel main along Persimmon Grove and Jerry Wright Road.

Table 4-11.
5-Year CIP Project Description

Designation	Description
28-04	16-inch Main Jerry Wright, Lickert, Old SR 4 to Claryville Tank Additional transmission is needed to provide adequate water levels in the South County Tank and Claryville Tank water levels under future demand. This project consists of constructing 9,000 feet of 16-inch along Lickert Road and Old State Route 4.
29-01	MPTP add second gravity thickener This project involves the addition of a second gravity thickener and pumps to process increased production capacity and reservoir solids at MPTP.
29-02	ORPS2 Addition of One 10 MGD Pump In order to meet increased system demands, it will be necessary to add one 10 MGD pump to the raw water pumping station.
29-04	20-inch Percival Rd from 24-inch in Banklick/Walton Nicholson to New Tank This 20-inch water main will provide flow to the new southern Kenton County Tank needed to maintain pressures in the around Walton under 2030 projected demand conditions.
29-05	1 MG Tank in Southern Kenton County near Walton Based on demand projections and a storage gap analysis, additional storage will be needed in southern Kenton County sometime by 2030. This project consists if building a new 1.0 MG tank near Walton. A check valve will be installed in Independence Road to keep Bristow Road Pumping Station from pumping directly to the Independence Tank. This valve will help supply more water to the new tank.
30-01	Chemical Feed Systems Upgrades at MPTP It is anticipated that chemical feed systems installed in 2006 will need rehabilitated or replaced. Systems include copper sulfate, corrosion inhibitor, ferric sulfate, polyaluminum chloride, caustic soda, fluoride, polymer, sodium hypochlorite, and powdered activated carbon. Components include piping, valves, actuators, tanks, and pumps. Systems will be sized to meet 20 MGD treatment capacity.
30-02	Pump Station Improvements at US 27 It is recommended the pumps, motors, and motor control centers be replaced along with upgrades to the mechanical, electrical, and lighting systems.
30-07	Replace Kenton Lands Tank The tank was built in 1954 and will be at the end of its service life. The tank was last coated in 2010 and will need repainted between 2025 and 2030.

Table 4-12
Master List of 5-Year CIP Projects 2009 – 2030

Designation	Location	Project Description	Cost
09-01	FTTP	FTTP Advanced Treatment - Design & Construction	$30,000,000
09-02	TMTP	TMTP Advanced Treatment and Generator - Design & Construction	$28,350,000
09-03	MPTP	MPTP Advanced Treatment - Design & Construction	$15,300,000
09-04	FTTP	FTTP Filter Renovations	$1,665,000
09-05	LRPS	Structural Impr., Roof Replacement, Sluice Gates, Actuators, VFD	$984,750
09-06	TMTP	Valves & Actuators	$168,300
09-07	Dudley 1040	Replace Four Pumps, 2 constant speed and 2 VFDs	$440,550
09-08	Distribution	Washington Trace from Twelve Mile to Hwy 1996	$964,970
09-09	Distribution	US27 from E. Alex Pike to Main Street/Phase 4 and 5 unfunded	$1,947,000
09-10	Distribution	Yearly 2009 Distribution System R & R	$3,100,000
09-11	Distribution	2009 Mains to Unserved Areas	$250,000
09-12	Distribution	2009 Coordinated Main Replacement	$2,000,000
09-13	Distribution	Kenton County Water Main Replacement Match	$600,000
09-14	Distribution	Dolwick 1080 / 1040 Interconnect	$850,000
09-15	Distribution	42" Transmission Main from FTTP to Moock Rd, Construction	$2,500,000
09-16	Distribution	Siry to Flatwoods (Subdistrict F)	$1,100,000
10-01	Distribution	Dudley Discharge Redundancy Imp. - Phase 1	$760,000
10-01	Distribution	Dudley Discharge Redundancy Imp. - Phase 2	$960,000
10-01	Distribution	Dudley Discharge Redundancy Imp. - Phase 3	$945,000
10-02	Distribution	Stonehouse Rd (Twelve Mile Rd) from KY 10 to KY 1566	$1,120,000
10-03	Distribution	Yearly 2010 Distribution System R & R	$3,500,000
10-04	Distribution	2010 Mains to Unserved Areas	$250,000
10-05	Distribution	2010 Coordinated Main Replacement	$2,500,000
10-06	Distribution	Senour Ave. West of Cloverridge	$750,000
10-07	Distribution	Subdistrict H Upgrade	$497,018
10-07	Distribution	Subdistrict H Surcharge	$946,670
10-08	Distribution	US27/AA Hwy/KY 547- unfunded Phase 3, 4, 5	$2,971,200
11-01	TMTP	Replace PLCs for Filters at TMTP	$350,000
11-02	FTTP	Repair Walls and Windows in FTTP Filters	$530,000
11-03	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$829,000
11-04	Distribution	Yearly 2011 Distribution System R & R	$4,000,000
11-05	Distribution	2011 Mains to Unserved Areas	$250,000

Table 4-12
Master List of 5-Year CIP Projects 2009 – 2030

Designation	Location	Project Description	Cost
11-06	Distribution	2011 Coordinated Main Replacement	$2,500,000
11-07	Distribution	Subdistrict I Surchage	$257,576
11-08	Technology	IT Improvements - Year 1	$175,000
12-01	Rossford	1.0 MG Rossford Elevated Storage Tank	$3,125,000
12-02	MPTP	MPTP PS Suction Piping	$1,000,000
12-03	Carothers	Carothers Rd. PS Generator	$386,678
12-04	FTTP	Residuals Handling Upgrade Project - Design & Construction	$6,500,000
12-05	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$928,000
12-06	Distribution	Burns Rd. Between Persimmon Grove & Flatwoods	$1,554,000
12-07	Distribution	KY 1280 Between US 27 & Burns Rd.	$357,000
12-08	Distribution	Madison Ave. Parallel 24" Main Between Dudley & Hands Pike	$2,132,000
12-09	Distribution	Orphanage Rd. Parallel 24" Main Between Redwood & Valley Plaza	$1,390,000
12-10	Distribution	Hands Pike Between KY16 & Edwin	$608,000
12-11	Distribution	KY 16 Between Hands Pike & Klette Rd	$613,000
12-12	Distribution	Yearly 2012 Distribution System R & R	$4,000,000
12-13	Distribution	2012 Mains to Unserved Areas	$250,000
12-14	Distribution	2012 Coordinated Main Replacement	$2,500,000
12-15	Distribution	Highland Avenue 12" from Kyles Lane to new reg pit near Hanser pit	$480,000
12-16	Distribution	KY 16 from I-275 to TM Swim Club upgrade 16" with KDOT project	$450,000
12-17	Distribution	KY 16 from TM Swim Club to TM Standpipe upgrade 16" with KDOT project	$350,000
12-18	Technology	IT Improvements - Year 2	$405,000
13-01	FTTP	FTTP Backwash Tank Replacement	$782,000
13-02	Dudley	Dudley - Install Isolation Valves	$345,119
13-03	TM TP PS	Taylor Mill PS Pump Replacement (proposed 1, 5, 6 and 2 or 3)	$3,731,013
13-04	LRPS	LRPS New Generator & Walkbridge Upgrade	$4,100,000
13-05	FTTP	Improvements to FTTP Flocculation/Sedimentation Basins 2 & 3	$2,784,000
13-06	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$888,000
13-07	Distribution	Low Gap Rd. Between Tollgate Rd & 8" Dead End	$375,000
13-08	Distribution	Interconnect 1080 & 1017	$1,200,000
13-09	Distribution	Yearly 2013 Distribution System R & R	$4,000,000
13-10	Distribution	2013 Mains to Unserved Areas	$250,000
13-11	Distribution	2013 Coordinated Main Replacement	$2,500,000
13-12	Distribution	US 27 24" from Sunset to Martha Lane Collins	$1,280,000
13-13	Distribution	Independence Rd. Between KY17 & 12" Pipe	$115,000
13-14	Technology	IT Improvements - Year 3	$343,00

Table 4-12
Master List of 5-Year CIP Projects 2009 – 2030

Designation	Location	Project Description	Cost
14-01	FTTP	Laboratory Generator	$237,000
14-02	TMTP	TMTP Sludge Pumps, Conveyors & Press	$1,537,000
14-03	ORPS2	ORPS2 Replacement Design and Construction	$42,250,000
14-04	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$983,000
14-05	Distribution	36" Licking River Crossing	$4,503,000
14-06	Distribution	2014 Distribution R&R	$4,000,000
14-07	Distribution	2014 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
14-08	Distribution	2014 Mains into Unserved Areas	$250,000
14-09	Distribution	Vineyard (Gunkel Rd.) Between Eight Mile & Fender Rd.	$608,000
14-10	Technology	IT Improvements - Year 4	$86,000
15-01	Distribution	2015 Mains into Unserved Areas	$250,000
15-02	Distribution	2015 Water Main Replacement Program	$5,000,000
15-03	Distribution	2015 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
15-04	Bromley	Bromley Pump Replacement and Misc. Improvements	$1,716,000
15-05	Plants/PS	Upgrade SCADA/Instrumentation/Security Equipment at Plants and PS	$10,172,000
15-06	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,007,000
15-07	Technology	IT Improvements - Year 5	$300,000
16-01	Distribution	2016 Mains into Unserved Areas	$250,000
16-02	Distribution	2016 Water Main Replacement Program	$5,250,000
16-03	Distribution	2106 Coordinated Roaday Imp./Water Main Replacement	$2,500,000
16-04	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,018,000
16-05	Hands Pike	Hands Pike Pumps and Misc Improvements	$700,000
16-06	Distribution	Horsebranch Road 24" from 36" to Thomas More Parkway	$800,000
17-01	FTTP	Raw water line to FTTP south reservoir	$700,000
17-02	MPTP	MPTP Residuals Handling Improvements	$4,600,000
17-03	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,038,000
17-04	Distribution	SR17 From Hands Pike to Apple Drive	$12,740,000
17-05	Distribution	2017 Mains into Unserved Areas	$250,000
17-06	Distribution	2017 Water Main Replacement Program	$5,500,000
17-07	Distribution	2017 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
17-08	Bellevue	Replacement Bellevue Tank	$1,300,000
18-01	New PS	New KY17 PS To Replace Richardson Rd. PS	$1,900,000
18-02	New Tank	1.0 MG Elevated Storage Tank East of Independence	$4,375,000
18-03	Dayton Tank	Replace Dayton Tank	$3,700,000
18-04	US 27 PS	US 27 Pump Station VFDs	$449,000

Table 4-12
Master List of 5-Year CIP Projects 2009 – 2030

Designation	Location	Project Description	Cost
18-05	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,061,000
18-06	Distribution	2018 Mains into Unserved Areas	$250,000
18-07	Distribution	2018 Water Main Replacement Program	$5,750,000
18-08	Distribution	2018 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
18-09	Distribution	SR17 to Stephens Rd cross country 16" to New Tank in Independence	$1,068,570
19-01	New Tank	1.0 MG Elevated Storage Tank - Southern Campbell County	$4,500,000
19-02	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,084,000
19-03	New PS	New Pump Station near the existing Ripple Creek PS	$2,079,000
19-04	Distribution	2019 Mains into Unserved Areas	$250,000
19-05	Distribution	2019 Water Main Replacement Program	$6,000,000
19-06	Distribution	2019 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
19-07	Distribution	24" along US 27 from Martha Layne Collins to Ripple Creek PS	$5,810,000
19-08	Distribution	16" along AA Highway from Hwy 547 & California Cross Rd.	$10,330,000
19-09	Distribution	36" Redundancy from 42" at Moock Rd to 36" Licking River Crossing	$4,100,000
19-10	Lumley Tank	Replace Lumley Tank	$1,400,000
20-01	FTTP	Electrical Upgrades at FTTP	$1,000,000
20-02	TM Tank	Retire TM Standpipe Build Elevated 1040 Tank	$2,100,000
20-03	Dudley 1040 PS	Pump Station Improvements at Dudley 1040 (VFDs)	$1,275,000
20-04	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,110,000
20-05	Distribution	2020 Mains into Unserved Areas	$250,000
20-06	Distribution	2020 Water Main Replacement Program	$6,500,000
20-07	Distribution	2020 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
20-08	Ida Spence	Replacement Ida Spence Tank (or retire and serve from 1040)	$2,121,000
21-01	TMTP	Chemical Feed Systems Upgrades at TMTP	$1,380,000
21-02	FTTP	Filter Valves and Actuators at FTTP	$650,000
21-03	Carothers	Pump Station Improvements at Carothers	$500,000
21-04	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,138,000
21-05	Distribution	2021 Mains into Unserved Areas	$250,000
21-06	Distribution	2021 Water Main Replacement Program	$6,500,000
21-07	Distribution	2021 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
22-01	MPTP	20" Gravity Discharge from MPTP	$16,000,000
22-02	Bristow	Pump Station Improvements at Bristow Road	$600,000
22-03	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,163,000
22-04	Distribution	2022 Mains into Unserved Areas	$250,000

Table 4-12
Master List of 5-Year CIP Projects 2009 – 2030

Designation	Location	Project Description	Cost
22-05	Distribution	2022 Water Main Replacement Program	$6,500,000
22-06	Distribution	2022 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
23-01	FTTP	Chemical Feed Systems Upgrades at FTTP	$2,295,000
23-02	Dudley 1080 PS	Pump Station Improvements at Dudley 1080	$3,600,000
23-03	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,190,000
23-04	Distribution	2023 Mains into Unserved Areas	$250,000
23-05	Distribution	2023 Water Main Replacement Program	$6,500,000
23-06	Distribution	2023 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
24-01	Latonia PS	Pump Station Improvements at Latonia	$600,000
24-02	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,218,000
24-03	Distribution	2024 Mains into Unserved Areas	$250,000
24-04	Distribution	2024 Water Main Replacement Program	$6,500,000
24-05	Distribution	2024 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
25-01	Waterworks PS	Pump Station Improvements at Waterworks Road (include generator)	$1,500,000
25-02	MPTP	MPTP Expand to 20 MGD - Actiflo	$7,400,000
25-03	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,246,000
25-04	Distribution	2025 Mains into Unserved Areas	$250,000
25-05	Distribution	2025 Water Main Replacement Program	$6,500,000
25-06	Distribution	2025 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
26-01	TMTP PS	Pump Station Improvements at TMTP	$3,100,000
26-02	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,277,000
26-03	Distribution	2026 Mains into Unserved Areas	$250,000
26-04	Distribution	2026 Water Main Replacement Program	$6,750,000
26-05	Distribution	2026 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
27-01	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,310,000
27-02	Distribution	2027 Mains into Unserved Areas	$250,000
27-03	Distribution	2027 Water Main Replacement Program	$7,000,000
27-04	Distribution	2027 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
27-05	Distribution	20" to Connect 11th Street in Newport to 12 Street in Covington	$6,000,000
27-06	Distribution	12" Parallel Main Btwn Vulcan and Lytle	$2,500,000
28-01	New PS	New pump station from Newport to Covington	$7,000,000
28-02	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,342,000
28-03	Distribution	24" Parallel Main Persimmon Grove from Riley to Jerry Wright	$11,200,000
28-04	Distribution	16" Main Jerry Wright, Lickert, Old SR 4 to Claryville Tank	$3,600,000

Table 4-12
Master List of 5-Year CIP Projects 2009 – 2030

Designation	Location	Project Description	Cost
28-05	Distribution	2028 Mains into Unserved Areas	$250,000
28-06	Distribution	2028 Water Main Replacement Program	$7,500,000
28-07	Distribution	2028 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
29-01	MPTP	MPTP add second gravity thickener	$1,000,000
29-02	ORPS2	ORPS2 add 1 10 MGD pump	$1,900,000
29-03	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,376,000
29-04	Distribution	20" Percival Rd from 24" in Banklick/Walton Nicholson to New Tank	$16,000,000
29-05	New Tank	1 MG Tank in Southern Kenton County near Walton	$7,000,000
29-06	Distribution	2029 Mains into Unserved Areas	$250,000
29-07	Distribution	2029 Water Main Replacement Program	$8,000,000
29-08	Distribution	2029 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
30-01	MPTP	Chemical Feed Systems Upgrades at MPTP	$1,751,000
30-02	US 27 PS	Pump Station Improvements at US 27	$1,500,000
30-03	WQ&P	Annual General Facility R&R - Plants, Tanks, Pump Stations	$1,411,000
30-04	Distribution	2030 Mains into Unserved Areas	$250,00
30-05	Distribution	2030 Water Main Replacement Program	$8,500,000
30-06	Distribution	2030 Coordinated Roadway Imp./Water Main Replacement	$2,500,000
30-07	Kenton Lands	Replace Kenton Lands Tank	$4,600,000

Northern Kentucky Water District

EXHIBIT A-4

ENGINEER'S OPINION

Project: Licking River Crossing
Client: Northern Kentucky Water District
Task: Revised Opinion of Probable Construction Costs
Job #: 10178636
Date: October 14, 2021

Item No.	Description	Unit of Measure	Est. Qty.	Unit Cost Total	Total Cost
1	6.01 - 8" Ductile Iron Pipe - Restrained Joint	LF	300	$ 75	$ 22,500
2	6.02 - 24" Ductile Iron Pipe - Restrained Joint	LF	40	$ 320	$ 12,800
3	6.02 - 36" Ductile Iron Pipe - Restrained Joint	LF	2,150	$ 540	$ 1,161,000
4	6.03 - 24" x 24" Tee	EA	1	$ 3,500	$ 3,500
5	6.03 - 36" 11.25 Degree Bend	EA	9	$ 4,500	$ 40,500
6	6.03 - 36" 22.5 Degree Bend	EA	3	$ 4,500	$ 13,500
7	6.03 - 36" 45 Degree Bend	EA	3	$ 5,000	$ 15,000
8	6.03 - 36" x 24" Tee	EA	1	$ 7,500	$ 7,500
9	6.04 - 48" Casing Pipe - Bore & Jack	LF	120	$ 1,000	$ 120,000
10	6.05 - 36" DIPS DR11 HDPE HDD	LF	1,150	$ 1,750	$ 2,012,500
11	7.01 - Tie into Existing 36" Gate Valve	EA	1	$ 17,500	$ 17,500
12	7.02 - Transfer New Service to Exist Meter	LS	1	$ 2,500	$ 2,500
13	7.03 - Connect to Watermain at Horizontal Gate Valve	EA	1	$ 17,500	$ 17,500
14	8.01 - Install Fire Hydrant Assembly	EA	2	$ 6,500	$ 13,000
15	9.01 - 8" Ductile Iron Resilient Seated Gate Valve	EA	1	$ 8,750	$ 8,750
16	9.02 - 24" RS Horizontal Gate Valve	EA	1	$ 52,500	$ 52,500
17	9.02 - 36" RS Horizontal Gate Valve	EA	2	$ 92,400	$ 184,800
18	11.01 - 36" Plug and Block (Pressure Main)	EA	1	$ 7,500	$ 7,500
19	11.01 - Plug and Block (Existing Pressure Main)	EA	2	$ 7,500	$ 15,000
20	11.02 - Plug and Block (Abandoned Main)	EA	2	$ 7,500	$ 15,000
21	11.03 - Air Release Valve	EA	1	$ 5,500	$ 5,500
22	11.04 - Test Tap	EA	1	$ 2,000	$ 2,000
23	12.05 - Asphaltic Concrete Milling and Paving	SY	2,750	$ 75	$ 206,250
24	12.06 - Concrete Curbing	LF	655	$ 75	$ 49,125
25	12.07 - Concrete Sidewalk	SY	45	$ 275	$ 12,375
26	12.08 - Best Management Practice	LS	1	$ 45,000	$ 45,000
27	Mobilization/ Gen Cond/Miscellaneous Construction	LS	1	$ 610,000	$ 610,000
	TOTAL BID PRICE				**$ 4,673,100**

Northern Kentucky Water District

EXHIBIT A-5

SYSTEM HYDRAULIC MODEL

Northern Kentucky Water District

FIRE FLOW CERTIFICATION

Licking River Crossing
City of Covington & Wilder
Kenton & Campbell County, KY
February 14, 2014

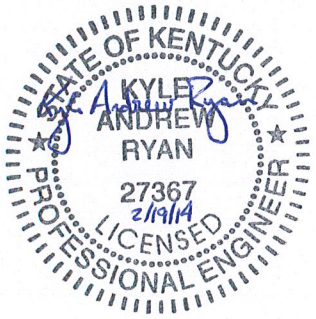
I certify that the proposed improvements meet the 807 KAR 5:066, Section 10b regulation for fire flow protection relating to KRS Chapter 278. I am certifying that "the system can provide a minimum fire flow of 250 gallons per minute; and the water system supporting this flow has the capability of providing this flow for a period of not less than two (2) hours plus consumption at the maximum daily rate". This certification is based on the information available and is not a guarantee of any precise results.

This certification is based on hydraulic modeling performed using InfoWater, the program available from MWHSoft. Supporting documentation and operating conditions are attached and are the basis for this certification.

It should be noted that input data used for modeling is based on available data. Results can change and are dependent on the demand conditions, which can vary at any given time. These values will impact the final results when adjusted. The certification is based on estimated conditions and contains many assumptions based on historical data.

With this certification, the Northern Kentucky Water District will permit the construction of fire hydrants within this development.

Fire flow analyses were made using a hydrant within the subdivision that would provide a representative result that should simulate the results at other hydrants within the system. Minor variations at different hydrants would still provide a flow rate that meets the minimum standard.



Northern Kentucky Water District

HYDRAULIC AND FLUSHING VELOCITY CERTIFICATION

Licking River Crossing
City of Covington & Wilder
Kenton & Campbell County, KY
February 14, 2014

I certify that the proposed improvements will meet the American Water Works Association Standard C651 standard for flushing velocity in the main meeting 2.5 feet per second while maintaining at least 20 psi pressure in accordance with 401 KAR 8:100.

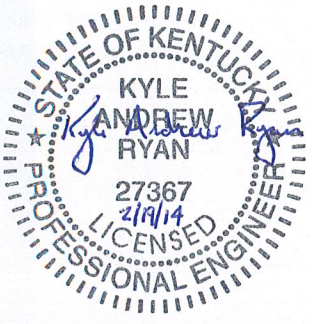
This main is strictly for transmission and there are no customers supplied directly from this main. At least 30 psi can be maintained within the proposed main under max hour conditions. The maximum flow rate that can reliably be supplied to the main and meet 20 psi in the system under maximum hour conditions is 8,000 gpm.

This certification is based on the information available and is not a guarantee of any precise results. Results are based on hydraulic modeling performed using InfoWater, the program available from MWHSoft. Supporting documentation and operating conditions are attached and are the basis for this certification.

It should be noted that input data used for modeling is based on available data. Results can change and are dependent on the demand conditions, which can vary at any given time. These values will impact the final results when adjusted. The certification is based on estimated conditions for maximum hour demand conditions and contains many assumptions based on historical data.

With this certification, the Northern Kentucky Water District will permit the construction of the proposed development.

The assumed Hazen-Williams roughness coefficients for ductile iron and HDPE were 120 and 150 respectively. This main is served by the Fort Thomas Treatment Plant Clearwell.



Licking River Crossing
Covington / Wilder
Kenton / Campbell County, Kentucky
Output from InfoWater model - copied to Excel
February 14, 2014

Northern Kentucky Water District

Maximum Hour Run for Potential Customers

Maximum Hour Run, 0 affected Customers = 0 GPM				
ID	Demand, gpm	Elevation, ft	Grade, ft	Pressure, psi
J198	0.0	515	743.4	99.0
J194	0.0	510	745.3	102.0
J200	0.0	486	744.4	112.0
J202	0.0	418	743.9	141.2
J204	0.0	418	744.0	141.3
J208	0.0	520	743.3	96.7

Flushing Velocities Under Maximum Hour

Flushing velocity 2.5 fps for new 29.06" & 36" pipe (under max hour)				
ID	Demand, gpm	Elevation, ft	Grade, ft	Pressure, psi
J198	0.0	515	728	92
J194	0.0	510	731	96
J200	0.0	486	730	106
J202	0.0	418	729	135
J204	0.0	418	729	135
J208	7931.0	520	728	90

Pipe Information for flushing velocity at 2.5 fps for new 29.06" and 36" pipe					
Pipe ID	Length, ft	Diam, inch	Flow, gpm	Velocity, fps	Roughness
P335	511	29.06	7931	3.8	150
P337	1784	36	7931	2.5	120
P339	202	29.06	7931	3.8	150
P341	388	29.06	7931	3.8	150
P349	184	36	7931	2.5	120

Maximum Available Flow Under Maximum Hour

Maximum Hour Run, Maximum Available Flow				
ID	Demand, gpm	Elevation, ft	Grade, ft	Pressure, psi
J198	0.0	515	725.5	91.2
J194	0.0	510	730.4	95.5
J200	0.0	486	728.2	104.9
J202	0.0	418	726.8	133.8
J204	0.0	418	727.2	134.0
J208	8000.0	520	725.3	89.0

Pipe ID	From Node	To Node
P335	J198	J202
P337	J200	J194
P339	J202	J204
P341	J204	J200
P349	J208	J198

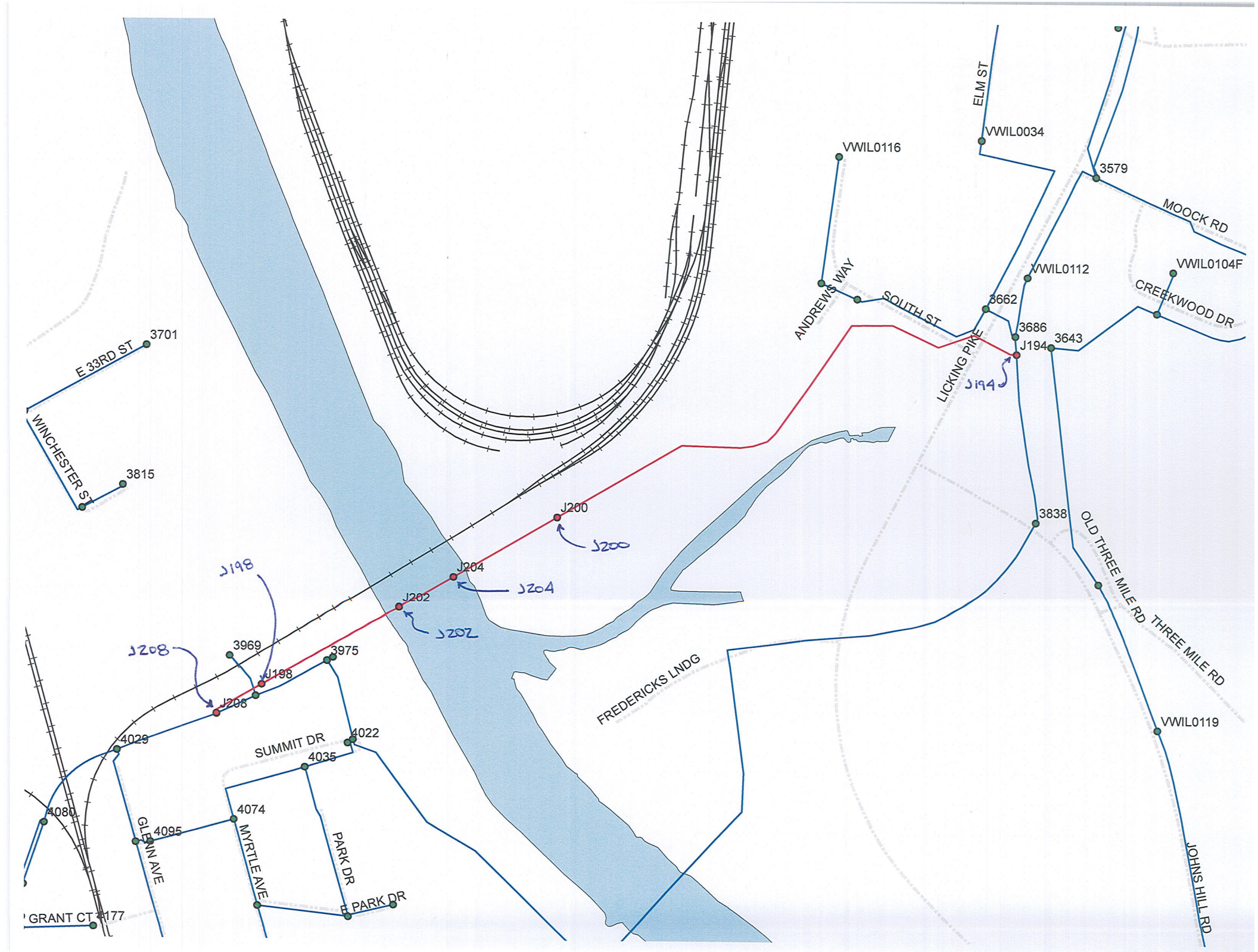

ELM ST
VWIL0034
VWIL0116
3579
MOOCK RD
VWIL0112
VWIL0104F
CREEKWOOD DR
ANDREWS WAY
SOUTH ST
3662
3686
J194
3643
LICKING PIKE
J194
E 33RD ST
3701
WINCHESTER ST
3815
J200
J200
3838
OLD THREE MILE RD
THREE MILE RD
J198
J204
J204
J202
J202
J208
3969
3975
J198
J208
FREDERICKS LNDG
4029
SUMMIT DR
4022
4035
VWIL0119
4080
4095
4074
GLENN AVE
MYRTLE AVE
PARK DR
E PARK DR
JOHNS HILL RD
GRANT CT
4177

EXHIBIT A-6

SPECIFICATIONS AND PLANS PREPARED AND DIGITALLY SIGNED BY A P.E.

SPECIFICATIONS

NORTHERN KENTUCKY WATER DISTRICT

Licking River Crossing
(WX21037003 – Contract 2)
Cities of Wilder / Covington,
Campbell / Kenton County, Kentucky

May 2022

COMPILED BY:
HDR Engineering, Inc.
2517 Sir Barton Way
Lexington, Kentucky 40509
(859) 629-4800

S P E C I F I C A T I O N S

FOR

NORTHERN KENTUCKY WATER DISTRICT

Licking River Crossing (WX21037003 – Contract 2) Cities of Wilder / Covington, Campbell / Kenton County, Kentucky

May 2022

GOVERNING BODY

COMMISSIONERS:

JOSEPH J. KOESTER – CHAIR
FRED MACKE, JR – VICE CHAIR
JODY R. LANGE, CPA, CGMA - SECRETARY
DOUG WAGNER - TREASURER
CLYDE CUNNINGHAM - COMMISSIONER
NICHOLAS E. WINNIKE - COMMISSIONER

RON LOVAN, PRESIDENT/CEO

COMPILED BY:
HDR Engineering, Inc.
2517 Sir Barton Way
Lexington, Kentucky 40509
(859) 629-4800

LICKING RIVER CROSSING
KENTON AND CAMPBELL COUNTY, KENTUCKY

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LICKING RIVER CROSSING
KENTON AND CAMPBELL COUNTY, KENTUCKY

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LICKING RIVER CROSSING
KENTON AND CAMPBELL COUNTY, KENTUCKY

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INCORPORATED BY REFERENCE: NORTHERN KENTUCKY WATER DISTRICT

LATEST EDITION OF THE STANDARD SPECIFICATIONS AND DRAWINGS FOR THE INSTALLATION OF WATER MAINS FOUND AT WWW.NKYWATER.ORG

APPENDICES

END OF TABLE OF CONTENTS

Section 00020

INVITATION TO BID

Date: May 12, 2022 & May 26, 2022

PROJECT**:** **Licking River Crossing**
(WX21037003 – Contract 2)
Cities of Wilder / Covington,
Campbell / Kenton County, Kentucky

SEALED BIDS WILL BE RECEIVED AT:

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

UNTIL: Date: June 16, 2022
Time: 10:00 AM (Local Time)

At said place and time, and promptly thereafter, all Bids that have been duly received will be opened. Entities on the registered list of plan holders will be sent a link to attend the virtual bid opening. The public may access the virtual bid opening by emailing Tom Edge at tedge@nkywater.org to get the meeting number and password.

The proposed Work is generally described as follows: Construction of approximately 1,920 linear feet of 36" ductile iron water main and 1,200 linear feet of 36" HDPE water main directional drilled under the Licking River together with the appurtenances and related work along South Street, Andrews Way in the City of Wilder, Campbell County, Kentucky to approximately 250' north of Summit Drive in the City of Covington, Kenton County, Kentucky. The project shall be completed within 365 calendar days. Liquidated damages shall be assessed at $500 per calendar day.

To view the bid documents, go to Northern Kentucky Water District (nkywater.org) in the section labeled "Current Procurement Items" at the bottom of the page and click the link to be redirected to the Quest CDN Electronic Bid Online Interface.

This bid is listed as Quest eBid Doc **#8201311**

The project documents may be downloaded by registering with Quest CDN online at www.questcdn.com or by calling 952-233-1632. After registration is complete, an On-Line Bid ID code must be created by clicking on "My Account", then the "User Info" tab. A prospective bidder will create this code in the designated field per requirements noted. To be considered a Plan-holder, a bidder must complete registration and download the Proposal Documents in digital form for a $15.00 charge. There will be a charge of $30.00 to submit a bid. Plan-holders will receive addenda and other proposal document updates via Quest CDN. Prospective bidders must be on the plan holders list through Quest CDN for a bid to be accepted.

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

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

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

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

This project may be funded with funds provided by the Kentucky Drinking Water State Revolving Fund (SRF) with federal funds provided by the Environmental Protection Agency. Alternate bid items are included to allow for SRF funding. If an alternate bid is selected to enable SRF funding, SRF requirements (including American Iron and Steel and Davis Bacon) and provisions must be met by the Bidder and all subcontractors. If an alternate bid is selected by NKWD to enable SRF funding, SRF requires federal prevailing wage rates to be paid to all employees of the Bidder and all employees of any subcontractor.

For the SRF alternate bid items, Bidders must comply with Title VI of the Civil Rights Act of 1964, the Anti-Kickback Act, and the Contract Work Hours Standard Act.

For the SRF alternate bid items, Bidders must comply with the President's Executive Order No. 11246 as amended, which prohibits discrimination in employment regarding race, creed, color, sex or national origin.

For the SRF alternate bid items, the project will be in compliance with Executive Order 11246 (Equal Employment Opportunity) as amended.

For the SRF alternate bid items, all Bidders, Contractors and Subcontractors will comply with 41 CFR 60-4, in regard to affirmative action, to insure equal opportunity to females and minorities and will apply the time tables and goals set forth in 41 CFR 60-4.

For the SRF alternate bid items, Bidders will make positive efforts to use small, minority, women owned and disadvantaged businesses.

For the SRF alternate bid items, the procurement will be subject to DOW Procurement Guidance including the Davis- Bacon Act.

For the SRF alternate bid items, the Successful Bidder and all Subcontractors will be required to conform to the labor standards set forth in the Contract Documents.

Evaluation of Bids and the awarding of a final contract are subject to the reciprocal preference for Kentucky resident bidders pursuant to KRS 45A490 to 45A.494 and (KAR 200 5:400)

For the SRF alternate bid items, all bidders must comply with OSHA (P.L. 91-596) and the Contract Work Hours and Safety Standards Act (P.L 91-54).

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

Small, Minority, and Disadvantaged Business Enterprises are encouraged to bid on this project.

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

Award of the Contract will be made to the lowest, responsive, responsible bidder in accordance with Article 19, Award of Contract, specified in the Instructions to Bidders

The Northern Kentucky Water District is an Equal Opportunity Employer.

End of Section

Section 00100

INSTRUCTIONS TO BIDDERS

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

A. *Bidder* - The individual or entity who submits a Bid directly to Owner.

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

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

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

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

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

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

a. thoroughly examine and study the Instructions to Bidders and the Contract Documents, including any Addenda;

b. visit the Site and become familiar with and satisfy Bidder as to the general, local, and site conditions that may affect cost, progress, performance, or furnishing of the Work;

c. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, performance, or furnishing of the Work;

d. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for

performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Contract Documents;

e. correlate the information known to Bidder, information and observations obtained from visits to the Site, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents;

f. promptly give Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Contract Documents and confirm that the written resolution thereof by Owner is acceptable to Bidder; and

g. determine that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

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

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

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

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

6. INTERPRETATIONS AND ADDENDA. All addendums will be issued through the Owner's QUESTCDN electronic bidding site. You must download the bid documents to be a plan holder and receive any addenda. It is the sole responsibility of the Bidder to review all addendums twenty-four (24) hours prior to bid. Questions received less than 72 hours prior to the date for opening of Bids may not be answered. The person submitting questions shall be responsible for their prompt delivery. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

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

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

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

Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may annul the Notice of Award and Bid security of that Bidder will be forfeited. Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or one day after the last day the Bids remain subject to acceptance, whereupon Bid security furnished by such Bidders will be returned.

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

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

10. SUBSTITUTE OR "OR-EQUAL" ITEMS. The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Owner, application for such acceptance will not be considered by Owner until after the Effective Date of the Agreement. The procedure for submission of any such application by Contractor and consideration by Owner is set forth in the General Conditions and may be supplemented in the General Requirements.

11. SUBMITTING AN ONLINE BID. Proceed to the QuestCDN website at www.questcdn.com. You will be asked to sign into your account or create a free QUESTCDN account by clicking the 'join' link. Contact QUESTCDN at 952-233-1632 or

info@questcdn.com for assistance in membership registration, downloading the project and vbid online bid submittal.

The QUESTCDN eBid Doc number for this project is: #8201311

To access the bid form, click the online bidding button at the top of bid advertisement. The on-line bid button will be available when the project is published and open for bidding. There is a fee of $30.00 to submit your bid.

12. PREPARATION OF BID. Bid price shall be indicated for each lump sum bid item and/or unit price item listed therein.

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

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

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

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

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

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

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

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

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

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

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

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

Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

14. SUBMITTAL OF BID. Due to the Covid-19 situation, the Northern Kentucky Water District (NKWD) has implemented changes that will impact the bidding of projects, goods, and services. The lobby is closed to the public at the District’s Erlanger office. Additionally, the District will not be hosting group meetings or gatherings, including public bid openings. All bid openings will be conducted by NKWD staff only at the date and time indicated in the Invitation to Bid. The general public will not be permitted to attend the bid openings as has traditionally occurred in the past. Bid results will be available on the NKWD website through the Quest CDN Online Interface. These changes will remain in place until further notice.

The bid shall be accompanied by:

1. Bid Disclosure Form (Section 00300)

2. Certification Regarding Debarment, Suspension and Other Responsibility Matters (EPA Form 5700-49). (Section 00810 – Attachment No. 9)

3. Certification Regarding Lobbying, Certification for Contracts, Grants, Loans and Cooperative Agreements. (Section 00810 – Attachment No. 10)

4. Statement of Bidder’s Qualifications (Section 00301 – Attachment No. 1)

5. Bidder’s Experience Record (Section 00301 – Attachment No. 2)

6. Proposed Subcontractors (Section 00301 – Attachment No. 3)

7. Bid Security (Section 00410)

8. Non-Collusion Affidavit (Section 00460)

9. Required Notarized Affidavit for Bidders, Offerors, and Contractors Claiming Kentucky Resident Bidder Status (Section 00470)

A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to Bid. Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids. Paper, oral, telephone, facsimile, or telegraph Bids are invalid and will not receive consideration.

15. MODIFICATION AND WITHDRAWAL OF BIDS. A Bid may be modified or withdrawn via the Quest CDN electronic bid service only. If within 72 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.

16. OPENING OF BIDS. Bids will be opened at the time and place indicated in the advertisement or Invitation to Bid. 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.

17. BIDS TO REMAIN SUBJECT TO ACCEPTANCE. All Bids will remain subject to acceptance for 60 days after the bids are due. Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

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

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

a. Whether or not the Bid complies with the prescribed requirements and provides other information or data as may be requested in the Bidder Disclosure Form.

b. The qualifications of the Bidder.

c. If the Bidder has adequate personnel, plant, and equipment to perform the services properly and expeditiously.

e. Bidder's financial status to meet all obligations and incidentals to the services.

f. Whether the Bidder has appropriate technical expertise and experience.

g. Bidder's performance record.

h. The amount of the bid and the best bid.

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

Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders to perform the services in accordance with the Contract Documents.

19. CONTRACT SECURITY AND INSURANCE. Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment Bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by such Bonds.

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

21. DRINKING WATER STATE REVOLVING FUND LOAN. A portion of the funding for this project may come from a Drinking Water State Revolving Fund (DWSRF) loan. This loan originates with the United States Environmental Protection (USEPA) and has several provisions that directly impact the Bidder. These include:

1. A certificate that the Bidder, and any subcontractors used by the Bidder, are not on the Federal List of Debarred Contractors. (CERTIFICATION REGARDING DEBAREMENT, SUSPENSION AND OTHER MATTERS – EPA Form 5700-49) addresses this item and must be executed and included with the bid

2. A certification from the Bidder that no appropriate funds were or will be used for the purposes of lobbying the legislative or executive branches of the Federal government. (CERIFICATION REGARDING LOBBYING) address this item and must be submitted with the Bid.

The DWSRF loan creates additional documentation requirements on both the Contractor and the Owner. These are set forth in the Supplemental General Conditions for Drinking Water State Revolving Fund Loans (DWSRF Supplemental General Conditions). The items identified, but not limited to, in this section must be submitted with the Bid. The remaining

items identified in the DWSRF Supplemental General Conditions Section will be submitted by the low bidder within 21 days of the District's formal request. The project will not be awarded until this information is received.

DWSRF funding requires a recipient to utilize minority or women owned businesses as subcontractors where possible. Certain information and documentation is required by the funding agencies and other governing bodies prior to awarding a necessary approval for this project. The BIDDER acknowledges, through the act of submitting a Bid, a commitment to submit the following documentation or information within 7 days of the District's formal request to do so. Failure to produce any of this documentation or information within the prescribed period will serve as grounds for rejection of the Bid. If the information is required from a subcontractor or vendor and is not produced within the prescribed, it will serve as grounds to replace the subcontractor or vendor with another company or product.

Specific items to be submitted within 7 days of the District's formal request include:

A. Disadvantage Enterprise Participation Policy (Attachment 11-Section 00810).
B. List of DBE Bidders of Subcontractors (Attachment 11-Section 00810).

End of Section

Section 00300

BID DISCLOSURE FORM

PROJECT IDENTIFICATION: **Licking River Crossing**
(WX21037003 – Contract 2)
Cities of Wilder / Covington,
Campbell / Kenton County, Kentucky

THIS BID IS SUBMITTED TO:

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

THIS BID IS SUBMITTED BY: _____
(Bidder's Company Name)

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

2. Bidder accepts all of the terms and conditions of the Invitation to Bid and the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 calendar days after the Bid opening, or for such longer period of time to which the Bidder may agree in writing upon request of Owner. Bidder understands that certain extensions to the time for acceptance of this Bid may require the consent of the surety for the Bid Bond.

3. In submitting this Bid, Bidder represents and covenants, as set forth in the Agreement, that:

   a. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

   b. Bidder is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

   c. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary explorations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

d. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

e. 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.

f. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.

g. Bidder has given Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Owner is acceptable to Bidder.

h. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

I. **[Check the one that applies]**

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

OR

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

_____

_____

_____

j. Bidder's Organization Number from Kentucky's Secretary of State is #_____ [if applicable] and Bidder is qualified to transact business in the State of Kentucky or hereby covenants to obtain such qualifications prior to award of the Contract.

4. Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any

agreement or rules of any group, association, organization, or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

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

6. Bidder will complete the Work for unit prices computed in accordance with paragraph 11.03.B of the General Conditions. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities provided, determined as provided in the Contract Documents.

7. Bidder agrees that the Work will be substantially complete within 335 calendar days after the date when the Contract Times commence to run as provided in paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.07.B of the General Conditions within 365 calendar days after the date when the Contract Times commence to run.

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

8. References

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

SUBMITTED on _____, 2022.

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

_____

_____

_____

_____

Email: _____

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

SIGNATURE OF BIDDER

If an Individual

Name (typed or printed): _____

By _____ (SEAL)
(Individual's signature)

doing business as _____

Business address _____

_____

Phone No.: _____ Fax No.: _____

Date _____

If a Partnership

Partnership Name: _____ (SEAL)

By _____
(Signature of general partner - attach evidence of authority to sign)

Name (typed or printed): _____

Business address _____

_____

Phone No. _____ Fax No.: _____

Date _____

If a Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General, Professional Service): _____

By _____
(Signature - attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(CORPORATE SEAL)

Attest _____

Business address _____

_____

Phone No. _____ Fax No.: _____

Date _____

If a Limited Liability Company

Company Name: _____ (SEAL)

State of Organization: _____

Type (General, Professional): _____

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

Name (typed or printed): _____

Title: _____

(COMPANY SEAL)

Attest _____

Business address _____

_____

Phone No. _____ Fax No.: _____

Date _____

If a Joint Venture

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

Joint Venturer Name: _____ (SEAL)

By: _____
(Signature - attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

_____

Phone No.: _____ Fax No.: _____

Date _____

Joint Venturer Name: _____ (SEAL)

By: _____
(Signature - attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

_____

Phone No.: _____ Fax No.: _____

Date _____

Section 00301

SUPPLEMENTS TO BID FORM

1. FORMS TO BE SUBMITTED WITH BID

   A. Bid Disclosure Form (Section 00300)
   B. Certification Regarding Debarment, Suspension and Other Responsibility Matters - EPA Form 5700-49 (Attachment No. 9 – Section 00810)
   C. Certification Regarding Lobbying (Attachment No. 10 – Section 00810)
   D. Statement of Bidder's Qualifications (Attachment No. 1)
   E. Bidder's Experience Record (Attachment No. 2)
   F. Proposed Subcontractors (Attachment No. 3)
   G. Bid Security (Specification Section 00410)
   H. Non-Collusion Affidavit (Specification Section 00460)
   I. Required Notarized Affidavit for Bidders, Offerors, and Contractors Claiming Kentucky Resident Bidder Status (Specification Section 00470)

2. FORMS TO BE SUBMITTED WITHIN 7 DAYS OF DISTRICT'S FORMAL REQUEST

   Certain information and documentation is required by the funding agencies and other governing bodies prior to awarding a necessary approval for this project. The BIDDER acknowledges, through the act of submitting a Bid, a commitment to submit the following documentation or information within 7 days of the District's formal request to do so. Failure to produce any of this documentation or information within the prescribed period will serve as ground for rejection of the Bid. If the information is required from a subcontractor or vendor and is not produced within the prescribed time, it will serve as grounds to replace the subcontractor or vendor with another company or product.

   Specific items to be submitted within 7 days of the District's formal request include:

   A. Disadvantage Enterprise Participation Policy (Attachment 11 – Section 00810)
   B. List of DBE Bidders of Subcontracts (Attachment 11 – Section 00810)

Attachment Number 1

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions shall be answered or the bid document will be incomplete. All data given shall be clear and comprehensive. This statement shall be notarized. If necessary, questions may be answered on separate sheets. The Bidder may submit any additional information it desires. If the Bidder is a joint venture, submit pervious joint venture projects. If joint venture has not completed prior projects of this magnitude then submit projects completed by joint venture partners.

1. Name of Bidder:

2. Permanent main office address:

3. When organized:

4. If a corporation, where incorporated:

5. How many years have you been engaged in operation of your business under your present firm or trade name:

6. Contracts on hand. (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.):

7. General character of work performed by your company:

8. Have you ever failed to complete any job awarded to you? If so, where and why?

9. Have you ever defaulted on a contract? If so, where and why?

10. List the more important projects completed by your firm, stating the approximate cost for each, and the month and year completed on attached sheet.

11. List your major equipment available for this work.

12. Experience in work similar in complexity, size and/or dollar value to this project. List and describe at least four on the table "Project References".

13. Background and experience of the principal members of your organization, including the officers in this type of work. (Attach)

14. Credit available: $_____

15. Give bank reference: $_____

16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner? ☐ Yes ☐ No

17. The undersigned hereby authorizes and requests any person, firm or corporation to furnish any information required by the Owner in verification of the statements made comprising this Statement of Bidder's Qualifications:

Dated at _____ this _____ day of _____

_____
NAME OF BIDDER

BY_____

TITLE_____

STATE OF _____

COUNTY OF _____

_____ being duly sworn deposes and says that he or she is

_____ of _____
(NAME OF ORGANIZATION)

And that the answers to the foregoing questions and all statements contained therin are true and correct.

Subscribed and swarn to before me this ____ day of _____, of this year _____.

_____
(NOTARY PUBLIC)

My commission expires _____

Attachment Number 2

BIDDER'S EXPERIENCE RECORD
(Projects need to be of similar size and nature)

Change Order Value				
Contract Value				
Size of Project (Length, Contract Duration				
Project Type, Year of Completion				
Engineer Contact Name, Telephone #				
Project Name, Owner, Address, Telephone #				

Attachment Number 3

PROPOSED SUBCONTRACTORS

The BIDDER's proposed subcontractors shall be listed below for the various branches of work included in the proposed contract. All subcontractors are subject to the approval of the OWNER.
Unless rejected or otherwise permitted by the OWNER, no substitutions or changes to the listing of the entities proposed to perform that branch of the work will be allowed following opening of the Bids.

Where the BIDDER proposes to perform the work with its own forces, the phrase "Prime Contractor" shall be entered in the box provided

Failure to submit a completed list shall be cause for rejection of the Bid.

Branch of Work	**Name of Subcontractor**
1. Horizontal Directional Drill	
2. Water Main Installation	
3. Bore and Jack	
4. Corrosion Protection	
5. Restoration / Seeding & Strawing	
6. Other:	
7. Other:	

BID BOND

BIDDER (Name and Address)

_____
_____
_____

SURETY (Name and Address of Principal Place of Business)

_____
_____
_____

OWNER (Name and Address)

_____
_____
_____

BID

BID DUE DATE _____

PROJECT (Brief Description Including Location)

_____
_____
_____

BOND

BOND NUMBER _____

DATE (Not later than Bid due date) _____

PENAL SUM _____ _____
(Words) (Figures)

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

BIDDER	SURETY
_____(Seal)	_____(Seal)
Bidder's Name and Corporate Seal	Surety s Name and Corporate Seal
By _____	By _____
Signature and Title	Signature and Title (Attach Power of Attorney)
Attest _____	Attest _____
Signature and Title	Signature and Title

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

1 Bidder and Surety jointly and severally bind themselves their heirs executors administrators successors and assigns to pay to OWNER upon default of Bidder the penal sum set forth on the face of this Bond

2 Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents

3 This obligation shall be null and void if

3 1 OWNER accepts Bidder s Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents or

3 2 All Bids are rejected by OWNER or

3 3 OWNER fails to issue a Noti e of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and if applicable consented to by Surety when required by paragraph 5 hereof)

4 Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from OWNER which notice will be given with reasonable promptness identifying this Bond and the Project and including a statement of the amount due

5 Surety waives notice of and any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by OWNER and Bidder provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety s written consent

6 No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date

7 Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located

8 Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond Such notices may be sent by personal delivery commercial courier or by United States Registered or Certified Mail return receipt requested postage pre paid and shall be deemed to be effective upon receipt by the party concerned

9 Surety shall cause to be attached to this Bond a current and effective Power or Attorney evidencing the authority of the officer agent or representative who executed this Bond on behalf of Surety to execute seal and deliver such Bond and bind the Surety thereby

10 This Bond is intended to conform to all applicable statutory requirements Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length If any provision of this Bond conflicts with any applicable statute then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect

11 The term Bid as used herein includes a Bid offer or proposal as applicable

Section 00460

NON-COLLUSION AFFIDAVIT

STATE OF: _____)

COUNTY OF: _____) SS

_____, being first duly sworn, deposes

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

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

_____
AFFIANT

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

State and County, this _____ day of _____, 20 ____.

_____
NOTARY PUBLIC

End of Section

Bid Description: [Licking River Crossing (WX21037003 – Contract 2)]

REQUIRED NOTARIZED AFFIDAVIT FOR BIDDERS, OFFERORS AND CONTRACTORS CLAIMING KENTUCKY RESIDENT BIDDER STATUS

FOR BIDS AND CONTRACTS IN GENERAL:
The bidder or offeror hereby swears and affirms under penalty of perjury that, in accordance with KRS 45A.494(2), the entity bidding is an individual, partnership, association, corporation, or other business entity that, on the date the contract was first advertised or announced as available for bidding:

1. Is authorized to transact business in the Commonwealth of Kentucky; AND
2. Has for one year prior to and through the date this contract was first advertised or announced as available for bidding:
    a. Filed Kentucky corporate income taxes;
    b. Made payments to the Kentucky unemployment insurance fund established in KRS 341.490; and
    c. Maintained a Kentucky workers' compensation policy in effect.

The undersigned acknowledges that the District reserves the right to request documentation supporting a bidder's claim of resident bidder status. Failure to provide such documentation upon request shall result in disqualification of the bidder or contract termination.

_____	_____
Signature	Printed Name
_____	_____
Title (if signing on behalf of an entity)	Date

State of _____)
)ss.
County of _____)

Subscribed and sworn to before me by _____, as the _____, of _____, this _____ day of _____, 2022.

_____
Notary-at-Large
My comm. exp.:_____

(Note: The following standard form will be used for
Preparation of the agreement, after award of contract)

Section 00500

AGREEMENT
Licking River Crossing
(WX21037003 – Contract 2)
184-0749

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

Owner and Contractor, in consideration of the mutual covenants herein set forth, agree as follows:

Article 1. WORK.

Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: Construction of approximately 1,930 linear feet of 36" ductile iron water main and 1,150 linear feet of water main directional drilled under the Licking River together with the appurtenances and related work along South Street, Andrews Way in the City of Wilder, Campbell County, Kentucky to approximately 250' north of Summit Drive in the City of Covington, Kenton County, Kentucky.

Article 2. ENGINEER.

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

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

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

3.1. Contract Times. The Work will be substantially completed within **335** days after the date when the Contract Times commence to run as provided in paragraph 2.03.A of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions within **365** days after the date when the Contract Times commence to run.

3.2. Liquidated Damages. Owner and Contractor recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expenses, and difficulties involved in proving in a legal proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner $ 500.00 for each day that expires after the time specified in paragraph 3.1 for Substantial Completion until

the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times or any proper extension thereof granted by Owner, Contractor shall pay Owner as liquidated damages (but not as a penalty) $ 500.00 for each day that expires after the time specified in paragraph 3.1 for completion and readiness for final payment until the Work is completed and ready for final payment.

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

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

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

Article 4. CONTRACT PRICE.

Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in the Contractor's Bid, attached hereto as an exhibit, for the total amount of:

_____ _____

(words) **(figures)**

As provided in paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made as provided in paragraph 9.08 of the General Conditions and as modified by the Supplementary Conditions. Unit Prices have been computed as provided in paragraph 11.03 of the General Conditions.

Article 5. PAYMENT PROCEDURES.

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

5.1. Progress Payments. Owner shall make progress payments on account of the Contract Price

on the basis of Contractor's Applications for Payment on or about the 25th day of each month during performance of the Work. All such payments will be measured by the schedule of values established in paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.

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

a. Ten percent (10%) of the amount of the Work completed. This amount may be reduced by the Owner in its sole and absolute discretion, if the project is substantially completed; and

b. Ten percent (10%) of the value of materials and equipment that are not incorporated in the Work but are delivered, suitably stored, and accompanied by documentation satisfactory to Owner as provided in paragraph 14.02 of the General Conditions. Retainage for stored materials and equipment will be released when the materials and equipment are incorporated in the Work.

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

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

Article 6. CONTRACTOR'S REPRESENTATION

In order to induce Owner to enter into this Agreement Contractor makes the following representations:

a. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents

b. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

c. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

d. Contractor has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary explorations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface, and Underground

Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including applying the specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by Contractor, and safety precautions and programs incident thereto.

e. Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

f. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

g. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

h. Contractor has given Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Owner is acceptable to Contractor.

i. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

Article 7. CONTRACT DOCUMENTS.

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

A. This Agreement;
B. Performance Bond;
C. Payment Bond;
D. General Conditions;
E. Supplementary Conditions;
F. Specifications as listed in the table of contents of the Project Manual;
G. Drawings consisting of a cover sheet and sheets numbered **1** through **26** inclusive, with each sheet bearing the following general title;
   Licking River Crossing
H. Addenda (numbers ___ to ___, inclusive);
I. Exhibits to this Agreement (enumerated as follows):
   1. Notice to Proceed;
   2. Contractor's Bid;
   3. Documentation submitted by Contractor prior to Notice of Award;
J. The following which may be delivered or issued on or after the Effective Date of the

Agreement and are not attached hereto:

1. Written Amendments;
2. Work Change Directives;
3. Change Orders.

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

Article 8. CONTRACT CORRECTION PERIOD

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

Article 9. COMPLIANCE WITH KENTUCKY LAW

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

Article 10. EQUAL OPPORTUNITY

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

a. Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age forty (40) and over, disability, veteran status, or national origin;

b. Contractor will take affirmative action in regard to employment, upgrading, demotion, transfer, recruitment, recruitment advertising, layoff, termination, rates of pay or other forms of compensation, and selection for training, so as to ensure that applicants are employed and that employees during employment are treated without regard to their race, color, religion, sex, age forty (40) and over, disability, veteran status, or national origin;

c. Contractor will state in all solicitations or advertisements for employees placed by or on behalf of Contractor that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age forty (40) or over, disability, veteran status, or national origin;

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

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

Article 11. MISCELLANEOUS.

a. Terms used in this Agreement will have the meanings indicated in the General Conditions.

b. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

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

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

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

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

OWNER: **Northern Kentucky Water District**

_____

Amy Kramer
Vice President of Engineering, Production and Water Quality

Address for giving notices

2835 Crescent Springs Road
PO Box 18640
Erlanger, Kentucky 41018

CONTRACTOR:_____

By:_____
Signature

_____
Printed Name

_____
Title

(Corporate Seal)

Address for giving notices

_____

_____

_____

Joint Venture

CONTRACTOR:_____

By:_____

(Corporate Seal)

Address for giving notices

_____

_____

Performance Bond

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

---

CONTRACTOR (Name and Address)

SURETY (Name and Address of Principal Place of Business)

OWNER (Name and Address)

CONTRACT
Date
Amount
Description (Name and Location)

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

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

CONTRACTOR AS PRINCIPAL
Company (Corp Seal)

Signature _____
Name and Title

SURETY
Company (Corp Seal)

Signature _____
Name and Title
(Attach Power of Attorney)

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

CONTRACTOR AS PRINCIPAL
Company (Corp Seal)

Signature _____
Name and Title

SURETY
Company (Corp Seal)

Signature _____
Name and Title

EJCDC No 1910 28 A (1996 Edition)
Originally prepared through the joint efforts of the Surety Association of America Engineers Joint Contract Documents Committee the Associated General Contractors of America and the American Institute of Architects

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

2 If the CONTRACTOR performs the Contract, the Surety and the CONTRACTOR have no obligation under this Bond except to participate in conferences as provided in paragraph 3 1

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

3 1 The OWNER has notified the CONTRACTOR and the Surety at the addresses described in paragraph 10 below that the OWNER is considering declaring a CONTRACTOR Default and has requested and attempted to arrange a conference with the CONTRACTOR and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Contract If the OWNER the CONTRACTOR and the Surety agree the CONTRACTOR shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive the OWNER s right if any subsequently to declare a CONTRACTOR Default and

3 2 The OWNER has declared a CONTRACTOR Default and formally terminated the CONTRACTOR s right to complete the Contract Such CONTRACTOR Default shall not be declared earlier than twenty days after the CONTRACTOR and the Surety have received notice as provided in paragraph 3 1 and

3 3 The OWNER has agreed to pay the Balance of the Contract Price to

3 3 1 The Surety in accordance with the terms of the Contract,

3 3 2 Another contractor selected pursuant to paragraph 4 3 to perform the Contract

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

4 1 Arrange for the CONTRACTOR, with consent of the OWNER to perform and complete the Contract, or

4 2 Undertake to perform and complete the Contract itself through its agents or through independent contractors or

4 3 Obtain bids or negotiated proposals from qualified contractors acceptable to the OWNER for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the OWNER and the contractor selected with the OWNER s concurrence to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract, and pay to the OWNER the amount of damages as described in paragraph 6 in excess of the Balance of the Contract Price incurred by the OWNER resulting from the CONTRACTOR Default or

4 4 Waive its right to perform and complete arrange for completion or obtain a new contractor and with reasonable promptness under the circumstances

4 4 1 After investigation, determine the amount for which it may be liable to the OWNER and as soon as practicable after the amount is determined tender payment therefor to the OWNER, or

4 4 2 Deny liability in whole or in part and notify the OWNER citing reasons therefor

5 If the Surety does not proceed as provided in paragraph 4 with reasonable promptness the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the OWNER to the Surety demanding that the Surety perform its obligations under this Bond and the OWNER shall be entitled to enforce any remedy available to the OWNER If the Surety proceeds as provided in paragraph 4 4 and the OWNER refuses the payment tendered or the Surety has denied liability in whole or in part without further notice the OWNER shall be entitled to enforce any remedy available to the OWNER

6 After the OWNER has terminated the CONTRACTOR s right to complete the Contract, and if the Surety elects to act under paragraph 4 1 4 2 or 4 3 above then the responsibilities of the Surety to the OWNER shall not be greater than those of the CONTRACTOR under the Contract, and the responsibilities of the OWNER to the Surety shall not be greater than those of the OWNER under the Contract To a limit of the amount of this Bond but subject to commitment by the OWNER of the Balance of the Contract Price to mitigation of costs and damages on the Contract the Surety is obligated without duplication for

6 1 The responsibilities of the CONTRACTOR for correction of defective Work and completion of the Contract

6 2 Additional legal design professional and delay costs resulting from the CONTRACTOR s Default and resulting from the actions or failure to act of the Surety under paragraph 4 and

6 3 Liquidated damages or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non performance of the CONTRACTOR

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

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

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

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

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

12 Definitions

12 1 Balance of the Contract Price The total amount payable by the OWNER to the CONTRACTOR under the Contract after all proper adjustments have been made including allowance to the CONTRACTOR of any amounts received or to be received by the OWNER in settlement of insurance or other Claims for damages to which the CONTRACTOR is entitled reduced by all valid and proper payments made to or on behalf of the CONTRACTOR under the Contract

12 2 Contract The agreement between the OWNER and the CONTRACTOR identified on the signature page including all Contract Documents and changes thereto

12 3 CONTRACTOR Default. Failure of the CONTRACTOR, which has neither been remedied nor waived to perform or otherwise to comply with the terms of the Contract

12 4 OWNER Default. Failure of the OWNER, which has neither been remedied nor waived to pay the CONTRACTOR as required by the Contract or to perform and complete or comply with the other terms thereof

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

Payment Bond

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

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CONTRACTOR (Name and Address)

SURETY (Name and Address of Principal Place of Business)

OWNER (Name and Address)

CONTRACT
Date
Amount
Description (Name and Location)

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

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

CONTRACTOR AS PRINCIPAL		SURETY	
Company	(Corp Seal)	Company	(Corp Seal)
Signature _____		Signature _____	
Name and Title		Name and Title (Attach Power of Attorney)	

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

CONTRACTOR AS PRINCIPAL		SURETY	
Company	(Corp Seal)	Company	(Corp Seal)
Signature _____		Signature _____	
Name and Title		Name and Title	

EJCDC No 1910 28 B (1996 Edition)
Originally prepared through the joint efforts of the Surety Association of America Engineers Joint Contract Documents Committee the Associated General Contractors of America the American Institute of Architects the American Subcontractors Association, and the Associated Specialty Contractors

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

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

2 1 Promptly makes payment directly or indirectly for all sums due Claimants and

2 2 Defends indemnifies and holds harmless the OWNER from all claims demands liens or suits by any person or entity who furnished labor materials or equipment for use in the performance of the Contract provided the OWNER has promptly notified the CONTRACTOR and the Surety (at the addresses described in paragraph 12) of any claims demands liens or suits and tendered defense of such claims demands liens or suits to the CONTRACTOR and the Surety and provided there is no OWNER Default

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

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

4 1 Claimants who are employed by or have a direct contract with the CONTRACTOR have given notice to the Surety (at the addresses described in paragraph 12) and sent a copy or notice thereof to the OWNER stating that a claim is being made under this Bond and with substantial accuracy the amount of the claim

4 2 Claimants who do not have a direct contract with the CONTRACTOR.

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

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

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

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

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

6 1 Send an answer to the Claimant with a copy to the OWNER within 45 days after receipt of the claim stating the amounts that are undisputed and the basis for challenging any amounts that are disputed

6 2 Pay or arrange for payment of any undisputed amounts

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

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

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

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

11 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by paragraph 4 1 or paragraph 4 2 3 or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs If the provisions of this paragraph are void or prohibited by law the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable

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

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

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

15 DEFINITIONS

15 1 Claimant An individual or entity having a direct contract with the CONTRACTOR or with a Subcontractor of the CONTRACTOR to furnish labor materials or equipment for use in the performance of the Contract The intent of this Bond shall be to include without limitation in the terms labor materials or equipment that part of water gas power light, heat, oil gasoline telephone service or rental equipment used in the Contract architectural and engineering services required for performance of the Work of the CONTRACTOR and the CONTRACTOR s Subcontractors and all other items for which a mechanic s lien may be asserted in the jurisdiction where the labor materials or equipment were furnished

15 2 Contract. The agreement between the OWNER and the CONTRACTOR identified on the signature page including all Contract Documents and changes pthereto

15 3 OWNER Default. Failure of the OWNER which has neither been remedied nor waived to pay the CONTRACTOR as required by the Contract or to perform and complete or comply with the other terms thereof

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

CERTIFICATE OF INSURANCE

Issue Date:

PRODUCER:

Code Sub-Code

INSURED:

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

COMPANIES AFFORDING COVERAGE

COMPANY LETTER A	
COMPANY LETTER B	
COMPANY LETTER C	
COMPANY LETTER D	
COMPANY LETTER E	

COVERAGES

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

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

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS:

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

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

CERTIFICATE OF PROPERTY INSURANCE

ISSUE DATE _____ (mm/dd/yy)

THIS IS EVIDENCE THAT INSURANCE AS IDENTIFIED BELOW HAS BEEN ISSUED IS IN FORCE AND CONVEYS ALL THE RIGHTS AND PRIVILEGES AFFORDED UNDER THE POLICY

PRODUCER	COMPANY
Code Sub-Code	
INSURED	POLICY NUMBER
	EFFECTIVE DATE (mm/dd/yy) / EXPIRATION DATE (mm/dd/yy)

PROPERTY INFORMATION

LOCATION/DESCRIPTION

COVERAGE INFORMATION

COVERAGES/PERILS/FORMS	AMOUNT OF INSURANCE	DEDUCTIBLE
BUILDERS RISK/INSTALLATION FLOATER All Risk of Physical Damage or Loss to Equipment and Materials at or Incidental to the Jobsite on Completed Value Form	Insurable value of completed work.	

REMARKS (Including Special Conditions)

1 Certificate Holder and others identified in the property insurance paragraph of the Contract Documents are Named Insureds
2 Waiver of Subrogation against Named Insureds
3 Any similar insurance carried by Named Insureds is excess of coverage described hereon
4 Losses are payable to Owner as fiduciary for the Named Insureds

CANCELLATION

THIS POLICY IS SUBJECT TO THE PREMIUMS FORMS AND RULES IN EFFECT FOR EACH POLICY PERIOD SHOULD THE POLICY BE TERMINATED OR MATERIALLY CHANGED THE COMPANY WILL GIVE THE CERTIFICATE HOLDERS IDENTIFIED BELOW 30 DAYS' WRITTEN NOTICE AND WILL SEND NOTIFICATION OF ANY CHANGES TO THE POLICY THAT WOULD AFFECT THAT INTEREST IN ACCORDANCE WITH THE POLICY PROVISIONS OR AS REQUIRED BY LAW

CERTIFICATE HOLDERS

Name and Address	Nature of Interest
1	X Additional Named Insured
2	SIGNATURE OF AUTHORIZED AGENT OF THE COMPANY

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by

ACEC
American Council of Engineering Companies

The Associated General Contractors of America
Skill Responsibility Integrity

ASCE American Society of Civil Engineers

PE National Society of Professional Engineers
Professional Engineers in Private Practice

AMERICAN COUNCIL OF ENGINEERING COMPANIES

_____

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

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AMERICAN SOCIETY OF CIVIL ENGINEERS

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PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
A Practice Division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by

CSI

CONSTRUCTION SPECIFICATIONS INSTITUTE

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

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 and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*—The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*—See Paragraph 11.01 for definition.

17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*—The individual or entity named as such in the Agreement.

20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*—Sections of Division 1 of the Specifications.

22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.

23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*—Polychlorinated biphenyls.

31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.

37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.

46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.

47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.

48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

49. *Unit Price Work*—Work to be paid for on the basis of unit prices.

50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

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

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

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

2.03 *Commencement of Contract Times; Notice to Proceed*

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

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

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

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of

the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work*: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work*: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation , (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

   a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or

   b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or

2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

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

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the

Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

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

4.02 *Subsurface and Physical Conditions*

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

1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

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

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

   b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

   a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

   b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

   c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

   a. reviewing and checking all such information and data;

   b. locating all Underground Facilities shown or indicated in the Contract Documents;

   c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and

   d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

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

4.05 *Reference Points*

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

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to

permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.

E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

   a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

   b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners,

employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

6. include completed operations coverage:

    a. Such insurance shall remain in effect for two years after final payment.

    b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of

them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

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

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

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

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

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

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

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

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

ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

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

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and

3) it has a proven record of performance and availability of responsive service.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

   a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

   b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

   c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.

   d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

      1) shall certify that the proposed substitute item will:

         a) perform adequately the functions and achieve the results called for by the general design,

         b) be similar in substance to that specified, and

         c) be suited to the same use as that specified;

      2) will state:

         a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,

         b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

         c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

      3) will identify:

         a) all variations of the proposed substitute item from that specified, and

         b) available engineering, sales, maintenance, repair, and replacement services; and

      4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

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

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or

entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor

2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

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

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its

use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner

and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

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

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

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

6.12 *Record Documents*

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

6.13 *Safety and Protection*

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

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts

any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

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

6.17 *Shop Drawings and Samples*

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

1. *Shop Drawings:*

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

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

a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the

Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

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

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe

access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

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

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.

C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

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

8.03 *Furnish Data*

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

8.04 *Pay When Due*

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

8.05 *Lands and Easements; Reports and Tests*

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

8.06 *Insurance*

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

8.07 *Change Orders*

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

8.08 *Inspections, Tests, and Approvals*

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

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws

and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

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

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

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

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

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

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

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

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations

on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

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

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of,

and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

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

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of

executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

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

10.05 *Claims*

A. *Engineer's Decision Required*: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part;

2. approve the Claim; or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

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

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

    a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

    c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

    d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

    e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

    f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

    g. The cost of utilities, fuel, and sanitary facilities at the Site.

    h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.

    i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

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

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

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

B. *Cash Allowances:*

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in

the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

   a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

   b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

   c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

   d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

   e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

   f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

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

13.01 *Notice of Defects*

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

13.02 *Access to Work*

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

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

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

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers,

architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's

review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due:*

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

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

c. there are other items entitling Owner to a set-off against the amount recommended; or

d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

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

14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

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

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

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

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;

   b. consent of the surety, if any, to final payment;

   c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

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

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

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

14.08 *Final Completion Delayed*

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

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's repeated disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other

dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or

3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

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

17.03 *Cumulative Remedies*

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

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

Section 00800

SUPPLEMENTARY CONDITIONS

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

SC-1. DEFINITIONS AND TERMINOLOGY.

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

Amend the terms as follows:

3. Application for Payment: Strike out the word “Engineer” and insert the word “Owner” in its place.

9. Change Order: Strike out the words “recommended by Engineer”.

12. Contract Documents: In the first sentence, strike out the word “Engineer’s” and insert the word “Owner’s” in its place.

14. Contract Times: Strike out the words “as evidenced by Engineer’s written recommendation of final payment”.

15. Contractor: Delete the term “Contractor” and substitute therefore the terms “Contractor or Prime Contractor.”

17. Drawings: Add the following sentence to the definition: “Drawings may also be described as Plans.”

20. Field Order: Strike out the word “Engineer” and insert the word “Owner” in its place.

22. Hazardous Environmental Conditions: Delete the words “ or Radioactive Material” and substitute therefore the words “Radioactive Material or other pollutants or contaminants”.

44. Substantial Completion: Strike out the word “Engineer” and insert the word “Owner” in its place. Add the following to the first sentence: "and a Certificate of Substantial Completion has been completed."

51. Work Change Directive: In the first sentence strike out the words “and recommended by Engineer”.

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

Add the following new definitions to paragraph 1.01:

"52. Final Completion – The time when all work is complete, including all punch list items, and all documents required for occupancy of the facility are completed and submitted to the OWNER. These documents include, but are not limited to, Certificate of Occupancy, Letters of Approval from various regulatory agencies, inspection certificates, and all other items as required in paragraph 14.07."

"53. General Contractor – The person, firm, or corporation with whom OWNER has entered into an Agreement for a complete project, general trades, or complete project less a part of the project."

"54. Without exception – The term "without exception", when used in the Contract Documents following the name of a Supplier or a proprietary item of equipment, product, or material, shall mean that the sources of the product are limited to the listed Suppliers or products and that no like, equivalent, or "or-equal" item and no substitution will be considered."

"55. Written Notice – Notice to any party which is in writing and which shall be considered delivered and the service thereof completed once posted by certified or registered mail to the party to whom the notice is sent at its last given address or delivered in person to said party or its authorized representative on the work."

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

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

SC-2. PRELIMINARY MATTERS.

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

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

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

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

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

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

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

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

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

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

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

If requested by Owner, within 20 days after the Contract Times start to run, but before any work at the Site is started, a conference attended by Contractor, Owner, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.05.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

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

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

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

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

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

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

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

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

a. Report prepared by Geotechnology, Inc. This report shall be considered technical data upon which Contractor may rely on and shall be considered part of these project specifications.

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

SC-4.03. Differing Subsurface or Physical Conditions.

Replace paragraph 4.03.A with the following:

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

"1. Is of such nature as to require a change in the Contract Documents; or

"2. Differs materially from that shown or indicated in the Contract Documents; or

"3. Is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent on work of the character provided for in the Contract Documents;

"then CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any work in connection therewith (except in an emergency as required by paragraph 6.16.A), notify OWNER and ENGINEER in writing about such condition. CONTRACTOR shall not further disturb such condition or perform any work in connection therewith (except as aforesaid) until receipt of written order to do so."

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

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

SC-4.04. Underground Facilities.

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

"4.04.A.3 Location of Subsurface Utilities.

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

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

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

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

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

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

"4.04.A.6 Broken Utility Services.

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

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

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

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

"4.04.A.7 Existing Utility Relocation.

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

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

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

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

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

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

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

SC-4.06 Hazardous Environmental Conditions at Site.

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

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

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

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

SC-5. BONDS AND INSURANCE.

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

The surety company shall be rated “A” by AM BEST.

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

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

SC-5.04. Contractor's Insurance.

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

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

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

7. contain a cross liability or severability of interest clause or endorsement. Insurance covering the specified additional insureds shall be primary insurance, and all other insurance carried by the additional insureds shall be excess insurance;

8. with respect to workers' compensation and employers' liability, comprehensive automobile liability, commercial general liability, and umbrella liability insurance, and all other liability insurance specified herein to be provided by Contractor, Contractor shall require its insurance carriers to waive all rights of subrogation against Owner, Engineer, and their respective officers, directors, partners, employees, and agents.

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

C. The insurance required by paragraph 5.04 shall include coverage as necessary for the benefits provided under the United States Longshoremen's and Harbor Workers' Act and the Jones Act. This policy shall include an "all states" endorsement.

D. The limits of liability for the insurance required by paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts but shall provide coverage in greater amounts where required by Laws and Regulations. This coverage may be primary or a combination of primary and umbrella excess liability.

1. Workers' Compensation, and related coverage under paragraphs 5.04.A.1 and 5.04.A.2 of the General Conditions:

a. State Statutory

b. Applicable Federal (e.g., Longshoreman's) Statutory

b. Employer's Liability $1,000,000 each occurrence

2. Commercial General Liability under paragraphs 5.04.A.3 through 5.04.A.6 of the General Conditions shall be occurrence type, written in comprehensive form, and shall protect Contractor, Owner, and Engineer as additional insureds, against claims arising from injuries, sickness, disease, or death of any person or damage to property arising out of performance of the Work. The policy shall also include a per project aggregate limit endorsement, personal injury liability coverage, contractual liability coverage for blasting, explosion, collapse of buildings, and damage to underground property.

   a. General Aggregate $1,000,000

   b. Products – Completed Operations Aggregate $1,000,000

   c. Personal and Advertising Injury $1,000,000

   d. Each Occurrence (Bodily Injury and Property Damage) $1,000,000

   e. Property Damage liability insurance will provide Explosion, Collapse and Underground coverage's where applicable.

3. Automobile Liability under paragraph 5.04.A.6 of the General Conditions shall be occurrence type, written in comprehensive form, and shall protect Contractor, Owner, and Engineer as additional insureds, against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, either on or off the project site whether they are owned, nonowned, or hired. The liability limit shall be not less than:

   a. Bodily Injury
      Each Person $1,000,000
      Each Accident $1,000,000

   b. Property Damage
      Each Accident $1,000,000

   c. Combined Single Limit $1,000,000

4. Umbrella Liability Insurance shall protect Contractor, Owner, and Engineer as additional insureds, against claims in excess of the limits provided under workers' compensation and employers' liability, comprehensive automobile liability, and commercial general liability policies. The umbrella policy shall follow the forms of the primary insurance, including the application of the primary limits. The liability limits shall be not less than:

Bodily injury and Property damage	$4,000,000 combined single limit for each occurrence $4,000,000 general aggregate

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

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

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

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

5.06. *Property Insurance*

A. Contractor shall purchase and maintain property insurance coverage upon the Work at the Site in the amount of the full replacement cost thereof. This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, Engineer, Engineer's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, flood, damage caused by frost and freezing, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work,

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

4. include expenses incurred in the repair or replacement of any insured property (including, but not limited to, fees and charges of engineers and architects);

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer, with 30 days' written notice to each other additional insured to whom a certificate of insurance has been issued.

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

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

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

SC-6. CONTRACTOR'S RESPONSIBILITIES.

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

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

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

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

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

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

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

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

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

B. Owner will obtain and pay for the following permits: Road & Highway Encroachment Permits, Kentucky Division of Water, and Stream Crossing Permits (including a Section 404 permit from the Corps of Engineers if applicable).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

7. any correction of defective Work by Owner; or

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

8. any expiration of a correction period.

SC-7. OTHER WORK.

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

SC-8. OWNER'S RESPONSIBILITIES.

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

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

SC-9. ENGINEER'S STATUS DURING CONSTRUCTION.

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

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

B. Engineer may make visits to the Site as Owner deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, at the request and benefit of Owner, may determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will advise Owner of the progress of the Work and will endeavor to guard Owner against defective Work.

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

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

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

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

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

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

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

SC-10. CHANGES IN THE WORK.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

B. If Owner considers it necessary or advisable that covered Work be observed by Engineer or Owner's representatives, or inspected or tested by others, Contractor, at Owner's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Owner may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective, Contractor shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If, however, such Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in paragraph 10.05.

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

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

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

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

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

A. If, instead of requiring correction or removal and replacement of defective Work, Owner, prior to making final payment, prefers to accept it, Owner may do so. Contractor shall pay all Claims, costs, losses, and damages (including but not limited to all fees and

charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work and the diminished value of the Work to the extent not other wise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Owner making final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of the Work so accepted. If the acceptance occurs after making final payment, an appropriate amount will be paid by Contractor to Owner.

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

SC-14. PAYMENTS TO CONTRACTOR AND COMPLETION.

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

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

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

4. Contractor's Applications for Payment shall be accompanied by the documentation specified herein.

5. Payments for stored materials and equipment shall be based only upon the actual cost to Contractor of the materials and equipment and shall not include any overhead or profit to Contractor. Partial payments will not be made for undelivered materials or equipment.

6. During the progress of the Work, each Application for Payment shall be accompanied by Contractor's updated schedule of operations, or progress report, with such shop drawings schedules, procurement schedules, value of material on hand included in application, and other data specified in Contract Documents or reasonably required by Owner.

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

B. *Review of Applications*

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

2. Owner's review of Contractor's Application for Payment will consider whether the following have been achieved:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08, and to any other qualifications as reasonably applied by Owner); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as Owner or Engineer has observed the Work.

3. By processing and making such payment Owner will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work; or

b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Owner's review of Contractor's Work for the purposes of processing payments nor Owner's making any such payments, including final payment, will impose responsibility on Owner:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's performance of the Work.

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Owner may refuse to process or make the whole or any part of any payment if, in Owner's opinion, the criteria referred to in paragraph 14.02.B.2 has not been met. Owner may also refuse to process or make any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment previously made, to such extent as may be necessary in Owner's opinion to protect Owner from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Written Amendment or Change Orders;

c. Owner has been required to correct defective Work or complete Work in accordance with paragraph 13.09; or

d. Owner has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A.

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

C. *Payment Becomes Due*

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

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

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

2. If Owner refuses to make payment of the full amount requested by Contractor, Owner must give Contractor immediate written notice stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner’s satisfaction the reasons for such action.

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

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Owner issue a certificate of Substantial Completion.

B. Promptly thereafter, Owner and Contractor shall make an inspection of the Work to determine the status of completion. If Owner does not consider the Work substantially complete, Owner will notify Contractor in writing giving the reasons therefor.

C. If Owner considers the Work substantially complete, Owner will within 14 days after the inspection of the Work execute and deliver to Contractor a statement of Substantial Completion.

D. At the time of delivery of the certificate of Substantial Completion, Owner will deliver to Contractor a statement as to division of responsibilities pending final payment

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

Add the following new paragraphs following paragraph 14.04.A:

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

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

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

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

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

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

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

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

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

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

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

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

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

SC-15. SUSPENSION OF WORK AND TERMINATION.

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

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

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

A. If, through no act or fault of Contractor, the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or Owner fails to act on any Application for Payment within 30 days after it is submitted, or Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner, and provided Owner does not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner, stop the Work until payment is made of all such amounts dues Contractor, including interest thereon. The provisions of this paragraph 15.04 are not intended to preclude Contractor from making a Claim under paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor’s stopping the Work as permitted by this Paragraph.

SC-16. DISPUTE RESOLUTION.

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

ARTICLE 16 - DISPUTES.

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

SC-17. MISCELLANEOUS.

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

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

End of Section

SUPPLEMENTAL GENERAL CONDITIONS

FOR

CLEAN WATER STATE REVOLVING FUND

DRINKING WATER STATE REVOLVING FUND

(Drinking Water and Wastewater)

Project Name: Licking River Crossing

Project Number: WX21037003 - Contract 2

**** This section applies to Alternates 1 & 3 only which utilize SRF funding ****

The attached instructions and regulations as listed below shall be incorporated into the Specifications and comprise Special Conditions.

	Attachment No.
SRF Special Provisions	**1**
KRS Chapter 45A Kentucky Model Procurement Code	**2**
Equal Employment Opportunity (EEO) Documents:	
Notice of Requirement for Affirmative Action	**3**
Construction Contract Specifications	**4**
EEO Goals for Region 4 Economic Areas	**5**
Check List of EEO Documentation for Bidders	**6**
Employer Information Report EEO-1 (SF 100)	**7**
Labor Standards Provisions for Federally Assisted Construction	**8**
Certifications:	
Debarment, Suspension and Other Responsibility Matters	**9**
Anti-lobbying	**10**
Disadvantaged Business Enterprise (DBE) Program	**11**
Bonds and Insurance	**12**
Storm Water General Permit	**13**
Davis-Bacon Wage Rate Requirements	**14**
American Iron and Steel Requirement	**15**

SRF SPECIAL PROVISIONS

(a) Line crossings of all roads and streets shall be done in accordance with the Kentucky Transportation Cabinet requirements as may be set forth in the Special Conditions.

(b) Construction is to be carried out so as to prevent by-passing of flows during construction unless a schedule has been approved by the State or EPA, whichever is applicable. Siltation and soil erosion must be minimized during construction. All construction projects with surface disturbance of more than 1 acre during the period of construction must have a KPDES Storm Water General Permit. The permit can be found at this webpage.

If you have any questions regarding the completion of this form call the Surface Water Permits Branch at (502) 564-3410.

(c) Restore disturbed areas to original or better condition.

(d) Use of Chemicals: All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either DOW or EPA. Use of all such chemicals and disposal of residues shall be in conformance with instructions on the manufacturer's label.

(e) The construction of the project, including the letting of contracts in connection therewith, shall conform to the applicable requirements of state, territorial, and local laws and ordinances to the extent that such requirements do not conflict with Federal laws and this subchapter.

(f) The owner shall provide and maintain competent and adequate supervision and inspection.

(g) The Kentucky Infrastructure Authority and Kentucky Division of Water shall have access to the site and the project work at all times.

(h) 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 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.

(i) This procurement will be subject to DOW Procurement Guidance including the Davis-Bacon Act.

(j) Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.

(k) No wastewater bypassing will occur during construction unless a schedule has been approved by the Kentucky Division of Water.

(l) Change orders to the construction contract (if required) must be negotiated pursuant to DOW/KIA Procurement Guidance for Construction and Equipment Contracts.

KRS CHAPTER 45A
KENTUCKY MODEL PROCUREMENT CODE

45A.075 Methods of awarding state contracts.
Except as otherwise authorized by law, all state contracts shall be awarded by:
(1) Competitive sealed bidding, pursuant to KRS 45A.080; or
(2) Competitive negotiation, pursuant to KRS 45A.085 and 45A.090 or 45A.180; or
(3) Noncompetitive negotiation, pursuant to KRS 45A.095; or
(4) Small purchase procedures, pursuant to KRS 45A.100.
Effective: June 24, 2003
History: Amended 2003 Ky. Acts ch. 98, sec. 4, effective June 24, 2003. -- Created 1978 Ky. Acts ch. 110, sec. 16, effective January 1, 1979.

45A.080 Competitive sealed bidding.
(1) Contracts exceeding the amount provided by KRS 45A.100 shall be awarded by competitive sealed bidding, which may include the use of a reverse auction, unless it is determined in writing that this method is not practicable. Factors to be considered in determining whether competitive sealed bidding is not practicable shall include:
(a) Whether specifications can be prepared that permit award on the basis of best value; and
(b) The available sources, the time and place of performance, and other relevant circumstances as are appropriate for the use of competitive sealed bidding.
(2) The invitation for bids shall state that awards shall be made on the basis of best value. In any contract which is awarded under an invitation to bid which requires delivery by a specified date and imposes a penalty for late delivery, if the delivery is late, the contractor shall be given the opportunity to present evidence that the cause of the delay was beyond his control. If it is the opinion of the purchasing officer that there is sufficient justification for delayed delivery, the purchasing officer may adjust or waive any penalty that is provided for in the contract.
(3) Adequate public notice of the invitation for bids and any reverse auction shall be given a sufficient time prior to the date set forth for the opening of bids or beginning of the reverse auction. The notice may include posting on the Internet or publication in a newspaper or newspapers of general circulation in the state as determined by the secretary of the Finance and Administration Cabinet not less than seven (7) days before the date set for the opening of the bids and any reverse auction. The provisions of this subsection shall also apply to price contracts and purchase contracts of state institutions of higher education.
(4) Bids shall be opened publicly or entered through a reverse auction at the time and place designated in the invitation for bids. At the time the bids are opened, or the reverse auction has ended, the purchasing agency shall announce the agency's engineer's estimate, if applicable, and make it a part of the agency records pertaining to the letting of any contract for which bids were received. Each written or reverse auction bid, together with the name of the bidder and the agency's engineer's estimate, shall be recorded and be open to public inspection. Electronic bid opening and posting of the required information for public viewing shall satisfy the requirements of this subsection.
(5) The contract shall be awarded by written notice to the responsive and responsible bidder whose bid offers the best value.
(6) Correction or withdrawal of written or reverse auction bids shall be allowed only to the extent permitted by regulations issued by the secretary.
Effective: July 15, 2010
History: Amended 2010 Ky. Acts ch. 63, sec. 3, effective July 15, 2010. -- Amended 2000 Ky. Acts ch. 509, sec. 1, effective July 14, 2000. -- Amended 1998 Ky. Acts ch. 120, sec. 10, effective July 15, 1998. -- Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 27, effective May 30, 1997. -- Amended 1996 Ky. Acts ch. 60, sec. 2, effective July 15, 1996. -- Amended 1994 Ky. Acts ch. 278, sec. 1, effective July 15, 1994. -- Amended 1982 Ky. Acts ch. 282, sec. 1, effective July 15, 1982. -- Amended 1979 (1st Extra. Sess.) Ky. Acts ch. 9, sec. 1, effective February 10, 1979. -- Created 1978 Ky. Acts ch. 110, sec. 17, effective January 1, 1979.

45A.085 Competitive negotiation.
(1) When, under administrative regulations promulgated by the secretary or under KRS 45A.180, the purchasing officer determines in writing that the use of competitive sealed bidding is not practicable, and except as provided in KRS 45A.095 and 45A.100, a contract may be awarded by competitive negotiation, which may include the use of a reverse auction.
(2) Adequate public notice of the request for proposals and any reverse auction shall be given in the same manner and circumstances as provided in KRS 45A.080(3).
(3) Contracts other than contracts for projects utilizing an alternative project delivery method under KRS 45A.180 may be competitively negotiated when it is determined in writing by the purchasing officer that the bids received by competitive sealed bidding either are unreasonable as to all or part of the requirements, or were not independently reached in open competition, and for which each competitive bidder has been notified of the intention to negotiate and is given reasonable opportunity to negotiate.
(4) Contracts for projects utilizing an alternative project delivery method shall be processed in accordance with KRS 45A.180.
(5) The request for proposals shall indicate the relative importance of price and other evaluation factors, and any reverse auction procedures.
(6) Award shall be made to the responsible and responsive offeror whose proposal is determined in writing to be the most advantageous to the Commonwealth, taking into consideration price and the evaluation factors set forth in the request for proposals and the reciprocal preference for resident bidders required under KRS 45A.494.
(7) Written or oral discussions shall be conducted with all responsible offerors who submit proposals determined in writing to be reasonably susceptible of being selected for award. Discussions shall not disclose any information derived from proposals submitted by competing offerors. Discussions need not be conducted:
(a) With respect to prices, where the prices are fixed by law, reverse auction, or administrative regulation, except that consideration shall be given to competitive terms and conditions;
(b) Where time of delivery or performance will not permit discussions; or
(c) Where it can be clearly demonstrated and documented from the existence of adequate competition or prior experience with the particular supply, service, or construction item, that acceptance of an initial offer without discussion would result in fair and reasonable best value procurement, and the request for proposals notifies all offerors of the possibility that award may be made on the basis of the initial offers.
Effective: July 15, 2010
History: Amended 2010 Ky. Acts ch. 63, sec. 4, effective July 15, 2010; and ch. 162, sec. 8, effective July 15, 2010. -- Amended 2003 Ky. Acts ch. 98, sec. 5, effective June 24, 2003. -- Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 28, effective May 30, 1997. -- Amended 1979 (1st Extra. Sess.) Ky. Acts ch. 9, sec. 2, effective February 10, 1979. -- Created 1978 Ky. Acts ch. 110, sec. 18, effective January 1, 1979.

45A.090 Negotiation after competitive sealed bidding when all bids exceed available funds.
(1) In the event that all bids submitted pursuant to competitive sealed bidding under KRS 45A.080 result in bid prices in excess of the funds available for the purchase, and the chief purchasing officer determines in writing:
(a) That there are no additional funds available from any source so as to permit an award to the responsive and responsible bidder whose bid offers the best value; and
(b) The best interest of the state will not permit the delay attendant to a resolicitation under revised specifications, or for revised quantities, under competitive sealed bidding as provided in KRS 45A.080, then a negotiated award may be made as set forth in subsections (2) or (3) of this section.
(2) Where there is more than one (1) bidder, competitive negotiations pursuant to KRS 45A.085(3) shall be conducted with the three (3) (two (2) if there are only two (2)) bidders determined in writing to be the most responsive and responsible bidders, based on criteria contained in the bid invitation and the reciprocal preference for resident bidders under KRS 45A.494. Such competitive negotiations shall be conducted under the following restrictions:
(a) If discussions pertaining to the revision of the specifications or quantities are held with any potential offeror, all other potential offerors shall be afforded an opportunity to take part in such discussions; and

(b) A request for proposals, based upon revised specifications or quantities, shall be issued as promptly as possible, shall provide for an expeditious response to the revised requirements, and shall be awarded upon the basis of best value.
(3) Where, after competitive sealed bidding, it is determined in writing that there is only one (1) responsive and responsible bidder, a noncompetitive negotiated award may be made with such bidder in accordance with KRS 45A.095.
Effective: July 15, 2010
History: Amended 2010 Ky. Acts ch. 162, sec. 9, effective July 15, 2010. -- Amended 2003 Ky. Acts ch. 98, sec. 6, effective June 24, 2003. -- Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 29, effective May 30, 1997. -- Created 1978 Ky. Acts ch. 110, sec. 19, effective January 1, 1979.

45A.095 Noncompetitive negotiation.
(1) A contract may be made by noncompetitive negotiation only for sole source purchases, or when competition is not feasible, as determined by the purchasing officer in writing prior to award, under administrative regulations promulgated by the secretary of the Finance and Administration Cabinet or the governing boards of universities operating under KRS Chapter 164A, or when emergency conditions exist. Sole source is a situation in which there is only one (1) known capable supplier of a commodity or service, occasioned by the unique nature of the requirement, the supplier, or market conditions. Insofar as it is practical, no less than three (3) suppliers shall be solicited to submit written or oral quotations whenever it is determined that competitive sealed bidding is not feasible. Award shall be made to the supplier offering the best value. The names of the suppliers submitting quotations and the date and amount of each quotation shall be placed in the procurement file and maintained as a public record. Competitive bids may not be required:
(a) For contractual services where no competition exists, such as telephone service, electrical energy, and other public utility services;
(b) Where rates are fixed by law or ordinance;
(c) For library books;
(d) For commercial items that are purchased for resale;
(e) For interests in real property;
(f) For visiting speakers, professors, expert witnesses, and performing artists;
(g) For personal service contracts executed pursuant to KRS 45A.690 to 45A.725; and
(h) For agricultural products in accordance with KRS 45A.645.
(2) The chief procurement officer, the head of a using agency, or a person authorized in writing as the designee of either officer may make or authorize others to make emergency procurements when an emergency condition exists.
(3) An emergency condition is a situation which creates a threat or impending threat to public health, welfare, or safety such as may arise by reason of fires, floods, tornadoes, other natural or man-caused disasters, epidemics, riots, enemy attack, sabotage, explosion, power failure, energy shortages, transportation emergencies, equipment failures, state or federal legislative mandates, or similar events. The existence of the emergency condition creates an immediate and serious need for services, construction, or items of tangible personal property that cannot be met through normal procurement methods and the lack of which would seriously threaten the functioning of government, the preservation or protection of property, or the health or safety of any person.
(4) The Finance and Administration Cabinet may negotiate directly for the purchase of contractual services, supplies, materials, or equipment in bona fide emergencies regardless of estimated costs. The existence of the emergency shall be fully explained, in writing, by the head of the agency for which the purchase is to be made. The explanation shall be approved by the secretary of the Finance and Administration Cabinet and shall include the name of the vendor receiving the contract along with any other price quotations and a written determination for selection of the vendor receiving the contract. This information shall be filed with the record of all such purchases and made available to the public. Where practical, standard specifications shall be followed in making emergency purchases. In any event, every effort should be made to effect a competitively established price for purchases made by the state.
Effective: July 15, 2002

History: Amended 2002 Ky. Acts ch. 344, sec. 9, effective July 15, 2002. -- Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 30, effective May 30, 1997. -- Amended 1990 Ky. Acts ch. 496, sec. 4, effective July 13, 1990. -- Created 1978 Ky. Acts ch. 110, sec. 20, effective January 1, 1979

45A.100 Small purchases by state governmental bodies.

(1) Procurements may be made in accordance with small purchase administrative regulations promulgated by the secretary of the Finance and Administration Cabinet, pursuant to KRS Chapter 13A, as follows:

(a) Up to ten thousand dollars ($10,000) per project for construction and one thousand dollars ($1,000) for purchases by any state governmental body, except for those state administrative bodies specified in paragraph (b) of this subsection; and

(b) Up to forty thousand dollars ($40,000) per project for construction or purchases by the Finance and Administration Cabinet, state institutions of higher education, and the legislative branch of government.

(2) Procurement requirements shall not be artificially divided so as to constitute a small purchase under this section. Reverse auctions may be used for small purchase procurements. At least every two (2) years, the secretary shall review the prevailing costs of labor and materials and may make recommendations to the next regular session of the General Assembly for the revision of the then current maximum small purchase amount as justified by intervening changes in the cost of labor and materials.

(3) The secretary of the Finance and Administration Cabinet may grant to any state agency with a justifiable need a delegation of small purchasing authority which exceeds the agency's small purchase limit provided in subsection (1) of this section. Delegations of small purchasing authority shall be granted or revoked by the secretary of the Finance and Administration Cabinet, in accordance with administrative regulations promulgated by the cabinet pursuant to KRS Chapter 13A. These administrative regulations shall establish, at a minimum, the criteria for granting and revoking delegations of small purchasing authority, including the requesting agency's past compliance with purchasing regulations, the level of training of the agency's purchasing staff, and the extent to which the agency utilizes the Kentucky Automated Purchasing System. The administrative regulations may permit the secretary of the Finance and Administration Cabinet to delegate small purchase procurements up to the maximum amount specified in subsection (1)(b) of this section.

Effective: July 15, 2010

History: Amended 2010 Ky. Acts ch. 63, sec. 5, effective July 15, 2010. -- Amended 2002 Ky. Acts ch. 320, sec. 2, effective July 15, 2002. -- Amended 2000 Ky. Acts ch. 225, sec. 1, effective July 14, 2000. -- Amended 1996 Ky. Acts ch. 60, sec. 1, effective July 15, 1996. -- Amended 1994 Ky. Acts ch. 323, sec. 1, effective July 15, 1994. -- Amended 1990 Ky. Acts ch. 496, sec. 5, effective July 13, 1990. -- Amended 1986 Ky. Acts ch. 384, sec. 1, effective July 15, 1986. -- Amended 1984 Ky. Acts ch. 384, sec. 1, effective July 13, 1984. -- Amended 1982 Ky. Acts ch. 282, sec. 2, effective July 15, 1982. -- Amended 1980 Ky. Acts ch. 242, sec. 1, effective July 15, 1980; and ch. 250, sec. 19, effective April 9, 1980. -- Created 1978 Ky. Acts ch. 110, sec. 21, effective January 1, 1979.

Attachment Number 3

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

The following excerpts are from 45 FR 65984 (October 3, 1980):

The minority and female goals apply to Federal and federally assisted construction contractors and subcontractors which have covered contracts. The goals are expressed as a percentage of the total hours worked by such a covered or subcontractor's entire onsite construction workforce, which is working on any construction site within a relevant area. The goal applies to each construction craft and trade in the contractor's entire workforce in the relevant area including those employees working on private non-federally involved projects.

Until further notice, the following goals for minority utilization in each construction craft and trade shall be included in all Federal or federally assisted construction contracts and subcontracts in excess of $10,000 to be performed in the respective geographic area. The goals are applicable to each nonexempt contractor's total onsite construction workforce, regardless of whether or not part of that workforce is performing work on a Federal, federally assisted or non-federally related project, contract or subcontract.

Construction contractors which are participating in an approved Hometown Plan (see 41 CFR 60-4.5) are required to comply with the goals of the Hometown Plan with regard to construction work they perform in the area covered by the Hometown Plan. With regard to all their other covered construction work, such contractors are required to comply as follows:

Goals for female participation in each trade.....6.9%
Goals for minority participation in each trade.....Insert goals for each year
(see Attachment Number 5)

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted) performed in the covered area.

The following excerpts are from 45 FR 65977 (October 3, 1980):

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation 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 the 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 the 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.

The 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 the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

As used in this Notice, and in the contract resulting from this solicitation, the covered area is (insert description of the geographical areas where the contract is to be performed giving the state, country, and city, if any).

Attachment Number 4

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

EEO Specifications

Following is the standard language, which must be incorporated into all solicitations for offers and bids on all Federal and Federally assisted construction contracts or subcontracts in excess of $10,000 to be performed in designated geographical areas:

1. As used in these specifications:

   (a) Covered Area means the geographical area described in the solicitation from which this contract resulted.

   (b) Director means Director, Office of Federal Contract Compliance Program, United States Department of Labor, or any person to whom the Director delegates authority;

   (c) Employer identification number means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

   (d) Minority includes:

      (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

      (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

      (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

      (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take a good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7-a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensively as the following:

    a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

    b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations responses.

    c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the contractor may have taken.

    d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligation.

    e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7-b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, lay-off, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative actions obligations (7 a through p). The efforts of a contractor association, joint contractor-union, contractor-community, of other similar group of which the contractor is a member and participant may be asserted as fulfilling any one or more of its obligations under 7 a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example: even though the Contractor has achieved its goal for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables for affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

EEO GOALS FOR ECONOMIC AREAS IN REGION 4
SOURCE: APPENDIX B-80 IN 45 FR 65984 (OCTOBER 3, 1980)

Kentucky:

053 Knoxville, TN
SMSA Counties:
3840 Knoxville, TN 6.6
TN Anderson; TN Blount; TN Knox; TN Union.
Non-SMSA Counties 4.5
KY Bell; KY Harlan; KY Knox; KY Laurel; KY McCreary; KY Wayne; KY Whitley; TN Campbell; TN Claiborne; TN Cocke; TN Cumberland; TN Fentress; TN Grainger, TN Hamblen; TN Jefferson; TN Loudon; TN Morgan; TN Roane; TN Scott; TN Sevier.

054 Nashville, TN:
SMSA Counties:
1660 Clarksville - Hopkinsville, TN - KY 18.2
KY Christian; TN Montgomery.
5360 Nashville - Davidson, TN 15.8
TN Cheatham, TN Davidson; TN Dickson; TN Robertson; TN Rutherford; TN Sumner; TN Williamson; TN Wilson.
Non-SMSA Counties 12.0
KY Allen; KY Barren; KY Butler; KY Clinton; KY Cumberland; KY Edmonson; KY Logan; KY Metcalfe; KY Monroe; KY Simpson; KY Todd; KY Trigg; KY Warren; TN Bedford; TN Cannon; TN Clay; TN Coffee; TN DeKalb; TN Franklin; TN Giles; TN Hickman; TN Houston; TN Humphreys; TN Jackson; TN Lawrence; TN Lewis; TN Macon; TN Marshall; TN Maury; TN Moore; TN Overton; TN Perry; TN Pickett; TN Putnam; TN Smith; TN Stewart; TN Trousdale; TN Van Buren; TN Warren; TN Wayne; TN White.

056 Paducah, KY:
Non-SMSA Counties 5.2
IL Hardin; IL Massac; IL Pope; KY Ballard; KY Caldwell; KY Calloway. KY Carlisle; KY Crittenden; KY Fulton; KY Graves; KY Hickman; KY Livingston; KY Lyon. KY McCracken; KY Marshall.

057 Louisville, KY:
SMSA Counties:
4520 Louisville, KY-IN 11.2
IN Clark; IN Floyd; KY Bullitt; KY Jefferson; KY Oldham.
Non-SMSA Counties 9.6
IN Crawford; IN Harrison; IN Jefferson; IN Orange; IN Scott; IN Washington; KY Breckinridge; KY Grayson; KY Hardin; KY Hart; KY Henry; KY Larue; KY Marion; KY Meade; KY Nelson; KY Shelby; KY Spencer; KY Trimble; KY Washington.

058 Lexington, KY
SMSA Counties
4280 Lexington-Fayette, KY 10.8
KY Bourbon; KY Clark; KY Fayette; KY Jessamine; KY Scott; KY Woodford.
Non-SMSA Counties 7.0
KY Adair KY Anderson; KY Bath; KY Boyle; KY Breathitt; KY Casey; KY Clay; KY Estill; KY Franklin; KY Garrard; KY Green; KY Harrison; KY Jackson; KY Knott; KY Lee; KY Leslie; KY Letcher; KY Lincoln; KY Madison; KY Magoffin; KY Menifee; KY Mercer; KY Montgomery; KY Morgan. KY Nicholas; KY Owsley; KY Perry; KY Powell; KY Pulaski; KY Rockcastle; KY Russell; KY Taylor; KY Wolfe.

059 Huntington, WV:
SMSA Counties:
3400 Huntington - Ashland, WV-KY-OH 2.9
KY Boyd; KY Greenup; OH Lawrence; WV Cabell; WV Wayne.
Non-SMSA Counties 2.5
KY Carter; KY Elliott; KY Floyd; KY Johnson; KY Lawrence; KY Martin; KY Pike; KY Rowan; OH Gallia; WV Lincoln; WV Logan; WV Mason; WV Mingo.

067 Cincinnati, OH:
SMSA Counties:
1640 Cincinnati, OH-KY-IN 11.0
IN Dearborn; KY Boone; KY Campbell; KY Kenton; OH Clermont; OH Hamilton; OH Warren.
3200 Hamilton - Middletown, OH 5.0
OH Butler.
Non-SMSA Counties 9.2
IN Franklin; IN Ohio; IN Ripley; IN Switzerland; KY Bracken; KY Carroll; KY Fleming; KY Gallatin; KY Grant; KY Lewis; KY Mason; KY Owen; KY Pendleton; KY Robertson; OH Adams; OH Brown; OH Clinton; OH Highland.

080 Evansville, IN:
SMSA Counties
2440 Evansville, IN-KY 4.8
IN Gibson; IN Posey; IN Vanderburgh; IN Warrick; KY Henderson.
5990 Owensboro, KY 4.7
KY Daviess.
Non-SMSA Counties 3.5
IL Edwards; IL Gallatin; IL Hamilton; IL Lawrence; IL Saline; IL Wabash; IL White; IN Dubois; IN Knox; IN Perry; IN Pike; IN Spencer; KY Hancock; KY Hopkins; KY McLean; KY Muhlenberg; KY Ohio; KY Union; KY Webster.

Attachment Number 6

CHECK LIST OF EEO DOCUMENTATION FOR BIDDERS ON GRANT/LOAN CONSTRUCTION (EXECUTIVE ORDER 11246 AS AMENDED)

The low, responsive responsible bidder must forward the following items, in duplicate, to the owner no later than ten (10) days after bid opening. The owner shall have one (1) copy available for inspection by the Office of Federal Contracts Compliance (OFCC) within 14 days after the bid opening. More information can be found on the OFCC webpage.

1. Project Number. Project Location. Type of Construction.

2. Proof of registration with the Joint Reporting Commission. (See Attachment Number 7.)

3. Copy of Affirmative Action Plan of contractor. Indicate company official responsible for EEO.

4. List of current construction contracts, with dollar amount. List contracting Federal Agency, if applicable.

5. Statistics concerning company percent workforce, permanent and temporary, by sex, race, trade, handicapped, and age. 40 CFR Part 7.

6. List of employment sources for project in question. If union sources are utilized, indicate percentage of minority membership within the union crafts.

7. Anticipated employment needs for this project, by sex, race and trade, with estimate of minority participation in specific trades.

8. List of subcontractors (name, address and telephone) with dollar amount and duration of subcontract. Subcontractor contracts over $10,000 must submit items 1- 7. The following information must be provided for all supplier contracts regardless of contract size: name of company, contact person, address, telephone number, dollar value of the contract, and a list of the materials to be supplied to the prime contractor.

9. List of any subcontract work yet to be committed with estimate of dollar amount and duration of contract.

10. Contract Price. Duration of prime contract.

11. DBE Documents - See special instructions regarding use of Minority, and Women Owned, and Small Businesses.

Attachment Number 7

EMPLOYER INFORMATION REPORT EEO-1

Under the direction of the US Equal Employment Opportunity Commission, the Joint Reporting Committee is responsible for the full-length, multi-phase processing of employment statistics collected on the Employer Information Report EEO-1. This report, also termed Standard Form 100, details the sex and race/ethnic composition of an employer's work force by job category.

The Employer Information EEO-1 survey is conducted annually under the authority of Public Law 88-352, Title VII of the Civil Rights Act of 1964, as amended by the Equal Employment Opportunity Act of 1972. All employers with 15 or more employees are covered by Public Law 88-352 and are required to keep employment records as specified by Commission regulations. Based on the number of employees and federal contract activities, certain large employers are required to file an EEO-1 Report on an annual basis.

The EEO-1 Report must be filed by:

(A) All private employers who are: (1) subject to Title VII of the Civil Rights Act of 1964 (as amended by the Equal Employment Opportunity Act of 1972) with 100 or more employees EXCLUDING State and local governments, primary and secondary school systems, institutions of higher education, Indian tribes and tax-exempt private memberships clubs other than labor organizations; OR (2) subject to Title VII who have fewer than 100 employees if the company is owned or affiliated with another company, or there is centralized ownership, control or management (such as central control of personnel policies and labor relations) so that the group legally constitutes a single enterprise and the entire enterprise employs a total of 100 or more employees.

(B) All federal contractors (private employers), who: (1) are not exempt as provided for by 41 CFR 60-1.5, (2) have 50 or more employees, and (a) are prime contractors or first-tier subcontractors, and have a contract, subcontract, or purchase order amounting to $50,000 or more; or (b) serve as depository of Government funds in any amount, or (c) is a financial institution which is an issuing an paying agent for U.S. Savings Bonds and Notes.

Only those establishments located in the District of Columbia and the 50 states are required to submit the EEO-1 Report. No Reports should be filed for establishments in Puerto Rico, the Virgin Islands or other American Protectorates.

When filing for the EEO-1 Report for the first time, go to the U.S. Equal Employment Opportunity Commission webpage and select "First Time Filers". Fill out the electronic questionnaire to enter your company into Joint Reporting Committee (JRC) system. Once you have completed the registration process, you will be contacted on how to proceed with the EEO-1 Report. If you have previously registered with the JRC, follow their instructions to update your information.

Attachment Number 8

LABOR STANDARDS PROVISIONS FOR FEDERALLY ASSISTED CONSTRUCTION

Labor standards provisions applicable to contracts covering federally financed and assisted construction (29 CFR 5.5, Contract Provisions and Related Matters) that apply to EPA State Revolving Fund loans are:

(a)(4)(iii) *Equal employment opportunity.* The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(a)(5) *Compliance with Copeland Act requirements.* The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

(a)(6) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5 (a)(1) through (10) and such other clauses as the U.S. Environmental Protection Agency may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(a)(7) *Contract termination: debarment.* A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(b) *Contractor Work Hours and Safety Standards Act.* The Administrator, EPA, shall cause or require the contracting officer to insert the following clauses set forth in paragraphs (b)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by §5.5(a) or §4.6 of part 4 of this title. As used in this paragraph, the terms *laborers* and *mechanics* include watchmen and guards.

(b)(1) *Overtime requirements.* No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(b)(2) *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for unliquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of $27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) *Withholding for unpaid wages and liquidated damages.* The U.S. Environmental Protection Agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime

contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

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

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in section §5.1, the Administrator of EPA shall cause or require the contracting officer to insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Administrator of EPA shall cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the U.S. Environmental Protection Agency and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job. (Approved by the Office of Management and Budget under OMB control numbers 1215-0140 and 1215-0017.)

CERTIFICATIONS

Debarred Firms

All prime Construction Contractors shall certify that Subcontractors have not and will not be awarded to any firm that is currently on the EPA Master List of Debarred, Suspended and Voluntarily Excluded Persons in accordance with the provisions of 40 CFR 32.500(c). Debarment action is taken against a firm for noncompliance with Federal Law.

All bidders shall complete the attached certification (Attachment Number 9) and submit to the owner with the bid proposal.

Anti-lobbying Certification

All prime Construction Contractors must certify (Attachment Number 10) that no appropriated funds were or will be expended for the purpose of lobbying the Executive or Legislative Branches of the Federal Government or Federal Agency concerning this contract (contract in excess of $100,000). If the Contractor has made or agreed to make payment to influence any member of Congress in regard to award of this contract, a Disclosure Form must be completed and submitted to the owner with the bid proposal.

All prime Contractors must require all Subcontractors to submit the certification, which must also be submitted to the owner.

CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or Local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

_____

Typed Name & Title of Authorized Representative

_____

Signature of Authorized Representative Date

_____ I am unable to certify to the above statements. My explanation is attached.

Attachment Number 10

CERTIFICATION REGARDING LOBBYING
CERTIFICATION FOR CONTRACTS, GRANTS, LOANS, AND COOPERATIVE AGREEMENTS

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 an 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, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(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, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients 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.

_____

Typed Name & Title of Authorized Representative

_____

Signature of Authorized Representative Date

_____ I am unable to certify to the above statements. My explanation is attached.

Attachment Number 11

EPA DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

EPA's Disadvantaged Business Enterprise Program rule applies to contract procurement actions funded in part by EPA assistance agreements awarded after May 27, 2008. The rule is found at Federal regulation Title 40, Part 33. Specific responsibilities are highlighted below.

Loan recipient responsibilities:

- Include in each contract with a primary contractor the following term and condition:

  "The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract." (*Appendix A to Part 33—Term and Condition)*

- Employ the six Good Faith Efforts during prime contractor procurement (§33.301).

- Require the prime contractor to comply with the following prime contractor requirements of Title 40 Part 33:

  - To pay its subcontractor for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the recipient (§33.302(a)).

  - To notify recipient in writing prior to any termination of a DBE subcontractor for convenience by the prime contractor (§33.302(b)).

  - To employ the six Good Faith Efforts described in §33.301 if soliciting a replacement subcontractor after a DBE subcontractor fails to complete work under the subcontract for any reason (§33.302(c)).

  - To employ the six Good Faith Efforts described in §33.301 even if the prime contractor has achieved its fair share objectives under subpart D of Part 33 (§33.302(d)).

  - To provide EPA Form 6100-2 – *DBE Program Subcontractor Participation Form* to all DBE subcontractors (§33.302(e)). **NOTE: this requirement has been suspended.**

  - To submit EPA Forms 6100-3 – *DBE Program Subcontractor Performance Form* and 6100-4 *DBE Program Subcontractor Utilization Form* as part of the bid package or proposal (§33.302(f) and (g)). **NOTE: this requirement has been suspended.**

  - To employ the six Good Faith Efforts steps in paragraphs (a) through (f) of §33.301 while procuring any subcontracts (§33.302(i)).

- Conduct an Availability Analysis and negotiate fair share objectives with EPA (§33.401), or adopt the fair share objectives of the oversight state agency revolving loan fund for comparable infrastructure (§33.405(b)(3)).

- Maintain all records documenting its compliance with the requirements of Title 40 Part 33, including documentation of its, and its prime contractors', good faith efforts (§33.501(a)).

- Create and maintain a bidders list and require the prime contractor to create and maintain a bidders list (§33.501(b)). This list must include all firms that bid or quote on prime contracts, or bid or quote subcontracts, including both MBE/WBEs and non-MBE/WBEs. This list must be kept until the project period for the identified loan has ended. The following information must be obtained from all prime and subcontractors:

  (a) Entity's name with point of contact,
  (b) Entity's mailing address, telephone number, and email address,
  (c) The procurement on which the entity bid or quoted, and when, and,
  (d) Entity's status as an MBE/WBE or non-MBE/WBE.

Prime Contractor Responsibilities:

- Include in each contract with a subcontractor the following term and condition:

  "The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract." (*Appendix A to Part 33—Term and Condition)*

- Employ the six Good Faith Efforts during subcontractor procurement (§33.301).

- Pay subcontractors for satisfactory performance no more than 30 days from receipt of payment from the recipient (§33.302(a)).

- Notify recipient in writing prior to termination of a DBE subcontractor for convenience (§33.302(b)).

- Employ the six Good Faith Efforts described in §33.301 if soliciting a replacement subcontractor after a DBE subcontractor fails to complete work under the subcontract for any reason. (§33.302(c)).

- Employ the six Good Faith Efforts described in §33.301 even if the fair share objectives have been achieved under subpart D of Part 33 (§33.302(d)).

- Provide EPA Forms 6100-2 – *DBE Program Subcontractor Participation Form* and 6100-3 – *DBE Program Subcontractor Performance Form* to each DBE subcontractor prior to opening of the subcontractor's bid or proposal (§33.302(e) and (f)). **NOTE: this requirement has been suspended.**

- Complete EPA Form 6100-4 – *DBE Program Subcontractor Utilization Form* (§33.302(g)). **NOTE: this requirement has been suspended.**

- Submit to recipient with the bid package or proposal the completed EPA Form 6100-4, plus an EPA Form 6100-3 for each DBE subcontractor used in the bid or proposal (§33.302(f) and (g)). **NOTE: this requirement has been suspended.**

- Maintain all records documenting its compliance with the requirements of Title 40 Part 33, including documentation of its, and its subcontractors', good faith efforts (§33.501(a)).

- Create and maintain a bidders list and require the subcontractor to create and maintain a bidders list (§33.501(b)). This list must include all firms that bid or quote on subcontracts, including both

MBE/WBEs and non-MBE/WBEs. This list must be kept until the project period for the identified loan has ended. The following information must be obtained from all subcontractors:

(a) Entity's name with point of contact,
(b) Entity's mailing address, telephone number, and email address,
(c) The procurement on which the entity bid or quoted, and when, and,
(d) Entity's status as an MBE/WBE or non-MBE/WBE.

Subcontractor Responsibilities:

- May submit EPA Form 6100-2 – *DBE Program Subcontractor Participation Form* directly to DOW Project Manager (§33.302(e)). **NOTE: this requirement has been suspended.**

- Must complete EPA Form 6100-3 – *DBE Program Subcontractor Performance Form* and submit it to the prime contractor soliciting services prior to the prime contractor opening bids or quotes. **NOTE: this requirement has been suspended.**

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION POLICY

PROJECT NAME: _____ **BID DATE:** _____

1. Name, address and telephone number of contact person on all DBE matters:

Prime Contractor's Name: _____
Contact Person: _____
Address: _____
Phone: _____
Cell Phone: _____
Email: _____
Total Contract Amount: _____

2. Total dollar amount/percent of contract of MBE participation: _____

3. Total dollar amount/percent of contract of WBE participation: _____

4. Are certifications* for each MBE/WBE/DBE subcontractor enclosed; if no, please explain: _____ ☐ Yes ☐ No

5. Are MBE/WBE/DBE subcontracts or letters of intent signed by both parties enclosed; if no, please explain: _____ ☐ Yes ☐ No

6. List of MBE Subcontractors:

Name: _____
Contact Person: _____
Address: _____
Phone: _____
Cell Phone: _____
Email: _____
Type of Contract: _____
Work to be Done: _____
Amount: _____

7. List of WBE Subcontractors:

Name: _____
Contact Person: _____
Address: _____
Phone: _____
Cell Phone: _____
Email: _____
Type of Contract: _____
Work to be Done: _____
Amount: _____

Attach Additional Sheets, If Necessary

*Self-certification: Self certification of MBE/WBE/DBE firms will NOT be accepted as a valid form of certification of MBE/WBE/DBE status.

8. Information and documentation concerning efforts taken to comply with EPA's "six good faith efforts"

(i). Ensure DBE construction firms or material suppliers are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities; including placing DBEs on solicitation lists and soliciting them whenever they are potential sources. A good source for a list of DBEs is the Kentucky Transportation's Certified DBE Directory webpage.

☐ The prime contractor certifies that a solicitation list of qualified DBE vendors was developed for current and future solicitations. *Submit a copy of the list as documentation*.

(ii). Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process; including, whenever possible, posting solicitation for bids or proposals for a sufficient amount of time as to receive a competitive bid or proposal pool.

☐ The prime contractor certifies that every opportunity was provided to a number of DBEs to encourage their participation in the competitive process and that an adequate amount of time was provided for response. Must do at least one of the below.

a. List each DBE construction firm or material supplier to which a solicitation was attempted. *Submit copies of letters, emails, faxes, telecommunication logs, certified mail receipts, returned envelopes, certified mail return receipts, etc. as documentation.*

Company name and phone number: _____
Area of work expertise: _____
Date of any follow-ups and person spoke to: _____

b. Advertisements, if applicable: List each publication in which an announcement or notification was placed. *Submit original advertisement or a copy of the advertisement with an affidavit of publication for each announcement as documentation.*

Name of publication: _____
Date(s) of advertisement: _____
Specific subcontract areas announced: _____

c. Other, if applicable: List each notification method in which an announcement or outreach was used; list serve, public meeting, etc. *Submit applicable information to document effort*.

Method of notification: _____
Date(s) of notification: _____

(iii). Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs; including dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.

☐ The prime contractor certifies that the project was broken into its basic elements (i.e., dirt hauling, landscaping, painting, pipe installation, material supplies, etc.) and that a determination was made whether it's economically feasible to bid the elements separately and that the analysis of this effort was documented with a short memo to the project file.

(iv). Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women's business enterprises.

☐ The prime contractor certifies that they established delivery schedules which would allow DBEs to participate in the project and the effort was documented with a short memo to the project file.

(v). Use the services and assistance of the Small Business Administration (SBA). The easiest way to utilize their services is to visit the SBA webpage and use the electronic tools available there or you may send the nearest SBA office a certified letter that generally describes the solicitation, the dates it will be open, the types of vendors you are seeking and applicable Standard Industrial Classification (SIC) or North American Industry Classification System (NAIC) codes if known. Or, you may use the services and assistance of the Kentucky Procurement Technical Assistance Center (PTAC) **and** the Kentucky Department of Transportation (KDOT). The easiest way to utilize the services of Kentucky PTAC and KDOT is to send an email to kyptacinfo@kstc.com and Melvin.Bynes2@ky.gov and generally describe the solicitation, the dates it will be open, the types of vendors you are seeking and applicable SIC or NAIC codes if known.

☐ The prime contractor certifies that the assistance of the SBA or PTAC **and** KDOT was utilized. *Submit pages printed off the SBA websites which evidence efforts to register a solicitation on the site or submit copies of the letter sent and certified mail receipt as documentation; or submit copies of emails sent to PTAC and DOT as documentation.*

(vi). If a Prime contractor awards any subcontracts, require the subcontractor to take the steps in numbers (i) through (v) above.

☐ The prime contractor certifies that subcontractors used for this project will be required to follow the steps of the "six good faith efforts" as listed above.

9. Signature and date:

To the best of my knowledge and belief, all "six good faith efforts" have been met and the information contained in this document is true and correct; the document has been duly authorized by the legal representative.

_____ _____

Signature Print name and title

_____

Date

BIDDER'S LIST FORM

OWNER: _____ **LOAN NO:** _____

PROJECT TITLE: _____ **BID DATE:** _____

Instructions:

1. Per 40 CFR §33.501(b), this list must include all firms that were solicited for participation, bid on, or quoted for a prime contract or subcontract under EPA assisted projects, includes both DBE's and non DBE's.
2. SRF loan participants must keep the Bidder's List until the project period for the identified loan has ended and no funds are remaining.
3. This list must be submitted to DOW in the ATA Package. Contract Award Approval cannot be given until this form has been received by DOW.
4. The following information must be obtained from all prime and subcontractors. Please complete the form below:

ENTITY'S NAME	MAILING ADDRESS	CONTACT PERSON	PHONE#	E-MAIL ADDRESS	M/WBE?

Attachment Number 12

BONDS AND INSURANCE

The minimum requirements shall be as follows:

Bonding requirements for contracts of $100,000 or less are contained in 40 CFR 31.36(h).

Bond requirements for contracts in excess of $100,000 are:

- Bid guarantee equivalent to five percent of the bid price. The bid guarantee shall consist of a firm commitment such as a certified check or bid bond submitted with the bid;
- Performance bond equal to 100 percent of the contract price, and
- Payment bond equal to 100 percent of the contract price. Bonds must be obtained from companies holding Certificates of Authority as acceptable sureties, issued by the U.S. Treasury.

Insurance requirements are contained in the General Conditions of the contract. In addition to the other required insurance, the owner or the contractor, as appropriate, must acquire any flood insurance made available by the Federal Emergency Management Agency as required by 44 CFR Parts 59-79, if construction will take place in a flood hazard area identified by the Federal Emergency Management Agency. The owner's requirements on Flood Insurance are contained in the Special Conditions Section of the Contracts Documents.

Attachment Number 13

STORM WATER GENERAL PERMIT

All construction projects with surface disturbance of more than 1 acre during the period of construction must have a KPDES Storm Water General Permit. The permit can be found at this webpage.

If you have any questions regarding the completion of this form call the Surface Water Permits Branch, at (502) 564-3410.

DAVIS-BACON WAGE RATE REQUIREMENTS

CWSRF: The recipient agrees to include in all agreements to provide assistance for the construction of treatment works carried out in whole or in part with such assistance made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.), or with such assistance made available under section 205(m) of that Act (33 U.S.C. 1285(m)), or both, a term and condition requiring compliance with the requirements of section 513 of that Act (33 U.S.C. 1372) in all procurement contracts and sub-grants, and require that loan recipients, procurement contractors and sub-grantees include such a term and condition in subcontracts and other lower tiered transactions. All contracts and subcontracts for the construction of treatment works carried out in whole or in part with assistance made available as stated herein shall insert in full in any contract in excess of $2,000 the contract clauses as set forth below titled "Wage Rate Requirements Under The Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6)". This term and condition applies to all agreements to provide assistance under the authorities referenced herein, whether in the form of a loan, bond purchase, grant, or any other vehicle to provide financing for a project, where such agreements are executed on or after October 30, 2009.

DWSRF: The recipient agrees to include in all agreements to provide assistance for any construction project carried out in whole or in part with such assistance made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12), a term and condition requiring compliance with the requirements of section 1450(e) of the Safe Drinking Water Act (42 U.S.C.300j-9(e)) in all procurement contracts and sub-grants, and require that loan recipients, procurement contractors and sub-grantees include such a term and condition in subcontracts and other lower tiered transactions. All contracts and subcontracts for any construction project carried out in whole or in part with assistance made available as stated herein shall insert in full in any contract in excess of $2,000 the contract clauses as set forth below entitled "Wage Rate Requirements Under The Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6)". This term and condition applies to all agreements to provide assistance under the authorities referenced herein, whether in the form of a loan, bond purchase, grant, or any other vehicle to provide financing for a project, where such agreements are executed on or after October 30, 2009.

Wage Rate Requirements under the Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6)

Preamble

With respect to the Clean Water and Safe Drinking Water State Revolving Funds, EPA provides capitalization grants to each State which in turn provides subgrants or loans to eligible entities within the State. Typically, the subrecipients are municipal or other local governmental entities that manage the funds. For these types of recipients, the provisions set forth under Roman Numeral I, below, shall apply. Although EPA and the State remain responsible for ensuring subrecipients' compliance with the wage rate requirements set forth herein, those subrecipients shall have the primary responsibility to maintain payroll records as described in Section 3(ii)(A), below and for compliance as described in Section I-5.

Occasionally, the subrecipient may be a private for profit or not for profit entity. For these types of recipients, the provisions set forth in Roman Numeral II, below, shall apply. Although EPA and the State remain responsible for ensuring subrecipients' compliance with the wage rate requirements set forth herein, those subrecipients shall have the primary responsibility to maintain payroll records as described in Section II-3(ii)(A), below and for compliance as described in Section II-5.

I. Requirements under the Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6) for Subrecipients that are Governmental Entities:

The following terms and conditions specify how recipients will assist EPA in meeting its Davis-Bacon (DB) responsibilities when DB applies to EPA awards of financial assistance under the FY 2013 Continuing Resolution with respect to State recipients and subrecipients that are governmental entities. If a subrecipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient. The recipient or subrecipient may also obtain additional guidance from Department of Labor's webpage.

1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.

Under the FY 2013 Continuing Resolution, DB prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund and to any construction project carried out in whole or in part by assistance made available by a drinking water treatment revolving loan fund. If a subrecipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the subrecipient must discuss the situation with the recipient State before authorizing work on that site.

2. Obtaining Wage Determinations.

(a) Subrecipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the subrecipient shall monitor the General Services Administration website weekly to ensure that the wage determination contained in the solicitation remains current. The subrecipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the subrecipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the subrecipient.

(ii) If the subrecipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the subrecipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The subrecipient shall monitor the General Services Administration website on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(b) If the subrecipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the subrecipient shall insert the appropriate DOL wage determination from the General Services Administration website into the ordering instrument.

(c) Subrecipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a subrecipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the subrecipient has failed to incorporate a wage determination or has used a wage

determination that clearly does not apply to the contract or ordering instrument. If this occurs, the subrecipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The subrecipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the subrecipient(s) shall insert in full in any contract in excess of $2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2013 Continuing Resolution, the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Subrecipients may obtain wage determinations from the U.S. Department of Labor's General Services Administration website.

(ii)(A) The subrecipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the subrecipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the subrecipient (s) to the State award official. The State award official will transmit the request, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the subrecipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The subrecipient(s), shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the subrecipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division's webpage or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the subrecipient(s) for transmission to the State or EPA if requested by EPA, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the subrecipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for

the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may by appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Subrecipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. Contract Provision for Contracts in Excess of $100,000.

(a) Contract Work Hours and Safety Standards Act. The subrecipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (a)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a)(1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient**,** upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a)(1) through (4) of this section.

(b) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Subrecipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Subrecipient shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

5. Compliance Verification.

(a) The subrecipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. Subrecipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c) The subrecipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable, the subrecipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The subrecipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Subrecipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour District Office.

II. Requirements under the Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6) for Subrecipients that are not Governmental Agencies

The following terms and conditions specify how recipients will assist EPA in meeting its DB responsibilities when DB applies to EPA awards of financial assistance under the FY2013 Continuing Resolution with respect to subrecipients that are not governmental entities. If a subrecipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient for guidance. The recipient or subrecipient may also obtain additional guidance from DOL's webpage.

Under these terms and conditions, the subrecipient must submit its proposed DB wage determinations to the State recipient for approval prior to including the wage determination in any solicitation, contract task orders, work assignments, or similar instruments to existing contractors.

1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.

Under the FY 2013 Continuing Resolution, Davis-Bacon prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund and to any construction project carried out in whole or in part by assistance made available by a drinking water treatment revolving loan fund. If a subrecipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the subrecipient must discuss the situation with the recipient State before authorizing work on that site.

2. Obtaining Wage Determinations.

(a) Subrecipients must obtain proposed wage determinations for specific localities from the U.S. Department of Labor's General Services Administration website. After the Subrecipient obtains its proposed wage determination, it must submit the wage determination to (insert contact information for State recipient DB point of contact for wage determination) for approval prior to inserting the wage determination into a solicitation, contract or issuing task orders, work assignments or similar instruments to existing contractors (ordering instruments unless subsequently directed otherwise by the State recipient Award Official).

(b) Subrecipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the subrecipient shall monitor the U.S. Department of Labor's General Services Administration website on a weekly basis to ensure that the wage determination contained in the solicitation remains current. The subrecipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the subrecipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the subrecipient.

(ii) If the subrecipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the subrecipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The subrecipient shall monitor the U.S. Department of Labor's General Services Administration website on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(c) If the subrecipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the subrecipient shall insert the appropriate DOL wage determination from the U.S. Department of Labor's General Services Administration website into the ordering instrument.

(c) Subrecipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a subrecipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the subrecipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the subrecipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract

or ordering instrument by change order. The subrecipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the subrecipient(s) shall insert in full in any contract in excess of $2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2013 Continuing Resolution, the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Subrecipients may obtain wage determinations from the U.S. Department of Labor's General Services Administration website.

(ii)(A) The subrecipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the subrecipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the subrecipient(s) to the State award official. The State award official will transmit the report, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the and the subrecipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request, and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The subrecipient(s) shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the

site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the subrecipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division's webpage or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the subrecipient(s) for transmission to the State or EPA if requested by EPA, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the subrecipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and

Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may by appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Subrecipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. Contract Provision for Contracts in Excess of $100,000.

(a) Contract Work Hours and Safety Standards Act. The subrecipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act.

These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient shall upon the request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (a)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Subrecipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Subrecipient shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

5. Compliance Verification.

(a) The subrecipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. Subrecipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c) The subrecipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable the subrecipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The subrecipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Subrecipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour District Office or its successor site.

Attachment Number 15

AMERICAN IRON AND STEEL REQUIREMENT

The Contractor acknowledges to and for the benefit of the _____ ("Purchaser") and the State of Kentucky (the "State") that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contactor pursuant to this Agreement.

The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser).

While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

Sample Certification

The following information is provided as a sample letter of step certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name
Company Address
City, State Zip

Subject: American Iron and Steel Step Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxxx
2. Xxxx
3. Xxxx

Such process took place at the following location:

_____

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

EMPLOYMENT REQUIREMENTS AND WAGE RATES
This section applies to Alternates 1 & 3 only which utilize SRF Funding

R-1. GENERAL. The successful bidder will be required to conform to all provisions of the federal Davis-Bacon and Related Acts (The Act) which requires that all laborers and mechanics employed by contractors and subcontractors performing on federal contracts (and contractors and subcontractors performing on federally assisted contracts under the related ACTS) in excess of $2,000 pay their laborers and mechanics not less than the prevailing wage rates and fringe benefits, as determined by the Department of Labor, for corresponding classes of laborers and mechanics employed on similar projects in the area.

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

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

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

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

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

R-2. PREVAILING WAGES.

The Contractor shall note that where a contract is not awarded within 90 days from the date of establishment of the prevailing wages, there shall be a redetermination of the prevailing rate of wage before the contract is awarded.

Davis Bacon wages can be obtained from the Wage Determinations Online website. Use this link to find the Davis Bacon wages:
https://sam.gov/search/?index=dbra&sort=-modifiedDate&page=1&pageSize=25&sfm%5Bstatus%5D%5Bis_active%5D=true&sfm%5BsimpleSearch%5D%5BkeywordRadio%5D=ALL

Use the pull-down menus to enter:

- State = “Kentucky”
- County = “Campbell” & “Kenton”
- DBA: Construction Type = “Heavy”

to find the Davis Bacon Wages.

"General Decision Number: KY20220065 05/06/2022

Superseded General Decision Number: KY20210065

State: Kentucky

Construction Type: Heavy

County: Campbell County in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

|_____|_____|

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at https://www.dol.gov/agencies/whd/government-contracts.

Modification Number	Publication Date
0	01/07/2022
1	02/25/2022
2	05/06/2022

* ASBE0008-007 03/01/2022

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR	$ 32.30	20.19

ELEC0369-008 05/31/2021

	Rates	Fringes
ELECTRICIAN	$ 33.85	18.72

ENGI0018-016 05/01/2019

	Rates	Fringes
POWER EQUIPMENT OPERATOR (Backhoe/Excavator/Trackhoe)	$ 37.39	14.95

ENGI0181-016 07/01/2021

	Rates	Fringes
POWER EQUIPMENT OPERATOR GROUP 1	$ 35.99	17.85

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Crane; Forklift

Operators on cranes with boom 150 feet and over, including jib, shall receive $0.75 above Group 1. All cranes with piling leads will receive $0.50 above Group 1 rate regardless of boom length. Combination rate shall mean $0.50 per hour above the basic hourly rate of pay.

Employees assigned to work below ground level are to be paid

10% above basic wage rate. This does not apply to open cut work.

ENGI0181-019 07/01/2021

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1	$ 34.80	17.85
GROUP 2	$ 31.94	17.85
GROUP 3	$ 32.39	17.85
GROUP 4	$ 31.62	17.85

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Drill; Pumpcrete; Roller (Bituminous)

GROUP 2 - Bobcat/Skid Steer/Skid Loader; Concrete Pump; Roller (Rock)

GROUP 3 - Articulating Truck Operator

GROUP 4 - Pump; Roller (Earth)

Operators on cranes with booms 150 feet and over (including jib) shall receive $1.00 above Group 1 rate; 250 feet and over including jib shall receive $1.50 above Class 1 rate. Combination Rate: All crane operators operating cranes, where the length of the boom in combination with the length of the piling leads equal or exceeds 150 feet, shall receive $1.00 above the Group 1 rate.

Employees assigned to work below ground level are to be paid 10% above basic wage rate. This does not apply to open cut work.

IRON0044-005 06/01/2021

	Rates	Fringes
IRONWORKER (STRUCTURAL AND REINFORCING)	$ 31.32	21.60

IRON0070-011 06/01/2021

	Rates	Fringes
IRONWORKER, ORNAMENTAL	$ 31.09	23.75

LABO0189-016 07/01/2021

	Rates	Fringes
LABORER		
Concrete Worker & Grade		

Checker	$ 23.51	16.22
Tamper(Hand Held/Walk Behind)	$ 23.76	16.22

LABO0265-005 05/01/2015

	Rates	Fringes
LABORER		
Concrete Saw (Hand Held/Walk Behind) & Pipelayer	$ 28.89	9.85
Flagger & Landscape	$ 28.72	9.85

SUKY2011-021 06/25/2014

	Rates	Fringes
CARPENTER (Form Work Only)	$ 24.80	8.76
LABORER: Common or General	$ 22.24	9.63
LABORER: Concrete Finishing	$ 25.75	8.60
OPERATOR: Bulldozer	$ 28.04	13.00
OPERATOR: Loader	$ 26.68	13.00
OPERATOR: Mechanic	$ 28.60	11.83
OPERATOR: Oiler	$ 24.34	13.00
OPERATOR: Trencher	$ 26.27	12.37
TRUCK DRIVER: Dump Truck	$ 17.82	3.26

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information

on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion

date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator

(See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

"General Decision Number: KY20220073 05/06/2022

Superseded General Decision Number: KY20210073

State: Kentucky

Construction Type: Heavy

County: Kenton County in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

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	Rates	Fringes
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ENGI0018-016 05/01/2019

	Rates	Fringes
POWER EQUIPMENT OPERATOR (Backhoe/Excavator/Trackhoe)	$ 37.39	14.95

ENGI0181-016 07/01/2021

	Rates	Fringes
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ENGI0181-019 07/01/2021

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POWER EQUIPMENT OPERATOR		

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GROUP 2	$ 31.94	17.85
GROUP 3	$ 32.39	17.85
GROUP 4	$ 31.62	17.85

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GROUP 4 - Pump; Roller (Earth)

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IRON0044-005 06/01/2021

	Rates	Fringes
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IRON0070-011 06/01/2021

	Rates	Fringes
IRONWORKER, ORNAMENTAL	$ 31.09	23.75

LABO0189-016 07/01/2021

	Rates	Fringes
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Concrete Worker & Grade Checker	$ 23.51	16.22
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LABO0265-005 05/01/2015

	Rates	Fringes
LABORER		

Concrete Saw (Hand Held/Walk Behind) & Pipelayer	$ 28.89	9.85
Flagger & Landscape	$ 28.72	9.85

SUKY2011-029 06/25/2014

	Rates	Fringes
CARPENTER (Form Work Only)	$ 24.80	8.76
LABORER: Common or General	$ 25.27	8.34
LABORER: Concrete Finishing	$ 25.75	8.60
OPERATOR: Bulldozer	$ 28.04	13.00
OPERATOR: Loader	$ 29.37	10.13
OPERATOR: Mechanic	$ 28.60	11.83
OPERATOR: Oiler	$ 24.34	13.00
OPERATOR: Trencher	$ 26.27	12.37
TRUCK DRIVER: Dump Truck	$ 19.00	4.78

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those

classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage

payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

SECTION 01010
SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included:
The scope of work includes the installation of approximately 3,100 lineal of a new 36 IN water transmission main from the intersection of KY Highway 9 (Licking Pike) and South Street in Campbell County in westerly direction across the Licking River to Kenton County. Major components of construction include, but are not limited to, the following:

1. Approximately 1,920 linear feet of 36 IN DIP (Class 250) by open cut installation.
2. Approximately 1,170 lineal feet of 36 IN HDPE (DR 11) by horizontal directional drill.
3. 120 lineal feet of bore and jack, 48 IN steel encasement pipe.
4. Approximately 80 lineal feet of 8 IN DIP.
5. One (1) 8 IN gate valve.
6. Two (2) 36 IN horizontal gate valves.
7. Three (3) combination air valves.
8. Tie-In to 24 IN valve.
9. Tie-In to 36 IN valve.
10. Other piping, structures, and appurtenances as required
11. Traffic control.
12. Erosion protection and sediment control.
13. Pavement, curb and sidewalk restoration work.
14. Ground restoration work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

A. Installation/construction of the Licking River HDD Crossing in Campbell and Kenton County, Kentucky.

B. The Contractor shall provide all materials, labor, and equipment necessary for completion of the Project. The Contract Documents are intended to provide the basis for proper completion of the work suitable for the intended use of the Owner. Anything not expressly set forth but which is reasonably implied or necessary for proper performance of the Project shall be included.

C. Continuous Operations: The existing system must be maintained in continuous operation in such a manner that it meets all local, state, and federal requirements. The Contractor is responsible not to deactivate, demolish, or interfere with any system component required for the continuous operation until a new or temporary permanent-like system has been installed and is operational. The Contractor is responsible for payment of all fines resulting from any action or inaction on the Contractors' part or the part of the subcontractors during performance of the Work that causes the facility/facilities to operate in an illegal manner or fail to operate in a legal manner.

3.2 PERMITS

A. The Contractor shall obtain any permits related to or required by the Work in this Contract, which are not provided by the Owner. The following permits shall be obtained and supplied by the Owner prior to construction:

1. KDOW Construction Approval.
2. CSX Permit.
3. KYTC Encroachment Permit.
4. USACE Nationwide Permit (NWP) No. 58, Utility Line Activities for Water and Other Substances
5. SD1 Grading Permit

3.3 CODES

A. Comply with applicable codes and regulations of authorities having jurisdiction. Submit copies of inspection reports, notices, citations, and similar communications to the Owner.

3.4 EXISTING CONDITIONS AND DIMENSIONS

A. The Work in this Contract will primarily be performed in or around existing facilities which must remain functional. The Contractor must maintain all systems functional without additional effort by the Owner's personnel and at no extra cost to the Owner.

B. The Contractor is responsible for verifying all existing conditions, elevations, dimensions, etc. and providing the finished work to facilitate existing conditions.

END OF SECTION

SECTION 01015
PROJECT REQUIREMENTS

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

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

3. MATERIALS TO BE FURNISHED BY OWNER. If the Owner is supplying some of the materials for this project (eg. air release valves, meter materials) it shall be indicated on the bid item unit price sheet and Measurement and Payment Section1025. Items will be available at the Owner's storage yard unless other provisions have been made.

4. RESPONSIBILITY FOR MATERIALS AND EQUIPMENT.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Contractor shall remove and reconstruct work which is improperly located.

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

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

appurtenances on existing utilities, when required, shall be by or under the direct supervision of the owning utility.

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

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

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

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

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

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

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

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

16.01. Subcontractor's Qualifications. The Subcontractor for asbestos removal shall be regularly engaged in this type of activity and shall be familiar with the regulations which govern this work. The Subcontractor shall demonstrate to the satisfaction of Owner that it has successfully completed at least three asbestos removal projects, that it has the

necessary staff and equipment to perform the work, and that it has an approved site for disposal of the asbestos. The Subcontractor shall carry insurance as specified in the Supplementary Conditions.

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

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

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

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

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

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

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

Kentucky Building Code
Kentucky Plumbing Code
National Electric Code
BOCA Mechanical Code

Other standard codes which apply to the Work are designated in the Specifications.

19. PRECONSTRUCTION CONFERENCE. Prior to the commencement of Work at the site, a pre-construction conference will be held at a mutually agreed time and place. The conference shall be attended by:

Contractor and its superintendent.
Principal Subcontractors.
Representatives of principal Suppliers and manufacturers as appropriate.
Representatives of Owner.
Government representatives as appropriate.
Others as requested by Contractor or Owner.

Unless previously submitted to Owner, Contractor shall bring to the conference a preliminary schedule for each of the following:

Progress.
Procurement.
Values for progress payment purposes.
Shop Drawings and other submittals.

The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda will include:

Contractor's preliminary schedules.
Transmittal, review, and distribution of Contractor's submittals.
Processing Applications for Payment.
Maintaining record documents.
Critical Work sequencing.
Field decisions and Change Orders.
Use of premises, office and storage areas, security, housekeeping, and Owner's needs.
Contractor's assignments for safety and first aid.

Owner will preside at the conference and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.

20. PROGRESS MEETINGS. Contractor shall schedule and hold regular progress meetings at least monthly and at other times as requested by Owner or required by progress of the Work. Contractor, Owner, and all Subcontractors active on the site shall be represented at each meeting. Contractor may at its discretion request attendance by representatives of its Suppliers, manufacturers, and other Subcontractors.

Contractor shall preside at the meetings. Meeting minutes will be prepared and distributed by Contractor. The purpose of the meetings will be to review the progress of the Work, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop.

END OF SECTION

SECTION 01025
MEASUREMENT AND PAYMENT

1. SCOPE. This section covers methods of measurement and payment for items of Work under this Contract.

2. GENERAL. The total Contract Price shall cover all Work required by the Contract Documents. All costs in connection with the proper and successful completion of the Work, including furnishing all materials, equipment, supplies, and appurtenances; providing all construction plant, equipment, and tools; and performing all necessary labor and supervision to fully complete the Work, shall be included in the unit and lump sum prices bid. All Work not specifically set forth as a pay item in the Bid Form shall be considered a subsidiary obligation of Contractor and all costs in connection therewith shall be included in the prices bid. The Contractor shall be responsible for supplying all project materials, except for items supplied by the Owner as indicated in the Bid Item Descriptions below and on the bid form.

3. ESTIMATED QUANTITIES. All estimated quantities stipulated in the Bid Form or other Contract Documents are approximate and are to be used only (a) as a basis for estimating the probable cost of the Work and (b) for the purpose of comparing the bids submitted for the Work. The actual amounts of work done and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of work done and materials furnished. Contractor agrees that it will make no claim for damages, anticipated profits, or otherwise on account of any difference between the amounts of work actually performed and materials actually furnished and the estimated amounts therefor.

4. EXCAVATION AND TRENCHING. Except where otherwise specified, the unit or lump sum price bid for each item of Work, which involves excavation, or trenching shall include all costs for such Work. No direct payment shall be made for excavation or trenching. All excavation and trenching shall be unclassified as to materials, which may be encountered; in addition, trenches shall be unclassified as to depth.

5. BID PRICES TO INCLUDE INCIDENTAL WORK. The bid prices will cover and include the cost and expense of all contingents, accessories and incidental work and material required to complete the improvement. This includes replacement of services, pavement, fences and any other objects which are affected in the process of construction on this work. It shall also include where necessary, watchmen, flagmen, barricades, red lights, all backfill material such as gravel, flowable fill and any temporary restoration, construction joints, finishing and curing concrete, dust control, maintenance of traffic, maintenance of existing sewage flow, provision for access to property, and many other incidents which occur on a normal construction job.

DESCRIPTION OF BID ITEMS

NOTE: Descriptions of each material can be found in Technical Specifications.

6. PIPELINES. Pipelines which are to be paid for on a unit price basis shall be measured for payment on a horizontal plane after installation of the pipe. Where lines are laid to conform to stationed profiles, payment shall be made on linear quantities based on the pipeline stationing as determined by surveys made after installation.

The measurement of the length of each line or run of pipe of each size will begin and end at:

a. The end of the pipe where connected to an existing pipe, fitting, or valve; or at the end of a dead-end run.

b. The center lines intersection of the run and branch on tees, crosses, or laterals where a branch line connecting therewith is constructed under this Contract. Where a branch fitting is installed under this Contract, and the branch or connecting line is to be constructed by others at some future date or under another contract, the pay measurement will include the entire laying length of the branch or branches of such fitting.

c. The measurement of each line of pipe of each size which is to be paid for on a unit price basis will be continuous through, and shall include the full laying lengths of, all fittings and valves installed between the ends of each line; except that the laying lengths of reducers and increasers will be divided equally between the connected pipe sizes. Connecting piping for fire hydrants will be paid under the unit price for fire hydrants.

6.01. CLASS 350 DUCTILE IRON PIPE (LESS THAN 16" DIAMETER) – INTERNAL RESTRAINED JOINT. (Detail 103, 103a, 104, 104a, 110). Includes the specified pipe, polyethylene wrap, fittings, reducers, bends, tracing wire, excavation, labor, equipment, bedding, backfill, blocking, disinfection, dechlorination, pressure testing, restoration of non-paved areas, etc. required to install the specified pipe at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Paid LINEAR FEET (LF).

6.02 CLASS 250 DUCTILE IRON PIPE (24" AND 36" DIAMETER) – INTERNAL RESTRAINED JOINT. (Detail 103, 103a, 104, 104a, 110). Includes the specified pipe, polyethylene wrap, fittings, bends, tracing wire, excavation, clearing, labor, equipment, bedding, backfill, blocking, welded outlets, disinfection, dechlorination, pressure testing, restoration of non-paved areas, etc. required to install the specified pipe at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Abandoned pipe to removed as noted on the drawings is incidental to this item. Thrust restraint blocks as detailed on the drawings are also included in this bid item. Paid LINEAR FEET (LF).

6.03 CASING PIPE. Includes the casing pipe (K.D.O.T. or Railroad Spec.), labor, equipment, excavation, clearing, backfill, restoration, etc. required to install the casing pipe and pipe support at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Paid LINEAR FEET (LF).

a. Crossings. Where tunneling is required in connection with railroad, highway, or primary road crossings, each crossing shall be measured for payment horizontally along the longitudinal center line of the enclosing conduit or pipe installed therein, from end to end of the enclosing conduit, or from end to end of the tunnel excavation where an enclosing conduit is not required. Each designated type of crossing shall include the following:

b. Crossings in Earth Backfill Tunnel. The unit price bid for each crossing in earth backfill tunnel shall include all costs in connection with excavation and backfilling, the excess cost of installing pipe in tunnel above the amount bid for the pipe laid in open trench, all skids, jointing materials, stabilized sand backfill, and all other work for and in connection with the crossing, not paid for separately. Separate payment shall not be made for tunnel liner or supports which may be needed for Contractor's convenience; all such items shall be considered a subsidiary obligation of Contractor.

c. Crossings in Conduit. The unit price bid for each crossing in pipe conduit or tunnel liner shall include all costs in connection with excavation and backfilling, pipe conduit or tunnel liner, the excess cost of installing pipe in pipe conduit or tunnel liner above the amount bid for the pipe laid in open trench, all skids, jointing materials, jacking pipe, jacking pits, sand backfill, end closures, and all other work for and in connection with the crossing, not paid for separately.

6.04 CLASS 200 S.D.R. 11 HDPE (HIGH DENSITY POLY-ETHYLENE) PIPE (36" DIAMETER, OPEN-CUT). Includes the specified pipe, pipe fusing/ jointing, fittings, bends, HDPE/DI adapters, tracing wire, excavation, clearing, labor, equipment, bedding, backfill, disinfection, dechlorination, testing, restoration of non-paved areas, etc. required to install the specified pipe at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Abandoned pipe to removed as noted on the drawings is incidental to this item. Thrust restraint blocks as detailed on the drawings are also included in this bid item. Paid LINEAR FEET (LF).

6.05 CLASS 200 S.D.R. 11 HDPE (HIGH DENSITY POLY-ETHYLENE) PIPE (36" DIAMETER, HORIZONTAL DIRECTIONAL DRILL). The unit price includes crossing under the Licking River, installed by the horizontal direction drilling method. Payment will included compensation for pipe, fittings including bends and HDPE/DI adapters and other appurtenances for a complete installation. Pipe fusing / jointing, disinfection, dechlorination, testing, and reporting are also included. Payment for drilling fluid, pumping equipment, site preparation and access and other materials and equipment required for the drilling operation is included in this pay item. Payment for removal, hauling, and proper disposal of spoil and debris from the drilling operation is included in this pay item. Site restoration of bore and receiving pit areas is included in this pay item. Temporary removal and replacement of existing WM in conflict with the bore pit, as shown on the drawings, is included. Paid LINEAR FEET (LF).

6.06 CLASS 200, S.D.R 21 C-905 FUSIBLE POLY VINYL CHLORIDE (PVC) (36" DIAMETER, OPEN-CUT). Includes the specified pipe, fittings, pipe fusing / jointing,

bends, PVC/DI adapters, tracing wire, excavation, clearing, labor, equipment, bedding, backfill, disinfection, dechlorination, testing, restoration of non-paved areas, etc. required to install the specified pipe at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Abandoned pipe to removed as noted on the drawings is incidental to this item. Thrust restraint blocks as detailed on the drawings are also included in this bid item. Paid LINEAR FEET (LF).

6.07 CLASS 200, S.D.R C-905 FUSIBLE POLY VINYL CHLORIDE (PVC) (36" DIAMETER, HORIZONTAL DIRECTIONAL DRILL). The unit price includes crossing under the Licking River, installed by the horizontal direction drilling method. Payment will included compensation for pipe, fittings including bends and PVC/DI adapters and other appurtenances for a complete installation. Pipe fusing / jointing, disinfection, dechlorination, testing, and reporting are also included. Payment for drilling fluid, pumping equipment, site preparation and access and other materials and equipment required for the drilling operation is included in this pay item. Payment for removal, hauling, and proper disposal of spoil and debris from the drilling operation is included in this pay item. Site restoration of bore and receiving pit areas is included in this pay item. Temporary removal and replacement of existing WM in conflict with the bore pit, as shown on the drawings, is included. Paid LINEAR FEET (LF).

7. Connections to Existing Water Mains. Connections to existing water mains will be paid for at the lump sum prices bid. Each lump sum price named for a connection shall include all costs incurred for making the connection over and above the price of the connecting piping in place. Each lump sum price shall include furnishing and installing the tapping sleeve and valve, fittings; all excavation, blocking and backfilling work; tapping of existing main; and all other costs not included under other bid items.

7.01 CONNECT TO EXISTING WATERLINE OR VALVE (8", 24" & 36"). Includes all labor, equipment, excavation, fittings, sleeves, couplings, insulating assembly, blocking, anchoring, polyethylene wrap, disinfection, pressure testing, backfill and restoration, required to make the connection as shown on the plans, and in accordance with the specifications. Pipe for connection shall be paid under pipe bid item and shall be measured thru connection fittings. Paid EACH (EA).

8. Fire Hydrants. Fire hydrants will be paid for at the unit price bid. The unit price named for each fire hydrant installation shall include all costs incurred in furnishing and installing the fire hydrant; auxiliary gate valve, all connecting piping to the adjacent water main, accessories, and appurtenances, concrete blocking behind and under the fire hydrant, drainage facilities, yard restoration and all other costs not included under other bid items.

8.01 INSTALL FIRE HYDRANT ASSEMBLY. (Detail 109). Includes all labor, equipment, excavation, concrete blocking, 6" Ductile Iron Resilient Seated Gate Valve, Valve box, 6" Ductile Iron Anchor Coupling, 6" ductile iron leads (restrained) Fire Hydrant, extensions, granular drainage material, backfill and yard restoration to install fire hydrant complete and in accordance with the specifications and standard drawings. Paid EACH (EA).

9. Valves. Sectionalizing valves in water mains will be paid for at the unit price bid for each size. The unit price shall include all costs incurred in completing the sectionalizing valve installation over and above the amount paid for piping in place. The unit price shall include furnishing and installing the sectionalizing valve, valve box, and appurtenances; excavation and backfill not included under piping; and all other costs not included under other bid items.

No separate payment will be made for fire hydrant auxiliary gate valves or tapping valves.

9.01 DUCTILE IRON RESILIENT SEATED GATE VALVE (4", 6", 8", 12"). (Detail 105). Includes the specified valve, labor, equipment, excavation, polyethylene wrap, bedding, blocking, backfill, disinfection, pressure testing, restoration, etc. (contractor must supply mechanical joint restraints on restrained joint applications), required to install the specified valve at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. All External Dome and Packing Bolts Shall be Stainless Steel. Paid EACH (EA).

9.02 DUCTILE IRON RESILIENT WEDGE GATE VALVE WITH BEVELED GEARING. Ductile iron body, non-rising stem, open left, 2" square operating nut, epoxy coated, mechanical joint, inlet and outlet connections, O-ring type packing, resilient wedge, 250 PSI working pressure, and conforming in all other ways to AWWA Standard C515 American Flow Control 2500 Resilient Wedge Gate Valve or approved equal. Valve body to be assembled with stainless steel bolts grade 304 or better. Accessory package (glands, gaskets and bolts) shall not be included. Includes the specified valve, labor, equipment, excavation, polyethylene wrap, bedding, blocking, backfill, disinfection, pressure testing, restoration, etc. (contractor must supply mechanical joint restraints on restrained joint applications), required to install the specified valve at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. All External Dome and Packing Bolts Shall be Stainless Steel. Paid EACH (EA).

10. SERVICES

10.01 INSTALL WATER METER SETTING (RIVER LEAK DETECTION). Includes the labor, equipment, excavation, bedding, backfill, testing, disinfection and asphalt, concrete and yard restoration to install a new meter vault and yoke setting to the location shown on the plans or as directed, in accordance with the specifications and standard drawings complete and ready for use. Paid EACH (EA).

11. MISCELLANEOUS

11.01 PLUG AND BLOCK (ALL SIZES, PRESSURE MAIN). This item shall include the specified plug, polyethylene wrap, labor, equipment, excavation, concrete, backfill and restoration required to install the plug and blocking at the location shown on the plans or as directed in accordance with the specifications.

This item is for new and existing water mains that are to remain in service. Paid EACH (EA).

11.02 CUT AND PLUG (ALL SIZES, ABANDONED MAIN). This item shall include the specified plug, labor, equipment, excavation, concrete, backfill and restoration required to install the plug at the location shown on the plans or as directed in accordance with the specifications. This item is for existing water mains that are to be abandoned. Paid EACH (EA).

11.03 AIR RELEASE VALVE. (Detail 106). This item shall include labor, equipment, excavation, polyethylene wrap, bedding, backfill, disinfection, pressure testing, restoration, etc. required to install the air release valve at the location shown on the plans or as directed in accordance with the specifications. All materials will be supplied by NKWD. Paid EACH (EA).

11.04 ANCHORING TEE AND BLOCK (ALL SIZES). Includes the specified anchoring tee, labor, equipment, excavation, polyethylene wrap, bedding, backfill, disinfection, pressure testing, restoration, etc. required to install the specified anchoring tee at the location shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. Paid EACH (EA).

11.05 TEST TAP. Includes the labor, equipment, excavation, polyethylene wrap, bedding, backfill, disinfection, pressure testing, restoration, etc. required to install the specified test tap at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. Test Tap materials will be supplied by NKWD. Paid EACH (EA).

11.06 CORROSION TEST STATION. Includes the labor, equipment and materials required to place test stations, and electrodes, in accordance with specifications and details. Paid EACH (EA).

11.07 MAGNESIUM ANODES. Includes the labor, equipment and materials required to place mangnesium anodes, pipe bond wires, and other associated wiring in accordance with specifications and details. Paid EACH (EA).

12. RESTORATION

12.01. Pavement Removal and Replacement. The unit prices per square yard for pavement removal and replacement shall be measured for (length x width) payment horizontally along the center line of the pipe, through manholes, and to the edge of the existing pavement; or, where the edge of the existing pavement is not clearly defined, to the edge of the pavement replacement. The unit prices bid for pavement removal and replacement shall include all costs in connection therewith, including cutting, removal, and disposal of old pavement; construction of new pavement; and all extra compaction effort required for backfill beneath pavement.

12.02 Miscellaneous Asphaltic Concrete Paving. Existing valve boxes shall be abandoned by removal or filling with concrete at the discretion of the District. This cost shall be incidental to any bid item associated with asphaltic concrete paving.

12.03. Sidewalk or Driveway Removal and Replacement. The unit prices per square yard bid for sidewalk or driveway removal and replacement shall include all costs involved in cutting and removing sidewalk or driveway, and all labor and materials required to replace the sidewalks.

Measurement for payment for sidewalk or driveway removal and replacement shall be on a square yard basis and shall include only the area actually removed and replaced, between joints, over the pipeline trench.

All costs involved in repairing or removal and replacement of existing sidewalk or driveway outside the specified pay limits, where damaged during the construction operations, shall be considered a subsidiary obligation of Contractor and shall be borne by Contractor.

12.04. MISCELLANEOUS CONCRETE. Concrete for encasement or blocking of pipe and fittings not included as parts of pipelines will be measured for payment as the actual volume of concrete placed within the limits as indicated or specified.

Concrete for total encasement shall be computed using the maximum allowable trench width (or pipe OD plus 24 inches where no maximum is specified), the minimum clear depth below the pipe, and the minimum cover over the pipe, less the volume occupied by the pipe itself.

Unless otherwise authorized by Owner, all additional concrete for encasement or blocking required outside the specified pay limits will be considered a subsidiary obligation of Contractor and no direct payment shall be made therefore.

All concrete which is required in connection with manholes or structures, pavement or sidewalk replacement, and other pay items shall be included in the lump sum or unit price bid for the pay item.

The unit price bid for miscellaneous concrete shall include concrete, reinforcing steel, forms, finishing, curing, and all other work or materials required to complete the concrete work.

Existing valve boxes shall be abandoned by removal or filling with concrete at the discretion of the District. This cost shall be incidental to any bid item associated with concrete paving or other concrete work.

12.05 ASPHALTIC CONCRETE MILLING AND PAVING. Includes the labor, equipment and materials required to perform any necessary milling, placing of asphalt to a depth of 1.5 inches in accordance with specifications and standard drawing #103A. Concrete curbing restoration and installation to be incidental to this item. Paid SQUARE YARD (SY).

12.06 CONCRETE SIDEWALK. Includes the labor, equipment and materials required to remove and replace the sidewalk concrete to match existing depth. This item also includes any requirements to install sidewalk ramps per ADA standards. Paid SQUARE YARD (SY).

12.07 GRAVEL DRIVEWAY/PARKING AREA. Includes the labor, equipment and materials required to replace and grade gravel driveway to match existing depth. Paid SQUARE YARD (SY).

12.08 BEST MANAGEMENT PRACTICE. Includes the labor, equipment and materials required to conform and comply with the best management practices to control soil erosion as shown on the plans and specifications. Paid LUMP SUM (LS).

END OF SECTION

SECTION 01040
COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

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.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 WORK INCLUDED

A. 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.

B. The Contractor shall be responsible for all cutting, digging and other actions of the 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 Owner, bring said structure or component back to its original design condition at no additional cost to the Owner.

C. 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 the 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.

END OF SECTION

SECTION 01045
CUTTING AND PATCHING

PART 1 - GENERAL

1.01 SUMMARY

A. Provide cutting and patching work to properly complete the work of the project, complying with requirements for connection to existing lines and structures.

B. Do not cut and patch in a manner that would result in a failure of the work to perform as intended, decreased energy efficiency, increased maintenance, reduced operational life, or decreased safety.

PART 2 - PRODUCTS

2.01 MATERIALS

Match existing materials with new materials conforming to project requirements when performing cutting and patching work.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Inspect conditions prior to work to identify scope and type of work required. Protect adjacent work. Notify Owner of work requiring interruption to building services or Owner's operations.

B. Perform work with workmen skilled in the trades involved. Prepare sample area of each type of work for approval.

C. Cutting: Use cutting tools, not chopping tools. Make neat holes. Minimize damage to adjacent work. Check for concealed utilities and structure before cutting.

D. Patching: Make patches, seams, and joints durable and inconspicuous. Comply with tolerances for new work.

E. Clean work area and areas affected by cutting and patching operations.

END OF SECTION

SECTION 01090
REFERENCES AND ABBREVIATIONS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

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

AA	Aluminum Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
AFBMA	Anti-Friction Bearing Manufacturers Association
AGMA	American Gear Manufacturers Association
AISC	American Institute of Steel Construction
ANS	American National Standard
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWG	American or Brown and Sharpe Wire Gage
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association’
BHMA	Builders Hardware Manufacturers Association
CDA	Copper Development Association
CISPI	Cast Iron Soil Pipe Institute
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard (U.S. Department of Commerce)
DIPRA	Ductile Iron Pipe Research Association
EEI	Edison Electric Institute
EJCDC	Engineers' Joint Contract Documents Committee
EPA	Environmental Protection Agency
Fed. Spec.	Federal Specifications issued by the Federal Supply Service of the General Services Administration, Washington, DC
FHWA	Federal Highway Administration
FIA	Factory Insurance Association
FM	Factory Mutual
IBR	Institute of Boiler and Radiator Manufacturers
IEEE	Institute of Electrical and Electronics Engineers, Inc.
IFI	Industrial Fasteners Institute
IPS	Iron Pipe Size
IRI	Industrial Risk Insurers
MIL	Military Specification
MSS	Manufacturers Standardization Society of Valve and Fitting Industry
NBS	National Bureau of Standards
NCSPA	National Corrugated Steel Pipe Association

NEC	National Electrical Code; latest edition
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
NPT	National Pipe Thread
NRMCA	National Ready Mixed Concrete Association
NSC	National Safety Council
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PS	Product Standard
SAE	Society of Automotive Engineers
SI	Système International des Unitès (International System of Units)
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc.
SPFA	Steel Plate Fabricators Association
SSI	Scaffolding and Shoring Institute
SSPC	Steel Structures Painting Council
Stl. WG	U.S. Steel Wire, Washburn and Moen, American Steel and Wire or Roebling Gage
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
UL	Underwriters' Laboratories

B. Reference Standards:
   1. For products or workmanship specified by association, trade or federal standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
   2. The date of the standard is that in effect as of the Bid date, or the date of the Owner-Contractor Agreement when there are no bids, unless a certain date is indicated for the standard in the Contract Documents.
   3. 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 Owner, Resident Representative and other appropriate parties until Substantial Completion.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01340
SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Mechanics and administration of the submittal process for:
      a. Shop Drawings.
      b. Samples.
      c. Miscellaneous submittals.
      d. Operation and Maintenance Manuals.
   2. General content requirements for Shop Drawings.
   3. Content requirements for Operation and Maintenance Manuals.

B. Related Sections include but are not necessarily limited to:
   1. Division 1 - General Requirements.
   2. Sections in Divisions 2, 5, 9 and 15 identifying required submittals.

1.2 DEFINITIONS

A. Shop Drawings:
   1. Shop drawing shall be supplied electronically in a PDF format.
   2. If incapable of supplying electronic copies then hard copies will be accepted. Number of hard copies will be determined at the preconstruction meeting.
   3. This includes all drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
   4. Product data and samples are Shop Drawing information.

B. Operation and Maintenance (O&M) Manuals:
   1. Contain the information required for proper installation and maintenance of building materials and finishes.
   2. Contain the technical information required for proper installation, operation and maintenance of process, electrical and mechanical equipment and systems.

C. Miscellaneous Submittals:
   1. Submittals other than Shop Drawings and O&M Manuals.
   2. Representative types of miscellaneous submittal items include but are not limited to:
      a. Construction schedule.
      b. Concrete, soil compaction, and pressure test reports.
      c. HVAC test and balance reports.
      d. Installed equipment and systems performance test reports.
      e. Manufacturer's installation certification letters.
      f. Instrumentation and control commissioning reports.
      g. Warranties.
      h. Service agreements.
      i. Construction photographs.
      j. Survey data.
      k. Cost breakdown (Schedule of Values).

1.3 SUBMITTAL SCHEDULE

A. Schedule of Shop Drawings:
   1. Submitted and approved within 45 days of receipt of Notice to Proceed.

2. Account for multiple transmittals under any specification section where partial submittals will be transmitted.

B. Shop Drawings: Submittal and approval prior to 50 percent completion.

C. Operation and Maintenance Manuals and Completed Equipment Record Sheets:
1. Initial submittal within 10 days after date of equipment installation.

D. Progress Schedule: Submittal after pre-construction meeting and prior to mobilization onsite.

E. Progress Reports:
1. Submittal shall be furnished with each Application for Payment.
2. If the Work falls behind schedule, Contractor shall submit additional progress reports at such intervals as Owner may request.

F. Survey Data
1. All field books, notes, and other data developed by Contractor in performing surveys required as part of the Work shall be available to Owner for examination throughout the construction period.
2. All such data shall be submitted to Owner with the other documentation required for final acceptance of the Work.

1.4 PREPARATION OF SUBMITTALS

A. General:
1. All submittals and all pages of all copies of a submittal shall be completely legible.
2. Illegible submittals will be returned without review.
3. Submittals shall verify compliance with the Contract Documents, and shall include drawings and descriptive information in sufficient detail to show the kind, size, arrangement, and operation of component materials and devices; the external connections, anchorages, and supports required; performance characteristics; and dimensions needed for installation and correlation with other materials and equipment.
4. Contractor shall be solely responsible for the completeness of each submission. Contractor's stamp of approval is a representation to Owner that Contractor accepts sole responsibility for determining and verifying all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data, and that Contractor has reviewed and coordinated each submittal with the requirements of the Work and the Contract Documents.
5. One copy of each drawing and necessary data shall be submitted to Owner for its record. The Owner intends to use this for information only. If requested by Contractor, up to three additional copies may be submitted for review and approval by Owner. Owner will return marked copies (or one marked reproducible copy) to Contractor. Owner will not accept submittals from anyone but Contractor. Submittals shall be consecutively numbered in direct sequence of submittal and without division by subcontracts or trades.

B. Shop Drawings:
1. Scope of any submittal and letter of transmittal:
   a. Limited to one (1) Specification Section.
   b. Do not submit under any Specification Section entitled (in part) "Basic Requirements" unless the product or material submitted is specified, in total, in a “Basic Requirements” Section.
   c. Contractor shall submit a complete initial submittal including all components.
2. Numbering letter of transmittal:
   a. Include as prefix the Specification Section number followed by a series number, "-x", beginning with "1" and increasing sequentially with each additional transmittal.
   b. If more than one (1) submittal under any Specification Section, assign consecutive series numbers to subsequent transmittal letters.
3. Describing transmittal contents:
   a. Provide listing of each component or item in submittal capable of receiving an independent review action.

b. Identify for each item:
    1) Manufacturer and Manufacturer's Drawing or data number.
    2) Contract Document tag number(s).
    3) Unique page numbers for each page of each separate item.
c. When submitting "or-equal" items that are not the products of named manufacturers, include the words "**or-equal**" in the item description.
d. Each submittal shall indicate the intended use of the item in the Work.
e. All deviations from the Contract Documents shall be identified as deviations on each submittal and shall be tabulated in Contractor's letter of transmittal. Such submittals shall, as pertinent to the deviation, indicate essential details of all changes proposed by Contractor.

4. Contractor stamping:
    a. General:
        1) Contractor's review and approval stamp shall be applied either to the letter of transmittal or a separate sheet preceding each independent item in the submittal.
            a) Contractors review and approval of a shop drawing does not relieve the contractor or supplier from their responsibilities for errors, correctness of details or conformance with the contract.
        2) Submittals are only allowed to contain multiple items as long as the items are related and under the same specification number. Submittals containing multiple items shall be prepared with an index sheet for each item listing the discrete page numbers for each page of that item, which shall be stamped with the Contractor's review and approval stamp.
            a) Individual pages or sheets of independent items shall be numbered in a manner that permits Contractor's review and approval stamp to be associated with the entire contents of a particular item.
    b. Electronic stamps:
        1) Contractor may electronically embed Contractor's review and approval stamp to either the letter of transmittal or a separate index sheet preceding each independent item in the submittal.
5. Resubmittals:
    a. Number with original root number and a suffix letter starting with "A" on a (new) duplicate transmittal form.
    b. Do not increase the scope of any prior transmittal.

6. For 8-1/2 x 11 IN, 8-1/2 x 14 IN, and 11 x 17 IN size sheets, provide two (2) copies of each page for Owner plus the number required by the Contractor.
    a. The number of copies required by the Contractor will be defined at the Preconstruction Conference, but shall not exceed three (3).
    b. All other size sheets:
        1) Submit one (1) reproducible transparency or high resolution print and one (1) additional print of each Drawing until approval is obtained.
        2) The Owner will mark and return the reproducible to the Contractor for reproduction and distribution.
7. Contractor shall not use red color for marks on transmittals.
    a. Duplicate all marks on all copies transmitted, and ensure marks are photocopy reproducible.
    b. Outline Contractor marks on reproducible transparencies with a rectangular box.
8. Transmittal contents:
    a. Coordinate and identify Shop Drawing contents so that all items can be easily verified by the Owner.
    b. Identify equipment or material use, tag number, Drawing detail reference, weight, and other Project specific information.
    c. Provide sufficient information together with technical cuts and technical data to allow an evaluation to be made to determine that the item submitted is in compliance with the Contract Documents.

d. Submit items such as equipment brochures, cuts of fixtures, product data sheets or catalog sheets on 8-1/2 x 11 IN pages.
    1) Indicate exact item or model and all options proposed.
e. When a Shop Drawing submittal is called for in any Specification Section, include as appropriate, scaled details, sizes, dimensions, performance characteristics, capacities, test data, anchoring details, installation instructions, storage and handling instructions, color charts, layout Drawings, rough-in diagrams, wiring diagrams, controls, weights and other pertinent data in addition to information specifically stipulated in the Specification Section.
    1) Arrange data and performance information in format similar to that provided in Contract Documents.
    2) Provide, at minimum, the detail specified in the Contract Documents.
f. If proposed equipment or materials deviate from the Contract Drawings or Specifications in any way, clearly note the deviation and justify the said deviation in detail in a separate letter immediately following transmittal sheet.

9. Samples:
    a. Identification:
        1) Identify sample as to transmittal number, manufacturer, item, use, type, project designation, tag number, standard Specification Section or Drawing detail reference, color, range, texture, finish and other pertinent data.
        2) If identifying information cannot be marked directly on sample without defacing or adversely altering samples, provide a durable tag with identifying information securely attached to the sample.
    b. Include application specific brochures, and installation instructions.
    c. Provide Contractor's stamp of approval on samples or transmittal form as indication of Contractor's checking and verification of dimensions and coordination with interrelated work.
    d. Resubmit samples of rejected items.

C. Miscellaneous Submittals:
    1. Prepare in the format and detail specified in Specification requiring the miscellaneous submittal.

D. Operation and Maintenance Manuals:
    1. Owner's use of manufacturer's Operation and Maintenance materials:
        a. Materials are provided for Owner's use, reproduction and distribution as training and reference materials within Owner's organization.
            1) Applicable to hard copy or electronic media.
            2) Applicable to materials containing copyright notice as well as those with no copyright notice.
        b. Notify manufacturer of this intended use of materials provided under the Contract.
    2. Number each Operation and Maintenance Manual transmittal with the original root number of the associated Shop Drawing.
        a. Identify resubmittals with the original number plus a suffix letter starting with "A."
    3. Submittal format:
        a. Interim submittals: Submit one (1) paper or electronic copy until manual is approved.
        b. Final submittals:
            1) Within 30 days of receipt of approval, submit one (1) additional paper copy and two (2) electronic copies in Portable Document Format (PDF).
            2) Electronic copies will be reviewed for conformance with the approved paper copy and the electronic copy (PDF) requirements of this Specification.
            3) Non-conforming DVDs will be returned with comments.
                a) Provide final DVDs within 30 days of receipt of comments.
    4. Paper copy submittals:
        a. Submit Operation and Maintenance Manuals printed on 8-1/2 x 11 IN size heavy first quality paper with standard three-hole punching and bound in appropriately sized three-ring (or post) vinyl view binders with clear overlays front, spine and back.

1) Provide binders with titles inserted under clear overlay on front and on spine of each binder.
    a) As space allows, binder titles shall include, but not necessarily be limited to, Project Name, related Specification Number, Equipment Name(s) and Project Equipment Tag Numbers.
2) Provide a Cover Page for each manual with the following information:
    a) Manufacturer(s).
    b) Date.
    c) Project Owner and Project Name.
    d) Specification Section.
    e) Project Equipment Tag Numbers.
    f) Model Numbers.
    g) Engineer.
    h) Contractor.
3) Provide a Table of Contents or Index for each manual.
4) Use plastic-coated dividers to tab each section of each manual per the manual's Table of Contents/Index for easy reference.
5) Provide plastic sheet lifters prior to first page and following last page.

b. Reduce Drawings or diagrams bound in manuals to an 8-1/2 x 11 IN or 11 x 17 IN size.
    1) Where reduction is not practical to ensure readability, fold larger Drawings separately and place in vinyl envelopes which are bound into the binder.
    2) Identify vinyl envelopes with Drawing numbers.

c. Mark each sheet to clearly identify specific products and component parts and data applicable to the installation for the Project.
    1) Delete or cross out information that does not specifically apply to the Project.

5. Electronic copy submittals:
    a. Electronic copies of the approved paper copy Operation and Maintenance Manuals are to be produced in Adobe Acrobat's Portable Document Format (PDF).
    b. Do not password protect and/or lock the PDF document.
    c. Create one (1) PDF document (PDF file) for each equipment O&M Manual.
    d. Drawings or other graphics must be converted to PDF format and made part of the one (1) PDF document.
        1) Scanning to be used only where actual file conversion is not possible.
    e. Rotate pages that must be viewed in landscape to the appropriate position for easy reading.
    f. Images only shall be scanned at a resolution of 300 dpi or greater.
        1) Perform Optical Character Recognition (OCR) capture on all images.
        2) Achieve OCR with the "original image with hidden text" option.
        3) Word searches of the PDF document must operate successfully to demonstrate OCR compliance.
    g. Create bookmarks in the navigation frame, for each entry in the Table of Contents/Index.
        1) Normally three (3) levels deep (i.e., "Chapter," "Section," "Sub-section").
    h. Thumbnails must be generated for each PDF file.
    i. Set the opening view for PDF files as follows:
        1) Initial view: Bookmarks and Page.
        2) Magnification: Fit in Window.
        3) Page layout: Single page.
        4) Set the file to open to the cover page of the manual with bookmarks to the left, and the first bookmark linked to the cover page.
    j. All PDF documents shall be set with the option "Fast Web View" to open the first pages of the document for the viewer while the rest of the document continues to load.
    k. File naming conventions:
        1) File names shall use a "ten dot three" convention (XXXXX-YY-Z.PDF) where XXXXX is the Specification Section number, YY is the Shop Drawing Root number and Z is an ID number used to designate the associated volume.

a) Example 1:
(1) Two (2) pumps submitted as separate Shop Drawings under the same Specification Section:
(a) Pump 1 = 11061-01-1.pdf.
(b) Pump 2 = 11061-02-1.pdf.
b) Example 2:
(1) Control system submitted as one (1) Shop Drawing but separated into two (2) O&M volumes:
(a) Volume 1 = 13440-01-1.pdf.
(b) Volume 2 = 13440-01-2.pdf.

l. Labeling:
1) As a minimum, include the following labeling on all CD-ROM discs and jewel cases:
a) Project Name.
b) Equipment Name and Project Tag Number.
c) Project Specification Section.
d) Manufacturer Name.
e) Vendor Name.

m. Binding:
1) Include labeled CD(s) in labeled jewel case(s).
a) Bind jewel cases in standard three-ring binder Jewel Case Page(s), inserted at the front of the Final paper copy submittal.
b) Jewel Case Page(s) to have means for securing Jewel Case(s) to prevent loss (e.g., flap and strap).

6. Operation and Maintenance Manuals for Materials and Finishes:
a. Building Products, Applied Materials and Finishes:
1) Include product data, with catalog number, size, composition and color and texture designations.
2) Provide information for re-ordering custom manufactured products.

b. Instructions for Care and Maintenance:
1) Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods and recommended schedule for cleaning and maintenance.

c. Moisture Protection and Weather Exposed Products:
1) Include product data listing, applicable reference standards, chemical composition, and details of installation.
2) Provide recommendations for inspections, maintenance and repair.

d. Additional requirements as specified in individual product specifications.

7. Operation and Maintenance Manuals for Equipment and Systems:
a. Submission of Operation and Maintenance Manuals for equipment and systems is applicable but not necessarily limited to:
1) Major equipment.
2) Equipment powered by electrical, pneumatic or hydraulic systems.
3) Specialized equipment and systems including instrumentation and control systems and system components for HVAC process system control.
4) Valves and water control gates.

b. Equipment and Systems Operation and Maintenance Manuals shall include, but not necessarily be limited to, the following completed forms and detailed information, as applicable:
1) Fully completed type-written copies of the associated Equipment Record(s), Exhibits C1, C2 and C3, shall be included under the first tab following the Table of Contents of each Operation and Maintenance Manual.
a) Each section of the Equipment Record must be completed in detail.
(1) Simply referencing the related manual for nameplate, maintenance, spare parts or lubricant information is not acceptable.

b) For equipment items involving components or subunits, a fully completed Equipment Record Form is required for each operating component or subunit.
c) Submittals that do not include the associated Equipment Record(s) will be rejected without further content review.
d) Electronic copies of the Exhibits may be obtained by contacting the Project Manager.

2) Equipment function, normal operating characteristics, limiting operations.
3) Assembly, disassembly, installation, alignment, adjustment, and checking instructions.
4) Operating instructions for start-up, normal operation, control, shutdown, and emergency conditions.
5) Lubrication and maintenance instructions.
6) Troubleshooting guide.
7) Parts lists:
   a) Comprehensive parts and parts price lists.
   b) A list of recommended spare parts.
   c) List of spare parts provided as specified in the associated Specification Section.
8) Outline, cross-section, and assembly Drawings; engineering data; and electrical diagrams, including elementary diagrams, wiring diagrams, connection diagrams, word description of wiring diagrams and interconnection diagrams.
9) Test data and performance curves.
10) As-constructed fabrication or layout Drawings and wiring diagrams.
11) Instrumentation or tag numbers assigned to the equipment by the Contract Documents are to be used to identify equipment and system components.
12) Additional information as specified in the associated equipment or system Specification Section.

E. Progress Schedule:
1. Contractor shall submit to Owner for review a schedule of the proposed construction operations.
2. Owner shall cooperate with Contractor in arrangements for continuity of service and operation of valves and other control facilities.
3. The progress schedule shall indicate the sequence of the Work, the time of starting and completion of each part, and the time for making connections to existing piping, structures, or facilities.

F. Progress Reports:
1. Each progress report shall include sufficient narrative to describe current and anticipated delaying factors, their effect on the progress schedule, and proposed corrective actions.
2. Any Work reported complete, but which is not readily apparent to Owner, must be substantiated with satisfactory evidence.

G. Survey Data
1. All field books, notes, and other data developed by Contractor in performing surveys required as part of the Work shall be available to Owner for examination throughout the construction period.
2. All such data shall be submitted to Owner with the other documentation required for final acceptance of the Work.

1.5 ENGINEER'S & OWNER'S REVIEW ACTION

A. Shop Drawings and Samples:
1. Items within transmittals will be reviewed for overall design intent and will receive one of the following actions:
   a. A – FURNISH AS SUBMITTED/NO EXCEPTIONS TAKEN
   b. B – FURNISH AS NOTED/NOTE MARKINGS
   c. C – REVISE AND RESUBMIT/RESUBMITTAL REQUIRED

d. D – REJECTED
e. E – ENGINEER'S REVIEW NOT REQUIRED

2. Submittals received will be initially reviewed to ascertain inclusion of Contractor's approval stamp.
   a. Submittals not stamped by the Contractor or stamped with a stamp containing language other than that specified herein will not be reviewed for technical content and will be returned without any action.
3. In relying on the representation on the Contractor's review and approval stamp, the Owner reserves the right to review and process poorly organized and poorly described submittals as follows:
   a. Submittals transmitted with a description identifying a single item and found to contain multiple independent items:
      1) Review and approval will be limited to the single item described on the transmittal letter.
      2) Other items identified in the submittal will:
         a) Not be logged as received by the Owner.
         b) Be removed from the submittal package and returned without review and comment to the Contractor for coordination, description and stamping.
         c) Be submitted by the Contractor as a new series number, not as a re-submittal number.
   b. The Owner may revise the transmittal letter item list and descriptions, and conduct review.
      1) Unless Contractor notifies Owner in writing that the revision of the transmittal letter item list and descriptions was in error, Contractor's review and approval stamp will be deemed to have applied to the entire contents of the submittal package.
4. Submittals returned with Action "A" or "B" are considered ready for fabrication and installation.
   a. If for any reason a submittal that has an "A" or "B" Action is resubmitted, it must be accompanied by a letter defining the changes that have been made and the reason for the resubmittal.
   b. Destroy or conspicuously mark "SUPERSEDED" all documents having previously received "A" or "B" Action that are superseded by a resubmittal.
5. Submittals with Action "A" or "B" combined with Action "C" (Revise and Resubmit) or "D" (Rejected) will be individually analyzed giving consideration as follows:
   a. The portion of the submittal given "C" or "D" will not be distributed (unless previously agreed to otherwise at the Preconstruction Conference).
      1) One (1) copy or the one (1) transparency of the "C" or "D" Drawings will be marked up and returned to the Contractor.
         a) Correct and resubmit items so marked.
   b. Items marked "A" or "B" will be fully distributed.
   c. If a portion of the items or system proposed are acceptable, however, the major part of the individual Drawings or documents are incomplete or require revision, the entire submittal may be given "C" or "D" Action.
      1) This is at the sole discretion of the Owner.
      2) In this case, some Drawings may contain relatively few or no comments or the statement, "Resubmit to maintain a complete package."
      3) Distribution to the Owner and field will not be made (unless previously agreed to otherwise).
6. Failure to include any specific information specified under the submittal paragraphs of the Specifications will result in the submittal being returned to the Contractor with "C" or "D" Action.
7. Calculations required in individual Specification Sections will be received for information purposes only, as evidence calculations have been performed by individuals meeting specified qualifications.

8. Transmittals of submittals which the Owner considers as "Not Required" submittal information, which is supplemental to but not essential to prior submitted information, or items of information in a transmittal which have been reviewed and received "A" or "B" Action in a prior submittal, will be returned.
9. Samples may be retained for comparison purposes.
    a. Remove samples when directed.
    b. Include in bid all costs of furnishing and removing samples.
10. Approved samples submitted or constructed, constitute criteria for judging completed work.
    a. Finished work or items not equal to samples will be rejected.
11. Owner's review of submittals will cover only general conformity to the Drawings and Specifications, external connections, and dimensions which affect the layout. Owner's review does not indicate a thorough review of all dimensions, quantities, and details of the material, equipment, device, or item shown. Owner's review shall not relieve Contractor of Contractor's sole responsibility for errors, omissions, or deviations in the drawings and data, nor of Contractor's sole responsibility for compliance with the Contract Documents.
12. If Contractor requests a review and response, Owner's submittal review period shall be 14 consecutive calendar days in length and shall commence on the first calendar day immediately following the date of arrival of the submittal or resubmittal in Owner's office. The time required to mail the submittal or resubmittal back to Contractor shall not be considered a part of the submittal review period.
13. Contractor shall accept full responsibility for the completeness of each resubmittal. Contractor shall verify that all corrected data and additional information previously requested by Owner are provided on the resubmittal.
14. When corrected copies are resubmitted, Contractor shall in writing direct specific attention to all revisions and shall list separately any revisions made other than those called for by Owner on previous submissions.
15. Re-submittals shall be made within 30 days of the date of the letter returning the material to be modified or corrected, unless within 14 days Contractor submits an acceptable request for an extension of the stipulated time period, listing the reasons the resubmittal cannot be completed within that time.
16. Any need for more than one resubmission, or any other delay in obtaining Owner's review of submittals, will not entitle Contractor to extension of the Contract Times unless delay of the Work is directly caused by a change in the Work authorized by a Change Order.

B. Operation and Maintenance Manuals:
1. Owner will review and indicate one of the following review actions:
    a. A - Acceptable.
    b. B - Not Used.
    c. C - Revise And Resubmit.
    d. D - Not Used.
2. Acceptable paper copy submittals will be retained with the transmittal form returned with a request for one (1) additional paper copy and two (2) electronic copies.
3. Deficient submittals (paper copy and/or electronic copy) will be returned along with the transmittal form which will be marked to indicate deficient areas.

PART 2 - PRODUCTS – (NOT APPLICABLE TO THIS SECTION)

PART 3 - EXECUTION – (NOT APPLICABLE TO THIS SECTION)

END OF SECTION

SECTION 01400
QUALITY CONTROL

PART 1 - GENERAL

1.1 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.

1.2 WORKMANSHIP

A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

1.3 MANUFACTURERS' INSTRUCTIONS

A. Comply with manufacturers' instructions in full detail as to shipping, handling, storing, installing, start-up and operation.

1.4 MANUFACTURERS' FIELD SERVICES

A. The Contractor shall arrange for the services of qualified service representatives from the companies manufacturing or supplying each type of equipment required in the Specification sections and/or in Section 01450.

B. The manufacturer or supplier shall provide sufficient engineering and technician man-hours to satisfactorily complete Supervision of Installation, Equipment Check-out, Field Acceptance Tests, Pre-startup Operator Training, and Post-startup Services (see Section 01450).

1.5 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 (with the exception of Paragraph L. below).

B. The Contractor shall submit the name of testing laboratory proposed for use on the Project to the Owner, for approval.

C. The testing firm's laboratory shall be staffed with experienced technicians, properly equipped and fully qualified to perform the tests in accordance with the specified standards.

D. 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 the Owner or his representative.

E. Certifications by independent testing laboratories may be by properly attested copies of the data including scientific procedures and results of tests.

F. Contractor shall furnish all sample materials and cooperate in the testing activities, including sampling.

G. Contractor shall interrupt the Work when necessary to allow testing, including sampling, to be performed.

H. Contractor shall have no claim for an increase in Contract Price or Contract Times due to such interruption.

I. Testing necessary to satisfy Contractor's internal quality control procedures shall be the sole responsibility of Contractor.

J. When testing activities, including sampling, are performed in the field by Owner or the testing firm's laboratory personnel, Contractor shall furnish personnel and facilities to assist in the activities.

K. If testing shows workmanship and/or materials does not meet established requirements, the Contractor shall be responsible for all additional testing cost to ensure compliance.

L. Contractor shall provide all testing services in connection with the following:
   1. Concrete materials and mix designs.
   2. Asphaltic concrete materials and mix designs.
   3. Embedment, fill and backfill materials.
   4. All other tests and engineering data required for Owner's review of materials and equipment proposed to be used in the Work.

M. Owner shall provide for tests made on the following materials and equipment:
   1. Concrete.
   2. Asphaltic concrete.
   3. Moisture-density tests on embedments, fills, and backfill materials.
   4. In-place field density tests on embedements, fills, and backfill.
   5. Other materials and equipment at the discretion of Owner.

N. Written reports of tests and engineering data furnished by Contractor for Owner's review of materials and equipment proposed to be used in the Work shall be submitted as specified for Shop Drawings.

END OF SECTION

SECTION 01450
SERVICES OF MANUFACTURER'S REPRESENTATIVE

PART 1 - GENERAL

1.1 SUMMARY

A. General:
   1. The Contractor shall provide a qualified service representative from each company manufacturing or supplying certain equipment to perform the duties herein described and as required by the various sections of the Specifications. All costs shall be included in the Contract price.
      a. The service representative shall notify the Owner each time the service representative intends to be at the project site, and define the purpose of this visit.

B. Supervision of Installation:
   1. Where indicated in the Specifications, the manufacturer's representative shall provide supervision of the workers and advice to the Owner to insure that proper procedures are followed during equipment installation.

C. Equipment Check-out:
   1. After installation of the listed equipment has been completed and the equipment is presumably ready for operation but before it is operated by others, the representative shall inspect, operate, test and adjust the equipment. The inspection shall include but shall not be limited to, the following points as applicable:
      a. Soundness (without cracked or otherwise damaged parts).
      b. Completeness in all details as specified.
      c. Correctness of setting, alignment and relative arrangement of various parts.
      d. Adequacy and correctness of packing, sealing and lubricants.
   2. The operation, testing and adjustment shall be as required to prove that the equipment has been installed properly and is capable of satisfactory operation under the conditions specified. Upon completion of the work, the manufacturer's or supplier's representative shall submit in triplicate to the Owner a complete signed report of the result of the inspection, operation, adjustments and tests. The report shall include detailed descriptions of the points inspected, tests and adjustments made, quantitative results obtained, if such are specified, and suggestions for precautions to be taken to ensure proper maintenance. The report also shall include a certificate that the equipment conforms to the requirements of the Contract and is ready for permanent operation and that nothing in the installation will render the manufacturer's warranty null and void.

D. Field Acceptance Tests:
   1. After the Owner has reviewed the reports from the manufacturer's representatives, the Contractor shall make arrangements to have the manufacturer's representatives present when the field acceptance tests are made.

E. Pre-startup Operator Training:
   1. Provision of classroom and hands-on training to maintenance personnel in the operation and maintenance of the equipment prior to placing the equipment in full operation.

F. Post-startup Services:
   1. Provision of assistance to the Owner in the calibration, tuning and troubleshooting, plus any additional training which may be required during the year after the equipment is accepted by the Owner.

G. The manufacturer shall provide O&M training as coordinated with the owner.

H. Manufacturer's Certificate of Proper Installation:

1. A Manufacturer's Certificate of Proper Installation form, a copy of which is attached to this section, shall be completed and signed by equipment manufacturer's representative.
2. Such form shall certify that the signing party is duly authorized representative of the manufacturer, is empowered by the manufacturer to inspect, approve, and operate their equipment and is authorized to make recommendations required to assure that the equipment is complete and operational.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01510
TEMPORARY UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. The Contractor shall maintain strict supervision of use of temporary utility services:
      a. Enforce compliance with applicable standards.
      b. Enforce safety practices.
      c. Prevent abuse of services.

1.2 REQUIREMENTS OF REGULATORY AGENCIES

A. Obtain and pay for all permits as required by governing authorities.

B. Comply with applicable codes.

1.3 REMOVAL

A. Completely remove temporary materials, equipment, and miscellaneous items upon completion of construction and approval of the Owner.

B. Repair damage caused by installation and restore to specified or original condition.

1.4 TEMPORARY UTILITIES

A. Potable water in reasonable amounts required for and in connection with the Work to be performed will be furnished at existing fire hydrants by Owner without charge to Contractor. All water used in testing and disinfection of mains will be furnished by the Owner for the first test only. Contractor shall furnish necessary pipe, hose, nozzles, and tools and shall perform all necessary labor. Contractor shall make arrangements with Owner (who will fix the time, rate, and duration of each withdrawal from the distribution system) as to the amount of water required and the time when the water will be needed. Unnecessary waste of water will not be tolerated. Special hydrant wrenches shall be used for opening and closing fire hydrants. In no case shall pipe wrenches be used for this purpose.

B. Contractor shall be solely responsible for establishing the necessary electrical services for temporary lighting, office support, miscellaneous tools usage, equipment testing, or any additional electrical service needed to perform the project. It shall be the responsibility of the Contractor to pay for all associated costs involved with this service.

C. Contractor shall make all necessary arrangements and pay all installation charges for telephone lines in its offices at the Site and shall provide all telephone instruments.

D. Contractor shall furnish temporary sanitary facilities at the Site, as provided herein, for the needs of all construction workers and others performing work or furnishing services on the Project. Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least one toilet will be furnished for each 20 persons. Contractor shall enforce the use of such sanitary facilities by all personnel at the Site.

1.5 TEMPORARY LIGHTING

A. Furnish and install temporary lighting required for:
   1. Construction needs.
   2. Safe and adequate working conditions.
   3. Public Safety

4. Security lighting.
5. Temporary office and storage area lighting.

B. Service periods:
   1. Security lighting: All hours of darkness.
   2. Safety lighting:
      a. Within construction area: All times that authorized personnel are present.
      b. Public areas: At all times.

C. Costs of Installation and Preparation: Contractor shall pay all installation, maintenance and removal costs of temporary lighting.

Maintenance of temporary lighting service (replacement of bulbs, etc.) shall be the sole responsibility of the Contractor.

1.6 PRESENCE IN THE AREA

A. The Contractor understands and agrees that during the performance of the Contract, it shall maintain a presence within such proximity of the Work Site which will allow it to respond to an emergency at the Work Site within one hour of receiving notice of an emergency, including emergencies occurring during non-working hours.

B. The Contractor shall provide a list of emergency phone numbers for such purposes.

C. If the Contractor does not have such a presence, it may satisfy this requirement by sub-contracting with a sub-contractor that does have such a presence, provided that any such sub-contractor must be approved by the Owner, in its sole discretion, prior to the project pre-construction meeting.

END OF SECTION

SECTION 01535
PROTECTION OF INSTALLED WORK

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Protection for products, including Owner-provided products, after installation.

1.2 RELATED REQUIREMENTS

A. Division 1 - General Requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PROTECTION OF PUBLIC AND PRIVATE PROPERTY, DAMAGE TO EXISTING PROPERTY

A. Contractor shall protect, shore, brace, support, and maintain all underground pipes, conduits, drains, and other underground construction uncovered or otherwise affected by his construction operations. All pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, fences, and other surface structures affected by construction operations, together with all sod, shrubs, trees in yards, parkways, and medians shall be restored to their original or better condition, whether within or outside the easement. Unless otherwise specified, all replacements shall be made with new materials.

B. Sodded and landscaped areas on improved property (yards) shall be disturbed only to the extent required to permit construction. Such areas shall not be used as storage sites for construction supplies and, insofar as practicable, shall be kept free from stockpiles or excavated materials.

C. No trees shall be removed outside the permanent easement, except where authorized by Owner. Hand excavation shall be employed as necessary to prevent injury to trees. Trees left standing shall be adequately protected against damage from construction operations.

D. Contractor shall be responsible for all damage to streets, curbs/gutters, roads, sidewalks, shoulders, ditches, embankments, culverts, bridges, traffic loops and other public or private property, regardless of location or character, which may be caused by transporting equipment, materials, or workers to or from the Work or any part or site thereof, whether by him or his Subcontractors. Contractor shall make satisfactory and acceptable arrangements with the owner of, or the agency or authority having jurisdiction over, the damaged property concerning its repair or replacement or payment of costs incurred in connection with the damage and shall furnish a written verification of all agreements.

E. Should the Contractor's operations damage any existing underground or aboveground utility, installation, structure, or other construction, Contractor shall immediately notify the authority owning or having jurisdiction over and control of the utility, installation, structure, or other construction, and make a report of such damage. A copy of the report shall be submitted to the Owner. The damaged item shall be repaired immediately by and at the expense of the Contractor unless otherwise specified or acceptable to the authority or owner having jurisdiction over, or to the Owner.

F. The utility, installation, structure, or other structures damaged by Contractor's operations shall be repaired, replaced, or otherwise restored in accordance with the local ordinances, standards, and requirements of the applicable authority or owner having jurisdiction thereover and shall be subject to acceptance by the Owner.

G. Special precaution shall be taken by the Contractor to avoid damage to existing overhead and underground utilities owned and operated by the Owner or other public or private utility companies.

H. With particular respect to existing underground utilities, all available information concerning their location has been shown on the drawings. While it is believed that the locations shown are reasonably correct, the Owner cannot guarantee the accuracy or adequacy of this information.

I. Before proceeding with the work, the Contractor shall confer with all public or private companies, agencies, property owners, or departments that own and operate utilities in the vicinity of the construction work. The purpose of this conference or conferences shall be to notify said companies, agencies or departments of the proposed construction schedule, verify the location of and possible interference with the existing utilities, fire protection systems, lawn irrigation systems, etc., that are shown on the plans, arrange for necessary suspensions of service, and make arrangements to locate and avoid interference with all other utilities (including house connections) that are not shown on the plans. The Owner has no objection to the Contractor arranging for said utility companies, agencies, or departments to locate and uncover their own utilities, however, insofar as the Owner is concerned, the Contractor shall bear entire responsibility for locating and avoiding or repairing damage to said existing utilities.

J. Where existing utilities or other underground structures are encountered, they shall not be displaced or molested unless necessary, and in such case they shall be replaced in as good or better condition than found as quickly as possible. All such utilities that are so damaged or molested shall be replaced at the Contractor's expense unless in the opinion of the Owner such damage was caused through no fault or action of the Contractor.

K. It is expected that the Contractor will be diligent in its efforts and use every possible means to locate existing utilities. Any claims for unavoidable damage based on improper or unknown locations will be thoroughly examined in the light of the Contractor's efforts to locate the said utilities or obstructions prior to beginning.

L. When construction is completed, the private property owner's facilities and grounds shall be restored to as good or better condition than found and as quickly as possible at the Contractor's expense.

M. All water mains and water service connections damaged by Contract's operations will be repaired by the Owner at the expense of the Contractor unless other arrangements are made. Customer irrigation piping damaged by Contractor's operations shall be repaired by and at the cost of the Contractor.

N. All fire hydrants and water control valves shall be kept free from obstruction and available for use at all times.

3.2 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.

C. Contractor shall be responsible for protection of the Site, and all the Work, materials, equipment, and existing facilities thereon, against vandals and other unauthorized persons.

D. No Claim shall be made against OWNER by reason of any act of an employee or trespasser, and Contracyor shall make good all damage to Owner’s property resulting from Contractor’s failure to provide security measures as specified.

E. Security measures shall be at least equal to those usually provided by Owner to protect Owner existing facilities during normal operation, but shall also include such additional security fencing, barricades, lighting, and other measures as required to protect the Site.

END OF SECTION

SECTION 01560
ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

1.1 SCOPE

A. 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.

1.2 PROTECTION OF LAND RESOURCES

A. 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.

1.3 RECORDING AND PRESERVING HISTORICAL AND ARCHAEOLOGICAL FINDS

A. 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 KHC. Failure to report a find could result in legal action.

1.4 PROTECTION OF LAND AREAS

A. 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 Owner.

1.5 PROTECTION OF TREES AND SHRUBS

A. Reasonable care shall be taken during construction to avoid damage to vegetation.

B. The Contractor shall not deface, injure or destroy trees or shrubs, nor remove or cut them without prior approval from the Owner. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorage.

C. Except where otherwise authorized, indicated, or specified, no trees or plants shall be removed. Activities near trees that are to be protected shall be kept to a minimum. Tree protection shall also include trimming, when necessary, to prevent damage by construction equipment.

D. Trees and plants to be removed shall be removed in such a manner as to avoid injury to surrounding trees and plants. Contractor shall be responsible for disposal of all trees and plants removed or damaged.

1.6 TREE PROTECTIVE STRUCTURES

A. 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.

1.7 RESTORATION OF DAMAGED TREES

A. 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.

B. 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.

1.8 PROTECTION OF WATER RESOURCES

A. 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.

1.9 BURNING

A. 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.

1.10 DUST CONTROL

A. 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.

1.11 STORM WATER EROSION AND PREVENTION

A. The following is to be used as a guideline in conjunction with the plans for temporary drainage provisions, erosion control and pollution control as required by a Sanitation District #1 Permit and Kentucky Pollution Discharge Elimination System (KPDES). Reference “Kentucky Best Management Practices for Controlling Erosion, Sediment, and Pollutant Runoff from Construction Sites” and the “Northern Kentucky Sanitation District No. 1 Storm Water Permitting Guide”.

B. The owner will be responsible for acquiring a Grading Permit from Sanitation District #1 and filing a Notice of Intent/Notice of Termination with the KPDES. A Grading Permit is necessary when the square footage of the pervious and impervious areas are equal to or greater than one acre.
   1. Projects less than one acre:

a. Best Management Practices that are shown on the plans and specifications are a minimum. Contractors are responsible for providing the minimum, and, if necessary will provide additional BMP's to satisfy the situation and the regulating authority.

2. Projects greater than one acre:
   a. Best Management Practices that are shown on the plans and specifications are a minimum. Contractors are responsible for providing the minimum, and, if necessary will provide additional BMP's to satisfy the situation and the regulating authority.
   b. Sanitation District #1 must be contacted at least 72 hours prior to any construction activity. (Andy Amen @ 859-578-6880)
   c. Site stabilization shall begin within 14 days where construction activity has permanently ceased.
   d. Site stabilization shall begin within 21 days where construction activity has temporarily ceased.
   e. BMP's shall be checked a minimum of every 7 days and within 24 hours after a 0.5" rainfall. Contractor shall keep a maintenance log book that records the date, weather event, reason for inspection and signature. The maintenance log book shall be turned over to the Owner at the end of the project.

1.12 EROSION CONTROL

A. 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.

1.13 POLLUTION CONTROL

A. Contractor shall prevent the pollution of drains and watercourses by sanitary wastes, sediment, debris, and other substances resulting from construction activities. No sanitary wastes will be permitted to enter any drain or watercourse other than sanitary sewers. No sediment, debris, or other substance will be permitted to enter sanitary sewers, and reasonable measures shall be taken to prevent such materials from entering any drain or watercourse.

1.14 CORRECTIVE ACTION

A. 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, the Owner 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.

1.15 POST-CONSTRUCTION CLEANUP OR OBLITERATION

A. The Contractor shall, unless otherwise instructed in writing by the Engineer, obliterate 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.

1.16 STREAM CROSSINGS

A. This project is authorized under the provisions of 33 CFR 330 Nationwide Permit (NWP) No. 58. See Appendix B for requirements and conditions of this permit.

END OF SECTION

SECTION 01565
EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 WORK INCLUDED

A. The Contractor shall do all Work and take all measures necessary to control soil erosion resulting from construction operations, shall prevent the flow of sediment from the construction site, and shall contain construction materials (including excavation and backfill) within his protected working area so as to prevent damage to the adjacent wetlands or water courses.

B. The Contractor shall not employ any construction method that violates a rule, regulation, guideline or procedure established by Federal, State or local agencies having jurisdiction over the environmental effects of construction.

C. Pollutants such as chemicals, fuels, lubricants, bitumen, raw sewage and other harmful waste shall not be discharged into or alongside of any body of water or into natural or man-made channels leading thereto.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials used for erosion prevention and sediment control measures shall conform to the requirements of the Sanitation District No. 1.

PART 3 - EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Contractor shall prevent erosion of soil on the Site and adjacent property resulting from it's construction activities. Effective measures shall be initiated prior to the commencement of clearing, grading, excavation, or other operation that will disturb the natural protection.

B. 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.

C. 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.

D. 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.

E. 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.

F. Work shall be scheduled to expose areas subject to erosion for the shortest possible time, and natural vegetation shall be preserved to the greatest extent practicable. Temporary storage and construction buildings shall be located, and construction traffic routed, to minimize erosion. Temporary fast growing vegetation or other suitable ground cover shall be provided as necessary to control runoff.

G. 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.

H. 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.

I. 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.

3.2 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.

C. The Contractor shall remove all erosion control materials from the site as soon as potential for erosion has been eliminated and when approved by the Engineer. Reseed area where hay bales or silt has been removed.

END OF SECTION

SECTION 01570
TRAFFIC CONTROL

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Section Includes:
   1. Traffic Control
   2. Flag Person
   3. Flares and Lights
   4. Haul Routes
   5. Removal of Controls
   6. Maintenance
   7. Removal and Repair

B. Related Sections include but are not necessarily limited to:
   1. Section 01010 Summary of Work
   2. Section 01040 Coordination

PART 2 - PRODUCTS

2.1 MATERIALS

A. For temporary construction entrances and roadways.

2.2 SIGNS AND DEVICES

A. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions and Owner.

B. Flagmen Equipment: As required by local jurisdiction and Owner.

PART 3 - EXECUTION

3.1 TRAFFIC CONTROL

A. Adhere to the Special Provision of the KYTC Encroachment Permit for work along Licking Pike.

B. Whenever and wherever, in the Owners 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.

C. Contractor shall abide by county and state regulations governing utility construction work.

D. Traffic control shall be provided according to the Kentucky Department of Highways Manual on Uniform Traffic Control Devices for Streets and Highways.

E. To obtain a permit to work within public rights-of-way, Contractor may be required to prepare and submit to the appropriate agencies, a traffic control plan in conformance with the requirements of the authority having jurisdiction thereover.

3.2 FLAG PERSON

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

3.3 FLARES AND LIGHTS

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

3.4 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.

3.5 PARKING

A. Contractor shall provide and maintain suitable parking areas for the use of all construction workers and others performing work or furnishing services in connection with the Project, as required to avoid any need for parking personal vehicles where they may interfere with public traffic, Owner's operations, or construction activities.

B. Contractor shall clean up all parking areas used and return them to their original state.

C. The location of the Contractor's parking areas shall be acceptable to Owner, and the owner and tenant of private property or to the authority having jurisdiction over public property upon which the parking area will be located.

D. Contractor shall provide appropriate areas for residents to park their vehicles during the construction operations adjacent to their properties, if required. This shall include making the appropriate areas available to the residents by not storing construction materials or equipment in these areas and providing signs and other notification methods acceptable to the Owner for instructing the residents on the location of the temporary parking and its intended use.

E. Additional requirements for notifying property owners and tenants of available temporary parking are covered in the project requirements section.

3.6 MAINTENANCE

A. Maintain traffic and parking areas in a sound condition, free of excavated material, construction equipment, products, mud, snow, and ice. Use whatever dust control measures required to prevent airborne particles.

B. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water and other deficiencies to maintain paving and drainage in original and/or specified condition.

C. Contractor shall establish and maintain temporary access roads to various parts of the Site as required to complete the Project. Such roads shall be available for the use of all others performing work or furnishing services in connection with the Project.

3.7 REMOVAL OF CONTROLS AND REPAIR OF DISTURBED AREAS

A. Remove equipment and devices when no longer required.

B. Remove temporary materials and construction when permanent facilities are usable as directed by the Owner.

C. Remove underground work and compacted materials to a depth of two (2) feet; fill and grade site as specified.

D. Repair existing permanent facilities damaged by usage to original and/or specified condition.

END OF SECTION

SECTION 01600
PRODUCT DELIVERY, STORAGE, AND HANDLING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Scheduling of product delivery
   2. Packaging of products for delivery
   3. Protection of products against damage from:
      a. Handling
      b. Exposure to elements or harsh environments
   4. Payment
      a. No payment will be made to Contractor for equipment or materials not properly stored and insured or without approved Shop Drawings.
         1) Previous payments for items will be deducted from subsequent progress estimate(s) if proper storage procedures are not observed.
   5. Delivery
      a. Scheduled delivery of products or equipment as required to allow timely installation and to avoid prolonged storage.
      b. Deliver products or equipment in manufacturer's original unbroken cartons or other containers designed and constructed to protect the contents from physical or environmental damage.
      c. Clearly and fully mark and identify as to manufacturer, item, and installation location.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

A. Protection, Storage, and Handling
   1. Manufacturer's Instruction:
      a. Protect all products or equipment in accordance with manufacturer's written directions.
         1) Store products or equipment in location to avoid physical damage to items while in storage.
         2) Handle products or equipment in accordance with manufacturer's recommendation and instructions.
      b. Protect equipment from exposure to elements and keep thoroughly dry.
         1) Store pumps, motors, electrical equipment, and other equipment having antifriction or sleeve bearings in weathertight warehouses where temperature is maintained according to manufacturer's recommendations.
      c. When space heaters are provided in equipment, connect and operate heaters during storage until equipment is placed in service.
   2. Storage Facilities
      a. Temporary Storage Building
         1) Provide a weatherproof temporary storage building specifically for the purpose of providing for protection of products and equipment.
         2) Equip building with lockable doors and lighting, and provide electrical service for equipment space heaters and heating or ventilation as necessary to provide storage environments acceptable to specified manufacturers
         3) Provide methods of storage of products and equipment off the ground.
      b. Field Quality Control

1) Inspect Deliveries
   a) Inspect all products or equipment delivered to the site prior to unloading.
      (1) Reject all products or equipment that are damaged, used, or in any other way unsatisfactory for use on Project.
2) Monitor Storage Area:
   a) Monitor storage area to ensure suitable temperature and moisture conditions are maintained as required by manufacturer or as appropriate for particular items.

END OF SECTION

SECTION 01710
CLEANING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. On a continuous basis, maintain premises free from accumulations of waste, debris, and rubbish, caused by operations.
   2. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave Project clean and ready for occupancy.

B. Related Sections include but are not necessarily limited to:
   1. Section 01560- Environmental Protection and Special Controls.
   2. Division 2 – Site Work
   3. Cleaning for Specific Products or Work: Specification Section for that work.

1.2 SAFETY REQUIREMENTS

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

B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
   1. Do not burn or bury rubbish and waste materials on Project site without written permission from the Owner.
   2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
   3. Do not dispose of wastes into streams or waterways.

PART 2 - PART 2 - PRODUCTS

2.1 MATERIALS

A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.1 DURING CONSTRUCTION

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

B. Wet down dry materials and rubbish to allay dust and prevent blowing dust.

C. At reasonable intervals during progress of Work, clean site and public properties. Provide on-site containers for collection of waste materials, debris, trash, rubbish, and recycle containers for cans and plastic.

D. Remove waste materials, debris, trash, and rubbish from site when containers are full, or when directed by the Owner's representative, but not less often than once weekly. Legally dispose of all waste materials, debris, trash, and rubbish at dumping areas off of Project site.

E. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.

F. The Contractor shall thoroughly clean all materials and equipment installed.

3.2 FINAL CLEANING

A. Employ experienced workmen, or professional cleaners, for final cleaning.

B. In preparation for substantial completion, conduct final inspection of sight-exposed interior and exterior surface, and of concealed spaces.

C. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces.

D. Broom clean paved surfaces; rake clean other surfaces of grounds.

E. Maintain cleaning until Project, or portion thereof, is occupied by Owner.

F. The Contractor shall restore or replace existing property or structures as promptly and practicable as work progresses.

END OF SECTION

SECTION 01720
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Record Documents.

B. Related Sections include but are not necessarily limited to:
   1. Division 1- General Requirements
   2. Section 01340 - Submittals.
   3. Section 01770 – Project Closeout.

1.2 MAINTENANCE OF DOCUMENTS

A. Maintain at job site, one copy of:
   1. Contract Drawings.
   2. Specifications.
   3. Addenda.
   4. Reviewed Shop Drawings.
   5. Change Orders.
   6. Other Modifications to Contract.

B. Store documents in approved location, apart from documents used for construction.

C. Provide files and racks for storage of documents.

D. Maintain documents in clean, dry legible condition.

E. Do not use record documents for construction purposes.

F. Make documents available at all times for inspection by Owner.

1.3 MARKING DEVICES

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

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 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.

3.2 SUBMITTAL

A. At Final Completion of project, deliver record documents to Owner.

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

END OF SECTION

SECTION 01730
OPERATING AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Compile product data and related information appropriate for Owner's maintenance and operation of equipment furnished under the contract. Prepare operating and maintenance data as specified.
   2. Instruct Owner's personnel in the maintenance and operation of equipment and systems as outlined herein.
   3. In addition to maintenance and operations data, the manufacturer's printed recommended installation practice shall also be included. If not part of the operations and maintenance manual, separate written installation instructions shall be provided, serving to assist the Contractor in equipment installation.

B. Related Sections include but are not necessarily limited to:
   1. Section 01340 - Submittals.
   2. Section 01450 - Services of Manufacturer’s Representative.

PART 2 - PRODUCTS

2.1 MAINTENANCE AND OPERATIONS MANUAL

A. Every piece of equipment furnished and installed shall be provided with the following maintenance and operations manuals:
   1. One (1) copy in electronic format, on compact disk, furnished for the Owner’s review as to adequacy and completeness. Preferred electronic format is .pdf file. Following review, the Contractor shall cause any changes required to be made and shall store all manuals until the completion of the project or until requested by the Owner. The manuals will be stored and delivered to the Owner, organized as described in this specification.
   2. Two (2) final copies, with all required changes, in print format, furnished to the Owner.
   3. Four (4) final copies, with all required changes, on compact disk. Two (2) copies furnished to Owner, two (2) copies furnished to Engineer. Format shall be .pdf file.

B. The final form of the manuals shall be utilized in instructions of the Owner's personnel.

PART 3 - EXECUTION

3.1 FORM OF SUBMITTALS

A. Prepare data in the form of an instructional manual for use by Owner's personnel.

B. Format for hard copies:
   1. Size: 8-1/2 x 11 in.
   2. Paper: 20 pound minimum, white, for typed pages.
   3. Text: Manufacturer's printed data, or neatly typewritten.
   4. Drawings:
      a. Provide reinforced punched binder tab, bind with text.
      b. Fold large drawings to the size of the text pages where feasible.
      c. For all drawings included within manuals, furnish a 8 mil mylar copy in standard size drawings 36" x 24", 8" x 16" or 8-1/2" x 11".

d. For flow or piping diagrams that cannot be detailed on the standard size drawings, a larger, appropriate size drawing may be submitted.

5. Provide fly-leaf for each separate product, or each piece of operating equipment.
   a. Provide typed description of product, and major component parts of equipment.
   b. Provide indexed tabs.
6. Cover: Identify each volume with types or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:
   a. Title of Project.
   b. Identity of separate structure as applicable.
   c. Identity of general subject matter covered in the manual.

C. Binders:
1. Commercial quality, durable and cleanable, 3-hole, 3" or 4" post type binders, with oil and moisture resistant hard covers.
2. When multiple binders are used, correlate the data into related consistent grouping.
3. Labeled on the front cover and side of each binder shall be the name of the Contract, the Contract Number and Volume Number.

3.2 CONTENT OF MANUAL

A. Neatly typewritten table of contents for each volume, arranged in systematic order.
1. Contractor, name of responsible principal, address and telephone number.
2. A list of each product required to be included, indexed to the content of the volume.
3. List, with each product, the name, address and telephone number of:
   a. Subcontractor or installer.
   b. Maintenance contractor, as appropriate.
   c. Identify the area of responsibility of each.
   d. Local source of supply for parts and replacement.
4. Identify each product by product name and other identifying symbols as set forth in Contract Documents.

B. Product Data:
1. Include only those sheets which are pertinent to the specific product. References to other sizes and types or models of similar equipment shall be deleted or lined out.
2. Annotate each sheet to:
   a. Clearly identify the specific product or part installed.
   b. Clearly identify the data applicable to the installation.
   c. Provide a parts list for all new equipment items, with catalog numbers and other data necessary for ordering replacement parts.
   d. Delete references to inapplicable information.
3. Clear and concise instructions for the operation, adjustment, lubrication, and other maintenance of the equipment including a lubrication chart.

C. Drawings:
1. Supplement product data with drawings as necessary to clearly illustrate:
   a. Relations of component parts of equipment and systems.
   b. Control and flow diagrams.
2. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.
3. Do not use Project Record Documents as maintenance drawings.

D. Written text, as required to supplement product data for the particular installation:
1. Organize in a consistent format under separate headings for different procedures.
2. Provide a logical sequence of instructions for each procedure.

E. Copy of each warranty, (with specific beginning and end dates for the warranty period), bond and service contract issued: Provide information sheet for Owner's personnel.
1. Proper procedures in the event of failure.
2. Instances which might affect the validity of warranties or bonds.

F. The electronic copies of the manuals shall be submitted to the Owner for review at the same time that the equipment to which it pertains is delivered at the site. The manuals must be approved by the Owner before final payment on the equipment is made.

END OF SECTION

SECTION 01740
WARRANTIES AND BONDS

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Compile specified warranties and bonds.

B. Compile specified service and maintenance contracts.

C. Co-execute submittals when required.

D. Review submittals to verify compliance with Contract Documents.

1.2 RELATED REQUIREMENTS

A. Performance and Payment Bonds.

B. Guaranty.

C. General Warranty of Construction.

D. Warranties and Bonds required for specific products: As listed in other Specification sections.

1.3 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 the Owner. 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 the Owner that, if in the judgment 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.

1.4 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.

1.5 FORM OF SUBMITTALS

A. Prepare in duplicate packets.

B. 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:
    a. Title of Project.
    b. Name of Contractor.

C. Binders: Commercial quality, three-ring, with durable and cleanable plastic covers.

1.6 TIME OF SUBMITTALS

A. For equipment or component parts of equipment put into service during progress of construction: Submit documents within ten (10) days after inspection and acceptance.

B. Otherwise, make submittals within ten (10) days after date of substantial completion, prior to final request for payment.

C. 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.

1.7 SUBMITTALS REQUIRED

A. Submit warranties, bonds, service and maintenance contracts as specified in the respective sections of the Specifications.

END OF SECTION

SECTION 01770
PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Section 00700 - Standard General Conditions.

B. Section 01710 - Cleaning.

C. Section 01720 - Project Record Documents.

1.2 SUBSTANTIAL COMPLETION

A. Contractor:
   1. Submit written certification to Engineer that project is substantially complete.
   2. Submit list of major items to be completed or corrected.

B. Engineer will make an inspection within seven days after receipt of certification, together with the Owner'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 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.
      e. Responsibilities of Owner and Contractor for:
         1) Insurance.
         2) Utilities.
         3) Operation of mechanical, electrical and other systems.
         4) Maintenance and cleaning.
         5) Security.
      f. Signatures of:
         1) Engineer.
         2) Contractor.
         3) Owner.
   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 immediately notify Contractor, in writing, stating reasons.
   2. Contractor: Complete work, and send second written notice to Engineer, certifying that Project, or designated portion of project is substantially complete.
   3. Engineer will re-review work.

1.3 FINAL INSPECTION

A. Contractor shall submit written certification that:
   1. Contract Documents have been reviewed.
   2. Project has been inspected for compliance with Contract Documents.
   3. Work has been completed in accordance with Contract Documents.
   4. Equipment and systems have been tested in presence of Owner's representative and are operational.

5. 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 re-review the work.

1.4 FINAL CLEANING UP

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

1.5 CLOSEOUT SUBMITTALS

A. Project Record Documents: In accordance with requirements of Section 01720.

B. Operation and Maintenance Data: In accordance with requirements of particular technical specifications and Section 01730.

C. Warranties and Bonds: In accordance with requirements of particular technical specifications and Section 01740.

1.6 INSTRUCTION

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

1.7 FINAL APPLICATION FOR PAYMENT

A. Contractor shall submit final applications in accordance with requirements of General Conditions.

1.8 FINAL CERTIFICATE FOR PAYMENT

A. Engineer will issue final certificate in accordance with provisions of General Conditions.

B. Should final completion be materially delayed through no fault of Contractor, Engineer may issue a Semi-final Certificate for payment.

END OF SECTION

SECTION 02221
TRENCHING, BACKFILLING, AND COMPACTING FOR UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Excavation, trenching, backfilling and compacting for all underground utilities.

B. Related Specification Sections include but are not necessarily limited to:
   1. Northern Kentucky Water District Standard Specifications and Drawings for the Installation of Water Mains, 2021.
   2. Section 02224 - Pipeline Undercrossings.
   3. Section 02515 - Precast Concrete Manhole Structures.
   4. Section 03300 – Cast In Place Concrete.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. ASTM International (ASTM):
      a. C33, Standard Specification for Concrete Aggregates.
      b. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3)).
      c. D4254, Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.

B. Qualifications: Hire an independent soils laboratory to conduct in-place moisture-density tests for backfilling to assure that all work complies with this Specification Section.

1.3 DEFINITIONS

A. Excavation: All excavation will be defined as unclassified.

1.4 SUBMITTALS

A. Shop Drawings:
   1. See Specification Section 01340 for requirements for the mechanics and administration of the submittal process.
   2. Product technical data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.
      b. Manufacturer's installation instructions.
   3. Submit respective pipe or conduit manufacturer's data regarding bedding methods of installation and general recommendations.
   4. Submit sieve analysis reports on all granular materials.

B. Informational Submittals:
   1. See Specification Section 01340 for requirements for the mechanics and administration of the submittal process.
   2. Trench shield (trench box) certification if employed:
      a. Specific to Project conditions.
      b. Re-certified if members become distressed.
      c. Certification by registered professional structural engineer, registered in the state where the Project is located.
      d. Engineer is not responsible to, and will not, review and approve.

1.5 PROJECT CONDITIONS

A. Avoid overloading or surcharge a sufficient distance back from edge of excavation to prevent slides or caving.
   1. Maintain and trim excavated materials in such manner to be as little inconvenience as possible to public and adjoining property owners.

B. Provide full access to public and private premises and fire hydrants, at street crossings, sidewalks and other points as designated by Owner to prevent serious interruption of travel.

C. Protect and maintain bench marks, monuments or other established points and reference points and if disturbed or destroyed, replace items to full satisfaction of Owner and controlling agency.

D. Verify location of existing underground utilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Backfill Material:
   1. As approved by Engineer.
      a. Free of rock cobbles, roots, sod or other organic matter, and frozen material.
      b. Moisture content at time of placement: 3 percent plus/minus of optimum moisture content as specified in accordance with ASTM D698.
      c. Lime sand shall not be used for any backfill.

B. Subgrade Stabilization Materials: Provide subgrade stabilization material consisting of crushed stone material as indicated in Geotechnical Report.

C. Bedding Materials:
   1. As approved by the Soils Engineer.
   2. Granular bedding materials:
      a. Sand Bedding
         1) Not less than 3" of sand bedding or depth necessary to achieve full pipe support, whichever is greater.
      b. ASTM C33, gradation 67 (3/4 IN to No. 4 sieve) defined below:

Sieve Size	1 IN	3/4 IN	3/8 IN	No. 4	No. 20
Percent Passing by Weight	100	90-100	20-55	0-10	0

         1) Well-graded crushed stone.
   3. Flowable fill:
      a. Description: Flowable fill shall be a mixture of cement, fly ash, fine sand, water, and air having a consistency which will flow under a very low head.
      b. Material characteristics:
         1) The approximate quantities of each component per cubic yard of mixed material shall be as follows:
            a) Cement (Type I or II): 50 LBS.
            b) Fly ash: 200 LBS.
            c) Fine sand: 2,700 LBS.
            d) Water: 420 LBS.
            e) Air content: 10 percent.
         2) Actual quantities shall be adjusted to provide a yield of 1 cubic yard with the materials used.
         3) Approximate compressive strength should be 85 to 175 psi.
         4) Fine sand shall be an evenly graded material having not less than 95 percent passing the No. 4 sieve and not more than 5 percent passing the No. 200 sieve.

5) Mixing and handling of the material shall be in accordance with Specification Section 03300.

PART 3 - EXECUTION

3.1 GENERAL

A. Remove and dispose of unsuitable materials as directed by Soils Engineer to site provided by Contractor.

3.2 EXCAVATION

A. Unclassified Excavation: Remove rock excavation, clay, silt, gravel, hard pan, loose shale, and loose stone as directed by Soils Engineer.

B. Excavation for Appurtenances:
   1. 12 IN (minimum) clear distance between outer surface and embankment.

C. Groundwater Dewatering (Confirm with Geotechnical Firm Recommendations):
   1. Where groundwater is, or is expected to be, encountered during excavation, install a dewatering system to prevent softening and disturbance of subgrade to allow subgrade stabilization, pipe, bedding and backfill material to be placed in the dry, and to maintain a stable trench wall or side slope.
   2. Groundwater shall be drawn down and maintained at least 3 FT below the bottom of any trench or manhole excavation prior to excavation.
   3. Review soils investigation before beginning excavation and determine where groundwater is likely to be encountered during excavation.
      a. Employ dewatering specialist for selecting and operating dewatering system.
   4. Keep dewatering system in operation until dead load of pipe, structure and backfill exceeds possible buoyant uplift force on pipe or structure.
   5. Dispose of groundwater to an area which will not interfere with construction operations or damage existing construction.
   6. Install groundwater monitoring wells as necessary.
   7. Shut off dewatering system at such a rate to prevent a quick upsurge of water that might weaken the subgrade.
   8. Cost of groundwater dewatering shall be included in the lineal foot unit price of the pipe installation.

D. Trench Excavation:
   1. Excavate trenches by open cut method to depth shown on Drawings and necessary to accommodate work.
      a. Support existing utility lines where proposed work crosses at a lower elevation.
         1) Stabilize excavation to prevent undermining of existing utility.
   2. Open trench outside buildings, units, and structures:
      a. No more than the distance between two manholes, structures, units, or 300 LF, whichever is less.
      b. Field adjust limitations as weather conditions dictate.
   3. Trenching within buildings, units, or structures:
      a. No more than 100 LF at any one time.
   4. Any trench or portion of trench, which is opened and remains idle for seven (7) calendar days, or longer, as determined by the Owner, may be directed to be immediately refilled, without completion of work, at no additional cost to Owner.
      a. Said trench may not be reopened until Owner is satisfied that work associated with trench will be prosecuted with dispatch.
   5. Observe following trenching criteria:
      a. Trench size:
         1) Excavate width to accommodate free working space.

2) Maximum trench width at top of pipe or conduit may not exceed outside diameter of utility service by more than the following dimensions:

OVERALL DIAMETER OF UTILITY SERVICE	EXCESS DIMENSION
33 IN and less	18 IN
more than 33 IN	24 IN

3) Cut trench walls vertically from bottom of trench to 1 FT above top of pipe, conduit, or utility service.
4) Keep trenches free of surface water runoff.
   a) Include cost in Bid.
   b) No separate payment for surface water runoff pumping will be made.

E. Flowable Fill:
1. Flowable fill shall be:
   a. Discharged from a mixer by any means acceptable to the Engineer into the area to be filled.
   b. Placed in 4 FT maximum lifts to the elevations indicated.
      1) Allow 12 HR set-up time before placing next lift or as approved by the Engineer.
      2) Contractor shall place flowable fill lifts in such a manner as to prevent flotation of the pipe.
2. Flowable fill shall not be placed on frozen ground.
3. Subgrade on which flowable fill is placed shall be free of disturbed or softened material and water.
4. Conform to appropriate requirements of Specification Section 02200.
5. Flowable fill batching, mixing, and placing may be started if weather conditions are favorable, and the air temperature is 34 DegF and rising.
6. At the time of placement, flowable fill must have a temperature of at least 40 DegF.
7. Mixing and placing shall stop when the air temperature is 38 DegF or less and falling.
8. Each filling stage shall be as continuous an operation as is practicable.
9. Contractor shall prevent traffic contact with flowable fill for at least 24 HRS after placement or until flowable fill is hard enough to prevent rutting by construction equipment.
10. Flowable fill shall not be placed until water has been controlled or groundwater level has been lowered in conformance with the requirements of the preceding Groundwater Dewatering paragraph in PART 3 of this Specification Section.

3.3 PREPARATION OF FOUNDATION FOR PIPE LAYING

A. Over-Excavation:
1. Backfill and compact to 90 percent of maximum dry density per ASTM D698.
2. Backfill with granular bedding material as option.

B. Rock Excavation:
1. Excavate minimum of 6 IN below bottom exterior surface of the pipe or conduit.
2. Backfill to grade with suitable earth or granular material.
3. Form bell holes in trench bottom.

C. Subgrade Stabilization:
1. Stabilize the subgrade when directed by the Owner.
2. Observe the following requirements when unstable trench bottom materials are encountered.
   a. Notify Owner when unstable materials are encountered.
      1) Define by drawing station locations and limits.
   b. Remove unstable trench bottom caused by Contractor failure to dewater, rainfall, or Contractor operations.
      1) Replace with subgrade stabilization with no additional compensation.

3.4 BACKFILLING METHODS

A. Do not backfill until tests to be performed on system show system is in full compliance to specified requirements.

B. Carefully Compacted Backfill:
   1. Furnish where indicated on Drawings, specified for trench embedment conditions and for compacted backfill conditions up to 12 IN above top of pipe or conduit.
   2. Comply with the following:
      a. Place backfill in lifts not exceeding 8 IN (loose thickness).
      b. Hand place, shovel slice, and pneumatically tamp all carefully compacted backfill.
      c. Observe specific manufacturer's recommendations regarding backfilling and compaction.
      d. Compact each lift to specified requirements.

C. Common Trench Backfill:
   1. Perform in accordance with the following:
      a. Place backfill in lift thicknesses capable of being compacted to densities specified.
      b. Observe specific manufacturer's recommendations regarding backfilling and compaction.
      c. Avoid displacing joints and appurtenances or causing any horizontal or vertical misalignment, separation, or distortion.

D. Water flushing for consolidation is not permitted.

3.5 COMPACTION

A. General:
   1. Place and assure bedding, backfill, and fill materials achieve an equal or higher degree of compaction than undisturbed materials adjacent to the work.
   2. In no case shall degree of compaction below minimum compactions specified be accepted.
   3.

B. Compaction Requirements:
   1. Unless noted otherwise on Drawings or more stringently by other Specification Sections, comply with following minimum trench compaction criteria.
      a. Bedding material:

LOCATION	SOIL TYPE	COMPACTION DENSITY
All locations	Cohesionless soils	75 percent relative density by ASTM D4253 and ASTM D4254

      b. Carefully compacted backfill:

LOCATION	SOIL TYPE	COMPACTION DENSITY
All applicable areas	Cohesive soils	95 percent of maximum dry density by ASTM D698.
	Cohesionless soils	75 percent relative density by ASTM D4253 and ASTM D4254

      c. Common trench backfill:

LOCATION	SOIL TYPE	COMPACTION DENSITY
Under pavements, roadways, surfaces within highway right-of-ways	Cohesive soils	90 percent of maximum dry density by ASTM D698
	Cohesionless soils	60 percent of relative density by ASTM D4253 and ASTM D4254

Under turfed, sodded, plant seeded, nontraffic areas	Cohesive soils	85 percent of maximum dry density by ATM D698
	Cohesionless soils	40 percent of relative density by ASTM D4253 and ASTM D4254

3.6 FIELD QUALITY CONTROL

A. Testing:
   1. Perform in-place moisture-density tests as directed by the Owner.
   2. Perform tests through recognized testing laboratory approved by Owner.
   3. Costs of tests paid by Contractor.
   4. Reference to Engineer in this Specification Section will imply Soils Engineer when employed by Owner and directed by Engineer to undertake necessary inspections as approvals as necessary.
   5. Ensure excavations are safe for testing personnel.

END OF SECTION

SECTION 02224
PIPELINE UNDERCROSSINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Construction of pipe undercrossings.

B. Related Specification Sections include but are not necessarily limited to:
   1. Northern Kentucky Water District Standard Specifications and Drawings for the Installation of Water Mains, 2021.
   2. Section 02221 - Trenching, Backfilling, and Compacting for Utilities.

1.2 SUBMITTALS

A. Shop Drawings:
   1. See Specification Section 01340 for requirements for the mechanics and administration of the submittal process.
   2. Product technical data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.
      b. Manufacturer's installation instructions.
      c. Compliance with submittal requirements of authority or agency having jurisdiction over undercrossing.

B. Operation and Maintenance Manuals:
   1. See Specification Section 01730 for requirements for:
      a. The mechanics and administration of the submittal process .
      b. The content of Operation and Maintenance Manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Casing Pipe:
   1. Structural grade steel: Minimum yield strength of 35,000 psi or greater as required by the permits.
   2. Wall thickness: Minimum 0.626 IN or greater as required by the permits.
   3. Diameter: Minimum of 4 IN larger than outside diameter of carrier pipe's jointing system.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General:
   1. Install undercrossing to meet requirements of KYTC.
   2. Observe work requirements stipulated in any permit condition.
   3. Consult Contract Drawings for limitation of construction right-of-way.

B. If installation of crossing is by jacking or dry boring, the following will be required unless more rigid requirements are specified by KYTC:
   1. Diameter of the hole: Not exceeding diameter of casing by more than 1-1/2 IN.
   2. Pressure grout all voids outside of casing, including abandoned or misaligned holes.
   3. Fill void between carrier pipe and casing wall with blow sand.

a. Install watertight grouted plug minimum of 1 FT deep at both ends.

4. Undercrossing casing:
   a. Full lengths.
   b. Weld pressure tight.
      1) Steel casing sections shall be connected by welding, conforming to AWWA C206.
5. After casing is installed, band wood blocks 120 degrees apart to each length of carrier pipe to prevent displacement and pull pipe into place.
   a. Pipe must be straight and centered in casing when in place.
6. Manufactured Pipe Spacers:
   a. Adequate manufactured pipe spacers shall be installed to ensure that the carrier pipe is adequately supported in the center of the casing pipe throughout it's length, particularly at the ends.
   b. There shall not be any metallic contact between the casing and carrier pipe.
   c. Manufactured pipe spacers shall be installed per manufacture's installation requirements.
7. Coordinate connections to system with authority or agency having jurisdiction over the crossing.

END OF SECTION

SECTION 02224
HORIZONTAL DIRECTIONAL DRILLING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Labor, materials, machinery, and construction equipment required to perform in a good workmanlike manner all horizontally-controlled directional drilling for the installation of transmission water mains as indicated on the Drawings.

B. Related Specification Sections include but are not necessarily limited to:
1. Northern Kentucky Water District Standard Specifications and Drawings for the Installation of Water Mains, 2011.
2. Section 02660 - Water Main Construction.
3. Section 15065 – Pipe: Polyvinyl Chloride (Fusible PVC)
4. Section 15067 – Pipe: Polyethylene (HDPE)

1.2 QUALITY ASSURANCE

A. Referenced Standards:
1. American Society for Testing and Materials (ASTM):
   a. F1962, Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit Under Obstacles, Including River Crossings.
2. Occupational Safety and Health Administration (OSHA):
   a. OSHA-3075, Controlling Electrical Hazards.
3. Plastic Pipe Institute (PPI):
   a. TR-46, 2009, Guidelines for Use of Mini-Horizontal Directional Drilling for Placement of High Density Polyethylene Pipe.

B. Qualifications:
1. Directional drilling and pipe installation shall be done only by an experienced Contractor specializing in directional drilling and whose key personnel have at least 5 years experience in this work. Furthermore, the Contractor shall have the following minimum experience:
   a. Successfully completed a minimum of five (5) HDD installations in the last 5 years that were 36-IN or greater in diameter and 1,000 feet or longer.
   b. At least three (3) of the projects shall have utilized HDPE/Fusible PVC.
   c. At least three (3) of the projects shall have been a water (river) crossing.
   d. At least two (2) of the projects shall have been for conveyance of finished water.

1.3 DEFINITIONS

A. General:
1. Back Reamer: A cutting head attached to the leading end of a drill string to enlarge the pilot bore diameter by removing the surrounding rock or soil by excavation during the pull-back operation and enable the carrier pipe to be installed.
2. Ballast: Water that is used to fill the pipe during installation to reduce the net buoyant force uplifting the pipe.
3. Bent Sub: An offset section of drill stem located close behind the drill head that allows steering corrections to be made by positioning the cutting head. Frequently used in directional drilling in rock.
4. Bits: Replaceable cutting tools on the cutting head or drill string.

5. Bore or Borehole: The small diameter tunnel created by the initial pilot drilling operation, and subsequent reaming or expanding operations.
6. Carrier Pipe: The pipe that carries the transported product for operational use.
7. Coating: A thin, non-structural coating material applied to the outside surface of a pipe wall to provide protection against corrosion and minor damage during handling and installation.
8. Cover or Overburden: The vertical depth from finish grade (top of pavement, top of railroad ties, natural ground surface, river bed, etc.) to the top of the casing or bore hole.
9. Crossing: A pipe reach installed using a trenchless method of construction in which the primary purpose is to provide a passage beneath a surface obstruction.
10. Cutterhead/Cutting Head: A tool or system of tools on a common support apparatus that excavates at the face of a bore. Usually applies to mechanical methods of excavation.
11. Drill Bit: A tool that cuts the subsurface strata at the head of a drill string, usually by mechanical means.
12. Drill String or Drill Stem:
    a. An assembly of drill rods or drill pipes, a cutterhead, and sonde housing used to drill a pilot bore.
    b. An assembly of drill rods or drill pipes, and a back reamer or expander used to enlarge a borehole.
    c. System of rods used with cutting bit or compaction bit attached to the drive chuck.
13. Drilling Fluid/Mud: Typically a mixture of water, bentonite, and/or polymer continuously pumped to the cutting head to facilitate the removal of cuttings through suspension of excavated material in the mixture, and stabilization of the borehole. In directional drilling, the fluid also cools the head and lubricates the installation of the product pipe.
14. Down-hole: Inside the borehole.
15. Entry/Exit Angle: The angle relative to the horizontal plane at which the drill string enters and exits the ground in forming the pilot bore.
16. Entry Pit: The work area where a trenchless technology excavation tool enters the ground. The work area where a pilot bore operation commences. The entry pit may be at grade or below grade within an excavated work pit. See launch pit.
17. Exit Pit: The work area where a trenchless technology excavation tool exits the ground. The work area where a pilot bore operation terminates. The exit pit may be at grade or below grade within an excavated work pit.
18. Expander: A tool that enlarges a bore during a pull-back operation by displacing the surrounding soil by compaction soil rather than removing the surrounding soil by excavation, sometimes used during a thrusting process as well as during pull-back.
19. Frac-out: A leakage of the pressurized drilling fluid from the borehole to the ground surface or body of water through a fissure in the surrounding soil or rock strata.
20. Fluid Assisted Boring/Drilling: A type of guided boring technique using a combination of mechanical drilling and pressurized fluid jets to provide the soil cutting action.
21. Grade: The elevations shown on plans and/or survey stakes for the installation of the carrier pipe. It is occasionally used to give elevations for casing. In most cases, it is given to the flow line but can also be given to the top of the pipe or casing.
22. Ground Mat: Metal mats rolled out on either side of drill rack for operators and crew to stand on during operation to provide grounding protection in case of electrical strike.
23. Ground Mat Cables: Cables connecting the drill rack to the ground mats.
24. Ground Rod: A copper/brass rod which is hand driven into the ground and is connected to the drill rack and mats to provide adequate grounding of unit and personnel.
25. Ground Rod Cable: Cable connecting the mats and drill rig to the ground rod.
26. Grout: A material such as cement slurry, sand or pea gravel that is pumped into voids.
27. Grouting: Filling of the annular space between the casing and carrier pipe; filling of voids and fissures in the surrounding soil or rock strata.
28. Guided Boring: A pilot boring system with steering capabilities for the installation of pipes, conduits and cables using a drilling rig. A pilot bore is drilled using a rotating drill string and is then enlarged by a back reamer to the size required for the product pipe. The necessary deviation during pilot boring is provided by a slanted face to the drill head, an

asymmetric drill head, eccentric fluid jets, or a combination of these, usually in conjunction with a locator.

29. Horizontal Directional Drilling: A trenchless method of construction that consists of drilling a small diameter pilot hole along a predetermined path and then developing the pilot hole into a stable and suitable sized borehole and then pulling the new utility into place. The HDD process has steering and tracking capabilities during the pilot drill operation. The vertical profile of the borehole is typically in the shape of a sag arc entrapping drilling fluid to provide continuous support to the borehole.
30. FPVC: Fusible Poly Vinyl Chloride.
31. Launch Pit: The work area used for "launching" a trenchless technology excavation tool; the horizontal directional drill process begins at this location. The launch pit may be at grade or below grade within an excavated work pit. See entry pit.
32. Line:
    a. The specified direction of the proposed bore in a horizontal plane.
    b. The distance between two points as laid out by a survey crew for the installation of pipelines and their bores and tunnels.
33. Lining: A thin, non-structural coating material applied to the inside surface of a pipe wall to provide protection against corrosion.
34. Locator: An electronic instrument used to determine the position and strength of electro-magnetic signals emitted from a transmitter sonde in the pilot head of a boring system, in an impact moling tool or from existing utilities which have been energized. Sometimes referred to as a walkover system.
35. Marsh Funnel: An instrument used to determine viscosity. For trenchless applications, used to determine slurry viscosity. The Marsh funnel test is performed by pouring a slurry sample through a screen at the top of the funnel to trap large particulates. After the funnel is filled, the bottom of the funnel is opened and the slurry is allowed to flow. The flow rate is calculated as the time period counted in seconds for a quart of slurry to drain out of the funnel.
36. Measurement While Drilling (MWD): Borehole survey instrumentation that provides continuous information simultaneously with drilling operations, usually transmitting to a display at or near the drilling rig.
37. Mixed Face: A soil condition that presents two or more different types of subsurface geologic composition in the cross-section of the bore.
38. Muck:
    a. As a noun: The same as spoil.
    b. As a verb: To clean out mud as in "muck out the hole."
39. Mud: Same as drilling fluid and slurry.
40. Open Cut: Trench excavation to the required underground line and grade for the installation, maintenance or inspection of a pipe, conduit or cable. The excavation is then backfilled and compacted, and the surface restored.
41. Ovality: The difference between the maximum diameter divided by the mean diameter at any one cross section of a pipe, generally expressed as a percentage.
42. Pilot Bore: The operation of drilling the initial small-diameter pass of a boring process with steering capabilities to achieve the desired line and grade of the drill path that is subsequently enlarged using back reaming or similar enlargement method. Most commonly applied to horizontal directional drilling and guided boring.
43. Pipe String: The assembled sections of carrier pipe whose total length is equal to or greater than the length of the borehole.
44. Product Pipe: Same as carrier pipe.
45. Pull-back: That part of the guided boring and reaming operations of the horizontal directional drilling process in which the drill string is pulled back through the bore to the launch pit, in some cases simultaneously installing the carrier pipe to its final position.
46. Pull Back Force: The tensile load applied to a drill string during the pull-back operation. Guided boring and directional drilling rigs are generally rated by their maximum pull-back force.

47. Restoration: Overall site improvements that are done at the conclusion of the project to return the work areas to their original (or better) condition, including backfilling, compacting and re-surfacing any excavations at the entry and exit pits.
48. Roller Cone Bit or Reamer: A bit or reamer in which the teeth rotate on separate, internal shafts that are usually aligned perpendicular to line to develop a bore diameter larger than the pilot bore diameter; used for boring rock.
49. Sonde Housing: Integral unit in the directional drill head that also houses the sonde radio sending unit.
50. Slurry: Same as drilling fluid and mud.
51. Spoil (Muck): Soil, rock and other materials displaced by a tunnel or casing, and removed as the tunnel or casing is installed.
52. Stakedown Plate: A plate staked to the ground to stabilize the forward end of the drill rack.
53. Subsaver: A replaceable sub on the carriage motor to which the drill pipe is connected.
54. Survey Tools: Downhole equipment and instruments used to determine the position of a bore in directional drilling or site investigation.
55. Swivel Pulling: Used to attach service to drill pipe and pulled into the bore.
56. Trenchless Technology: Refers to a family of methods, materials, and equipment that can be used for installation of new, or replacement or rehabilitation of existing underground utilities with minimal or no disruption to the ground surface along the utility alignment, thereby causing no disruption to traffic, commerce, and other activities, as opposed to excavating open cut pipe trenches and the associated major disruptions to surface activities.
57. Walkover System: Same as locator.
58. Washover Pipe: A rotating drill pipe of larger diameter than the pilot drill pipe and placed around it with its leading edge less advanced. Its purpose is to provide stiffness to the drilling pipe in order to maintain steering control over long bores, to reduce friction between the drill string and the soil and to facilitate mud circulation. See directional drilling.
59. Water Table: The elevation of subsurface ground water.

1.4 SUBMITTALS

A. Quality Assurance: Submit samples of the daily logs and records that will be maintained.
   1. The actual daily logs and records shall be provided to the Engineer within two working days of the date to which the records pertain.
   2. Refer to Quality Assurance portion of this Section.

B. Shop Drawings:
   1. See Specification Section 1340 for requirements for the mechanics and administration of the submittal process.
   2. Product technical data including:
      a. Certification from the pipe and fitting manufacturer that all of the materials used to manufacture the pipe and fittings meet the requirements of this specification and the referenced standards.
      b. Products information, material specifications, material composition, and handling procedures.
      c. Material safety data sheets and special precautions required.
      d. Method of mixing and application.

C. Shop Drawings:
   1. All Shop Drawings shall be reviewed and accepted by the Engineer prior to Contractor's mobilization.
   2. The Shop Drawings shall be neat and legible.
   3. The Drawings shall include:
      a. Planned equipment.
      b. Equipment setup areas.
      c. Pipe string layout areas.
      d. Extent of proposed excavations.
      e. Line and grade of proposed bore.

f. Approximate length of the bore.
g. Approximate length of pipe string.
h. Location of mud containers and other secondary containment devices such as sand bas.
i. All pothole data to locate all utilities, underground structure/facilities along the planned bore path.
j. Traffic control plans.
k. List of lubricants and horizontal directional drilling additives.
l. Location of spoil sites.
m. Anticipated or proposed deviations in line and grade from the design plan and profile of pipeline.
n. Anticipated production rate.

D. Drilling Plan: Submit a detailed narrative description of the sequence of tasks that will be performed to install the specified pipe string using horizontal directional drilling. The plan shall include, but not be limited to:
1. A description of the proposed drilling procedures consisting of the pilot bore and reaming operations.
2. Drilling equipment including drill rig pushing and pulling capacities, and torque and mud pumping capacities.
3. Indicate the diameters of multiple-pass pilot, intermediate and final bores, or single-pass staged bore, as applicable.
4. Following completion of the pilot hole drilling, the Contractor shall submit a detailed plan and profile of the bore plotted at a scale no smaller than 1 IN equals 20 FT horizontally and 1 IN equals 10 FT vertically. (The Contractor may make changes to the proposed vertical and horizontal alignment of the installation and the location of the entry and exit points, provided these changes are first submitted in writing and agreed to by the Owner and Engineer.)
5. It is anticipated that the pipeline will be installed in one continuous length; therefore no pipe joining during pull-back is anticipated. If proposed by the Contractor, such pipe joining must be submitted with full details of methods and performance for approval by the Engineer at least ten (10) days in advanced of proposed operations. Contractor bears sole risk and responsibility for proving the acceptability of such pipe joining and associated work.

E. Frac-out Plan: Submit a detailed narrative of a frac-out prevention and cleanup plan. The plan shall include, but not be limited to:
1. Name(s) and phone numbers of biological monitor(s) and crew supervisor(s).
2. Site-specific resources of concern.
3. Monitoring protocols, including biological monitoring and frac-out monitoring.
4. Containment and cleanup plan, including staging location of vacuum trucks and equipment, equipment list, necessary hose lengths, special measures needed for steep topography, at each location.

F. Sound Attenuation System: Submit product data, shop drawings, and a site plan of the launch pit showing location and extent of various components of the sound attenuation system. The site plan shall be enhanced with sections and details as necessary to properly illustrate the system relative to the work area.

G. Schedule: Submit a detailed schedule with all major construction activities and durations, with beginning and completion dates shown. The schedule shall include, but not be limited to:
1. Rig mobilization and setup.
2. Pilot bore hole drilling.
3. Back reaming.
4. Pullback of pipe.
5. Cleanup and restoration.
6. The schedule shall be subject to reasonable updating as requested by the Engineer to accommodate unforeseen work conditions affecting the progress of the project.

H. Description of Equipment: Submit manufacturer's cut sheets or detailed descriptions of planned equipment to be used for the pipeline installation, including drill rig capacity. All texts, drawings, figures and photographs shall be clear and legible.

I. Product Data: Submit manufacturer's published:
   1. Product data including specifications describing planned materials to be used for the pipeline installation.
   2. Warranty information for materials, as applicable.
   3. Materials Safety Data Sheets (MSDS) for materials, as applicable.
   4. All texts, drawings, figures and photographs shall be clear and legible.

J. Drilling Fluid Pressures: Submit calculations detailing the maximum and minimum drilling fluid pressures expected during the directional drilling process. These calculations shall address minimum pressures required for borehole stabilization as well as maximum pressures to prevent inadvertent drilling fluid returns.

K. Surveying Equipment and Procedures: Submit records of equipment calibrations and certifications for all equipment used for downhole surveys and tracking of the drill head and bore path. Procedures to be used will be described in the submittal, including quality assurance measures.

L. Calculations for Thrust, Torque, and Pullback: Submit calculations for thrust, torque, and pullback loads, for the conditions and operating practices anticipated.

M. Pipe Material Properties:
   1. Maximum Pulling Force: Submit calculations determining the maximum pulling force that may be anticipated during the pullback operation to overcome theoretical frictional forces.
      a. The calculations shall be stamped by a professional engineer licensed in the State of Kentucky accompanied by written approval from the pipe manufacturer verifying that the maximum calculated pulling force will not exceed the manufacturer's recommended yield tensile strength and factor of safety for the proposed pipe material and fused joint.
   2. Radius of Curvature: Submit the radius of curvature planned for the installation of the pipeline along with calculations showing that installation stresses do not exceed allowable stress. Use a minimum factor of safety of 2.0 to determine the allowable stress.

N. Plans for Disposal of Spoils and Drilling Fluids: Submit plans for disposal of waste materials resulting from the horizontal directional drilling process including drilling fluids, rock cuttings, waste oil, fuel, discharge water, and other wastes.
   1. Identify the disposal site, and procure and submit a letter from the licensed disposal site indicating willingness and legal authority to accept the described waste products.

O. Safety Plan: Submit a Safety Plan including the name and mobile phone number of the Contractor's Site Safety Representative, emergency telephone numbers for local medical facilities, and precautions for handling and disposal of any hazardous and flammable materials.

P. Contingency Plans for Potential Problems: Submit contingency plans for remediation of potential problems that may be encountered during the drilling operations. The contingency plans shall address the observations that would lead to the discovery of the problem, the methods that would be used to mitigate the problem, and estimated time to mitigate the problem and resume the installation. Potential problems that shall be addressed include:
   1. Obstructions encountered.
   2. Drilling fluid pressures that exceed maximum allowable pressures.
   3. Inadvertent drilling fluid returns (hydro-fracture).
   4. Loss of circulation.
   5. Deviation from planned bore path.
   6. Inability to advance drill stem or pipe.
   7. Drill stem or pipe stresses that exceed allowable values for torsion, bending, axial tension, or compression.
   8. Drill stem or pipe twisted off or broken off in borehole.
   9. Pipe collapse.

Q. The following shall be submitted as construction progresses and at the completion of construction.
   1. Daily Logs and Records: Submit complete, legible, written daily logs and records as called for in Paragraph 1.06.A and as directed by the Engineer, within two working days of the date to which the records correspond.
   2. Deviations in Plan and Profile: Document all deviations of actual line and grade from design plan and profile of the bore path and submit to the Engineer immediately upon discovery.

R. As-Built Drawings: Submit as-built drawings showing plan and profile views of the completed installed pipeline, correctly referenced to project stationing and elevations, and major site features after the completion of the project.

S. Drilling Fluid Weights: Submit calculations of expected weights of drilling fluid for stabilization of the bore hole.

1.5 QUALITY ASSURANCE

A. Daily Logs and Records:
   1. Maintain daily logs and records to document the following: Drilling lengths, location of drill head, drilling fluid pressures and flow rates, drilling fluid losses, inadvertent returns, drilling times required for each pipe joint, any instances of retraction and redrilling segments of the pilot bore, and any other relevant observations.
   2. The position of the drill head shall be continuously tracked and recorded. A plot of actual drill path relative to design line and grade shall be maintained and updated daily, or more frequently as directed by the Engineer. Any pipe sections not meeting specified tolerances will be replaced or repaired to the Engineer's satisfaction at no additional cost to the Owner.
   3. Advance Notice and Inspections: Provide at least 72 HRS advance written notice (not including holidays or weekends) to the Engineer of planned major drilling operations including pilot bore launch, reaming, and pipe pullback. Immediately notify the Engineer in writing when any significant problems are encountered or if ground conditions are construed as being materially and significantly different than the conditions presented in the geotechnical investigation report.
   4. Perform all work in the presence of the Engineer, unless Engineer grants prior written approval to perform such work in Engineer's absence.
   5. Surveying Equipment and Procedures: Inspect and calibrate prior to use all surveying equipment to be used for down-hole surveying and tracking of the bore and drill head.
   6. Drilling Equipment: Provide written certification by the manufacturer that the drilling equipment is capable of completing the planned installation.

B. Regulatory Requirements:
   1. Be solely responsible that the work is performed in compliance with all applicable federal, state, and local permits and safety requirements.
   2. Utilize all required safety equipment and procedures at all times.
   3. Drilling equipment shall be connected to a ground with a copper conductor capable of handling maximum anticipated fault current as determined by the Contractor.
      a. The system shall be capable of sensing contact with an energized electrical cable.
      b. The system shall incorporate an audible alarm warning system that warns workers of electrical hazards during drilling operations.
      c. Check the system shall be checked to verify proper operation prior to initiation of drilling operations.
   4. Crew members operating drilling equipment handling drill stems near the drilling equipment shall wear hot boots and hot gloves, safety glasses and hard hats, and will stand on grounded wire mesh mats. The locator operator shall wear hot boots.

1.6 COMPLETION OF DIRECTIONAL DRILLING

A. If a directional drilled pipeline is not successfully installed or the Contractor abandons the effort, he will forfeit all payments for that HDD crossing under this Contract.

B. Completion and successful testing of the approved pipeline will entitle the Contractor to full payment for the Contract lump sum price for the HDD crossing, less retainage for site restoration, which sum shall be determined by the Owner, but in no case greater than ten (10) percent of the Contract lump sum price.

C. In the event of his failure to install the directional drilled pipeline, the Contractor shall retain possession of the HDPE/Fusible PVC pipe and remove it from the site. The bore hole beneath land shall be completely filled with grout or sand to prevent future settlement. If the HDPE/Fusible PVC pipe cannot be withdrawn, it shall be cut off at least 3 feet below the ground and capped with a blind flange. The annular space shall be grouted at the Contractor's expense.

PART 2 - PRODUCTS

2.1 GENERAL

A. The Contractor shall provide all materials, equipment, and labor for completing the subaqueous crossings and for adequate protection of the Work.

2.2 MATERIALS

A. Refer to Specification Section 15067 for HDPE pipe and tracer wire.

B. Refer to Specification Section 15065 for Fusible PVC pipe and tracer wire.

C. Drilling Materials:
   1. The drilling materials used by the Contractor to aid in the horizontal drilling operations shall be of the Contractor's choosing. Products shall comply with environmental regulations applicable to this project.

D. Drilling Fluids:
   1. Drilling fluids shall be a mixture of water and bentonite, with mixture proportions selected by the Contractor to ensure borehole stability, reduce drag on the pipe, and completely fill the annular space between the bore and the pipe to control settlement. Management and disposal of drilling fluids shall be the Contractor's responsibility.
      a. Applicable MSDS shall be maintained in the Contractor's field office for the duration of the work.
   2. Any modification to the basic drilling fluid involving additives must describe the type of material to be used and be included in Contractor's drilling plan presented to the Owner.
   3. The Owner retains the right to sample and monitor the waste drilling mud, cuttings and water.

E. Drill Rods / Drill Stem
   1. Provide high quality drill rods that have been inspected and determined to be adequate for the project requirements. Do not use bent, cracked, or fatigued drill stem. Threads shall be in good condition. Measure and record the lengths of drill rods.
      a. Directional drilling equipment.

2. Drill Unit: The drill unit shall be a remote-steerable boring system that is designed specifically for use in the installation of pipelines and is capable of accurately drilling (true to line and grade) through the types and hardness of soil that the Contractor expected. Where necessary, the drilling system shall utilize a high-pressure, low-volume, liquid-assisted, mechanical rock drilling technology that is capable of installing pipelines of the diameter and length required in ground conditions that the Contractor anticipated.
3. Crew Gear: Provide all crew members with grounded safety mats, heavy gauge ground cables with connectors, and hot boots and gloves.

F. Sound Attenuation System
1. General: Design and provide a temporary sound attenuation system to mitigate noise and vibration levels by using sound attenuating methods at the launch pit as indicated. The purpose of the sound attenuating system is to prevent most occurring noise and vibration construction activities at the launch pit from reaching the residents' houses.
   a. Noise generating equipment to be mitigated shall include, but may not be limited to the drill rig, power unit, solids control system, and mud pump.
   b. The sound attenuating system may consist of:
      1) Hay bales stacked around the perimeter of the launch pit.
      2) Sound absorption panels erected around all noise generating pieces of equipment.
      3) Extension hoses attached to the exhausts of the diesel engines to place the ends of the exhaust systems at a location where the noise level can be mitigated.
      4) A combination of the three methods and means above to achieve the required level of sound attenuation, subject to the approval of the Engineer.
2. Sound Absorption Panels: Metal faced acoustical panels for sound attenuation walls.
   a. System Description: Sound Absorption: Minimum, expressed in sabins, at following octave band center frequencies for 30 by 120 IN panels with 2 IN thick wrapped acoustical insulation, when tested in accordance with ASTM C423:
      1) 125 Hertz: 4.5.
      2) 250 Hertz: 14.1.
      3) 500 Hertz: 26.7.
      4) 1000 Hertz: 28.6.
      5) 2000 Hertz: 26.3.
      6) 4000 Hertz: 29.2.
   b. Metal Faced Acoustical Panels:
      1) One of the following manufacturers or equal:
         a) Eckel Industries, Inc.
         b) Industrial Noise Control, Inc.
         c) United McGill.
   c. Service: Outdoors, exposed to all weather conditions.
3. Exhaust Extension Hoses: Exhaust hoses manufactured specifically for the purpose of being used as an extension hose for an exhaust system.

PART 3 - EXECUTION

3.1 COORDINATION OF WORK

A. The Work to be performed under the terms of this Contract will be done on land not owned by NKWD. NKWD has obtained permits, temporary construction easements, and permanent easements which will be made available to the Contractor. The Contractor shall abide by the terms and special provisions of these permits and easements.

B. The Contractor shall coordinate his work with the agencies, corporations, and individuals owning or having jurisdiction of land in the project vicinity including, but not necessarily limited to:
1. CSX Corporation.
2. City of Wilder.

3. Sanitation District No. 1.

C. The Contractor shall be required to construct test pits to locate existing underground utilities and/or structures in advance of construction. Test pits shall be excavated and backfilled by the Contractor so as not to create a hazardous area. Test pits shall be backfilled immediately after their purpose has been satisfied and the surface restored and maintained in a manner satisfactory to the Owner.

D. The Contractor shall have the option of securing additional construction easements in different locations if desired to accommodate his construction method. In this case, the Contractor shall notify the Engineer of his intention to secure additional easements. The cost of negotiating and obtaining these easements shall be borne by the Contractor.

E. Drilling water required for drilling may be purchased from NKWD subject to the conditions below. Contractor is responsible for purchasing, transporting and storing any water required. River or pond water shall not be used for any purpose in the construction. Securing permission to use water from any other source is the responsibility of the Contractor.
   1. The Contractor shall coordinate with NKWD to identify available source points for water. Any source point is subject to the approval of NKWD.
   2. The Contractor shall furnish and install any required backflow preventers, valves and adapters, in accordance with NKWD standards.
   3. The quantity of water that the Contractor may use for construction purposes may be limited by flow rate (gallons per minute), time of day, and/or the needs of NKWD , including firefighting.
   4. All water for drilling shall be paid for by the Contractor at NKWD's prevailing rates.

3.2 EXAMINATION

A. Inspection of Conditions: Inspect the site prior to initiating work to be satisfied of the general conditions and requirements of the work to be performed. Do not proceed until all unsatisfactory conditions have been corrected.

B. Preparation:
   1. Protect existing structures and utilities using adequate ways and means for the duration of the project.
   2. Provide adequate control of surface water drainage and runoff, and provide adequate erosion control measures.
   3. Do not initiate directional drilling before all submittals are received, reviewed, and accepted by the Engineer.
   4. Do not initiate directional drilling until all frac-out mitigation measures and sound attenuation facilities are in place.

3.3 CONSTRUCTION LAYOUT / AREA

A. The Contractor shall employ Kentucky licensed land surveyors to locate the positions of the entry and exit points, established elevation and horizontal datum for the borehead control, and layout for the pipe assembly area.

B. Work Area: Maintain the work area in a manner that will minimize adverse impacts on facility operation. Proceed with work in a safe, orderly manner, while maintaining the work site free of debris and unnecessary equipment and materials.

C. Spills: Take all measures necessary to minimize and control drilling fluid spillage and returns at entry and exit points, and at intermediate points, by controlling operating pressures, drilling speed, and other operational factors. Promptly clean up all inadvertent returns or spills. Mobile spoil removal equipment will be on site during all drilling, prereaming, reaming, and pullback operations and shall be capable of quickly removing spoils. Notify the Engineer immediately of any inadvertent returns and spills and immediately clean up the return and spill.

D. Protection: The Contractor's procedures and equipment shall provide protection of workers, particularly against electrical shocks.

E. Storage: Store combustible materials (fuel, oil, lubricants, etc.) in a well-ventilated storage facility removed from the immediate vicinity of the drilling area by at least 20 FT.

F. Water Supply: Water supply for the project will be metered by the Owner.
   1. Coordinate with Owner for water used for HDD construction. Only recycled water is allowed to use.
   2. Be responsible for cost of any construction water.

G. Temporary Lighting: Procure and maintain all temporary lighting needed for Contractor's operations, safety, testing, and inspection.

H. Mobile Telephone Service: Provide mobile telephone service for all key personnel engaged in construction activities at the project site, throughout the construction period. Post emergency numbers and numbers of key site personnel for the Contractor, Engineer, and Owner shall be posted at each phone location.

I. Removal of Temporary Facilities: Remove all temporary facilities at the completion of construction. Remove and dispose unneeded soil, aggregate, and other materials at approved sites. Restore to original condition any damage to streets, sidewalks, lawns, and common areas.

3.4 NOISE MITIGATION

A. General: Construct the approved temporary sound attenuation system at the launch pit before commencing noise generating activities.
   1. Protect and maintain the sound attenuating system in place for the duration of noise generating activities.
   2. Monitor and make necessary adjustments and additions to the sound attenuating system to mitigate noise at the launch pit.

B. Hay Bales: Stack hay bales around the perimeter of the launch pit as indicated on the approved submittal.

C. Sound Absorption Panels: Install acoustical panels in accordance with manufacturer's instructions.
   1. Install panels plumb or level.

D. Exhaust Extension Hoses: Connect exhaust extension hoses to ends of exhaust pipes and route the hoses to the back side of the storm debris fence on the north side of the work area. Terminate the hose extensions at ground level with hay bales stacked around the outlets to further absorb exhaust sounds.

3.5 MOBILIZATION

A. Mobilize all equipment, materials, and personnel necessary to construct a new pipeline as indicated using the Horizontal Directional Drilling process.

B. Entry Pit and Exit Pit Work Areas:
   1. The horizontal directional drilling pilot bore shall be launched from an at-grade entry pit.
   2. The horizontal directional drilling pilot bore shall terminate at an at-grade exit pit.
   3. Employ appropriate precautions and measures to prevent erosion, surface drainage, and spillage of drilling fluids and other materials that could adversely impact the environmental quality of the site.
   4. Use hay bales to line the work area to minimize erosion and runoff and protect the site. Mobile spoils removal equipment capable of quickly removing any spoils from entry and exit pits or other areas shall be present during all drilling, reaming, and pullback operations.
   5. Provide and use appropriate safety equipment and procedures as deemed appropriate, based on accepted standard industry practices and these specifications.

3.6 DIRECTIONAL DRILLING

A. Provide all equipment, materials, and personnel necessary for completing the pipeline installation as indicated. The equipment and materials shall include:
   1. Directional drilling rig with all necessary ancillary equipment, including drill stem, cutting bits, reaming bits, swivels, expanders, motors, pumps, hoses, mixing equipment, drilling fluid processing equipment (cuttings separation equipment), downhole survey equipment, fluid pressure and flowrate monitoring equipment, spare parts, pipe handling equipment, crane, backhoe, roller, sideboom tractors, control cabin and control equipment, and office equipment.
   2. Drilling fluids, water, fuel, lubricant, polymers, or other additives.
   3. Any other expendable or reusable materials, supplies, and equipment needed for the installation.

B. Borehole Profile: Provide a vertical profile for the borehole similar to the design profile indicated.
   1. Be responsible for designing and achieving a vertical profile for the borehole based on the directional drilling rig suitable for the project.

C. Pilot Hole: The pilot hole shall follow the Contractor's design of the vertical profile for the borehole.
   1. Radius of curvature: The radius of curvature shall not be less than the calculated minimum value to maintain pipe stresses within allowable limits, including the appropriate safety factor. The radius of curvature shall be calculated over the distance of three drill stem sections.
   2. Entry and Exit Tolerances: Locations of entry and exit points indicated are approximate. Beginning and ending stationing, and pipeline bearing and distance indicated are approximate.
   3. Drill Rig Capacity: The drill rig shall have the capacity to install the specified pipeline. The system should have thrust, pullback, and torque capacities at least double, that is 100 percent greater than the required values of thrust, pullback, and torque calculated and submitted as necessary for the installation.
   4. Instrumentation and Monitoring: Provide and maintain an instrumentation and monitoring system that is capable of accurately locating the position of the drill head in the x, y, and z axes, that is capable of monitoring and recording drilling fluid pressures and flowrates, and drill stem thrust, torque, and pullback loads. These data shall be recorded at least twice per drill pipe length or every 15 FT or 15 minutes, whichever is most frequent.
      a. Submit these data to the Engineer within one working day of the date to which the records pertain.
      b. Allowable tolerances are:
         1) ±3 IN vertical.
         2) ±4 IN horizontal.
   5. Position of Drill Head: Monitor and record x, y, and z coordinates relative to an established surface survey bench mark, from downhole survey data and surface survey data, using the Tru Tracker or equivalent surface survey system. The data shall be recorded at least twice per drill stem length or at 15 FT or 15 minute intervals during drilling, whichever is most frequent. Deviations between the recorded and design bore path will be calculated and reported on the daily log. If the deviations exceed tolerances specified elsewhere, such occurrences will be reported immediately to the Engineer.
   6. Drill Stem Thrust and Torque: Measure and record drill stem thrust and torque at least twice per drill stem length or at 15 FT or 15 minute intervals during pilot hole drilling, whichever is most frequent. Report sudden increases in torque or thrust to the Engineer immediately. Report instances of thrust, torque, or pullback exceeding allowable limits to the Engineer immediately.
      a. Submit prereaming, reaming, and pullback thrust and torque measurements with daily logs.

7. Drilling Fluid Pressures and Flow Rates: Monitor and record drilling fluid pressures and flowrates continuously. Monitor the pressures at the entry point, at the injection nozzle, and at two locations within 2 FT behind the drill head in the annular space between the drill stem and bore or between the pipe and bore. Take these measurements during pilot hole drilling, during reaming and pullback operations.
    a. Submit fluid pressure and flow rate measurements with daily logs.
8. Drilling Fluid Viscosity and Density: Measure and record drilling fluid viscosity and density at least 3 times per shift with at least 2 HRS between readings, using calibrated Marsh funnel and mud balance. Include these measurements in daily logs submitted to the Engineer. Document modifications to the drilling fluids by noting the types and quantities of drilling fluid additives and the dates and times when introduced. Document and report the reason for the addition of drilling fluid additives or other modifications.
    a. Submit these measurements and documentations in the daily logs.
9. Obstructions: In the event that any obstruction is encountered that prevents further advancement of the drill stem, or pullback of the prereamer, reamer, and/or pipe notify the Engineer immediately. Investigate the cause and determine an appropriate response. Appropriate response may include revisions to equipment or methods, retraction and redrilling of a portion of the bore, or abandonment of the hole. If abandonment is deemed necessary, recover, to the extent practically possible, any drill stem, pipe, and tools in the bore, and properly abandon the bore, unless otherwise directed in writing by the Engineer. Pressure-grout the abandoned bore with a lean cement-sand grout mixture, or other approved materials if the bore is abandoned. If the bore is abandoned, be allowed to begin a second attempt to install the pipeline at an alternate location approved in writing by the Engineer. In any case, take all reasonable actions to complete the installation with minimal delays. The extra costs and payments to the Contractor, if any, will be negotiated between the Owner and Contractor, based on the cause and reasonable time and materials. For purposes of this contract, an obstruction is defined as any hard object lying completely or partially within the design pathway of the bore and pipeline that prevents further advancement of the drill stem, reamer, and pipe.

D. Pipe Stringout:
1. The Contractor shall elevate the pipe stringout if required, to provide access to private property.
2. The Contractor shall comply with any and all additional restrictions of affected property owners.
3. Utilities may be present in the stringout area, and adequate precautions must be taken by the Contractor to prevent damage to the utilities, as required by each utility owner.

E. Pipe Installation:
1. The Contractor shall install the pipeline under the river and its adjacent banks by the horizontally drilled, directionally controlled method of construction. The horizontally drilled, directionally controlled method shall consist of the drilling of a small diameter pilot hole in a vertical arc from one side of the river to the other followed by an enlarged diameter hole for the HDPE/Fusible PVC pipeline insertion. The exact method and techniques for completing the directionally drilled crossing shall be determined by the Contractor, subject to the requirements of these Specifications.
2. Install Polyethylene Pipe or Conduit per ASTM F1962 - 11
3. Pipe shall be pulled into the bore hole at a controlled rate to avoid pipe buckling, abrasion damages to pipe surface, hydrofracture, etc.
4. Pipe shall be supported on rollers as recommended by the pipe manufacturer.
5. Never have the pullback force to exceed the allowable pull back force recommended by the manufacturer.
6. Never bend the pipe so that the bend radius is less than the minimum radius recommended by the manufacturer.
7. The radius of the bore shall also consider the minimum allowable bending radius for the drilling rods or pipe.

8. The Contractor shall at all times handle the high density polyethylene pipe in a manner that does not overstress the pipe. If the pipe is buckled or otherwise damaged, the damaged section shall be removed and replaced by the Contractor at his expense. The maximum allowable tensile load imposed on the HDPE/FUSIBLE PVC pipe shall be within the limits of the pipe grade and wall section strengths. The Contractor shall be responsible for determining pulling loads required for his method of installation. Such loads shall be minimized as required to prevent failure of the pipeline during installation. Protect interior and exterior surfaces at all times.

F. Site Restoration and Demobilization: Remove all equipment, materials, and waste or debris from the site and restore site to its original condition upon completion of the installation.

3.7 TESTING

A. Leakage Testing:
   1. Pre-Test: After all fusing on the strung-out pipeline is completed but prior to installation of the pipe, the Contractor shall conduct a hydrostatic pressure test using the procedure in Specification Section 15067 or a low pressure air test at 3 psi to assure there are no holes or gouges in the pipe.
   2. Acceptance Test: After installation, the pipe and fittings shall be hydrostatic pressure tested in place using the procedure in Specification Section 15067.

B. Pipe Gauging:
   1. The Contractor shall provide and run a sizing pig to check for anomalies in the form of buckles, dents, excessive out-of-roundness, and any other deformations.
   2. The sizing pig run shall be considered acceptable if the survey results indicate that there are no sharp anomalies (e.g., dents, buckles, gouges, and internal obstructions) greater than 2% of the nominal pipe diameter, or excessive ovality greater than 5% of the nominal pipe diameter.
      a. For gauging purposes, dent locations are those defined above which occur within a span of five feet or less.
      b. Pipe ovality shall be measured as the percent difference between the maximum and minimum pipe diameters. For gauging purposes, ovality locations are those defined above which exceed a span of five feet.

3.8 HANDLING OF DRILLING MUD AND DISPOSAL

A. The HDD operation is to be operated in a manner to eliminate the discharge of water, drilling mud and cuttings to nearby surface and waterways. The Contractor shall provide equipment and procedures to maximize the recirculation or reuse of drilling mud to minimize waste.

B. The general work areas on the entry and exit sides of the crossings shall be enclosed by a berm to contain unplanned spills or discharge.

C. Waste cuttings and drilling mud shall be processed through a solids control plant comprised as a minimum of sumps, pumps, tanks, desilter/desander, centrifuges, material handlers, and haulers, all in a quantity sufficient to perform the cleaning/separating operations without interference with the drilling program. The cuttings and excess drilling fluids shall be dewatered and dried by Contractor to the extent necessary for legal disposal in off-site landfills. Water from the dewatering process shall be treated by Contractor to meet permit requirements and disposed of locally. The cuttings and water for disposal are subject to being sampled and tested. The construction site and adjacent areas will be checked frequently for signs of unplanned leaks or seeps.

D. Equipment (graders, shovels, etc.) and materials (such as groundsheets, hay bales, booms, and absorbent pads) for cleanup and contingencies shall be provided in sufficient quantities by Contractor and maintained at all sites for use in the event of inadvertent leaks, seeps or spills.

E. Disposal of drilling fluids and cuttings shall be the responsibility of the Contractor and shall be conducted in compliance with all relevant environmental regulations, right-of-way and work space agreements and permit requirements. Bentonite slurry used during the horizontal drilling process shall not be disposed of on-site, but shall be hauled away in watertight trucks to a legal disposal facility. All costs related to disposal shall be borne by the Contractor.

F. Inadvertent drilling fluid returns at locations other than the entry and exit points shall be minimized. Contractor shall comply with applicable plans and regulatory agencies.

G. Dispose drilling mud waste, in a legal manner, to an off-site waste disposal facility that can readily accept such waste.

3.9 CLEANUP

A. During the course of the work, the Contractor shall keep the site of his operations in as clean and neat a condition as is possible. He shall dispose of all residue resulting from the construction work and, at the conclusion of the work, he shall remove and haul away any surplus excavation, existing pipe and appurtenances removed by the Contractor, broken pavement, lumber, equipment, temporary structures and any other refuse remaining from the construction operation, and shall leave the entire site of the work in a neat and orderly condition.

END OF SECTION

SECTION 02510
BITUMINOUS PAVEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Provide bituminous pavement for following applications, with prepared subbase and compacted base.

1. Andrews Way and South Street.
2. Driveways.

1.2 SUBMITTALS

A. Submit for approval product data, test reports.

1.3 QUALITY ASSURANCE

A. Comply with City of Wilder pavement requirements. Provide products of acceptable manufacturers which have been in satisfactory use in similar service. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.1 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.

PART 3 - EXECUTION

3.1 NEW PAVEMENT INSTALLATION

A. Asphalt/aggregate Mixture: Prepared and installed in accordance with the requirements of the Kentucky Department of Highways.

B. Remove loose material from compacted subbase. Proof roll and check for areas requiring additional compaction. Report unsatisfactory conditions in writing. Beginning of work means acceptance of compacted 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. Begin rolling when pavement can withstand weight of roller. Roll while still hot to obtain maximum density and to eliminate roller marks.

1. Bituminous mixtures shall be spread and finished by hand methods only where machine methods are impractical as determined by the District. Hand placed mixtures shall not be cast or otherwise manipulated in such manner that segregation occurs.

F. Provide the following minimum thickness and smoothness unless the existing pavement section is greater:

1. Subbase course: 5-inch No. 57 stone and 5-inch DGA.
2. Base course: 2-inch.
3. Surface course: 1.5-inch plus or minus 1/4-inch at drives and parking.
4. Surface course smoothness: Plus or minus 1/8-inch in 10 feet. No ponding of water is acceptable.

G. Bituminous base shall be one course construction of an appropriate base JMF prepared and installed in accordance with the requirements of the Kentucky Department of Highways.

1. Placement and compaction of base course shall be in accordance with Section 403 of the Kentucky Department of Highways Standard Specifications. Minimum thickness after compaction shall be 2-inches, as detailed on the Drawings.
2. Each lift of the base course shall be uniformly compacted to a density of not less than 94 percent as determined by ASTM D2950.

H. Bituminous surface shall be one course construction of an appropriate surface JMF prepared and installed in accordance with the requirements of the Kentucky Department of Highways.

1. Placement and compaction of surface course shall be in accordance with Section 403 of the Kentucky Department of Highways Standard Specifications. Minimum thickness after compaction shall be 1 ½ inches, as detailed on the Drawings.
2. The surface course shall be uniformly compacted to a density of not less than 96 percent as determined by ASTM D2950.
3. When the prime coat has become tacky but not dry and hard, a bituminous surfacing consisting of class "I" asphaltic concrete shall be placed, spread, finished and compacted.
4. Finished surfaces shall match existing surfaces as appropriate.
5. All asphaltic concrete joints shall be properly seal with an approved material in accordance with the current Standard Specifications of the Kentucky Department of Highways (hot-poured elastic joint sealer).

END OF SECTION

SECTION 02515
PRECAST CONCRETE MANHOLE STRUCTURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Precast concrete manhole structures and appurtenant items.
      a. Water main valve vaults and appurtenances.

B. Related Specification Sections include but are not necessarily limited to:
   1. Northern Kentucky Water District Standard Specifications and Drawings for the Installation of Water Mains, 2021.
   2. Section 02221 - Trenching, Backfilling, and Compacting for Utilities.
   3. Section 03300 – Cast-In-Place Concrete.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. ASTM International (ASTM):
      a. A48, Standard Specification for Gray Iron Castings.
      b. C150, Standard Specification for Portland Cement.
      c. C478, Standard Specification for Precast Reinforced Concrete Manhole Sections.

1.3 SUBMITTALS

A. Shop Drawings:
   1. See Specification Section 01340 for requirements for the mechanics and administration of the submittal process.
   2. Product technical data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.
      b. Manufacturer's installation instructions.
   3. Fabrication and/or layout drawings:
      a. Include detailed diagrams of manholes showing typical components and dimensions, reinforcements and other details.
      b. Itemize, on separate schedule, sectional breakdown of each manhole structure with all components and refer to drawing identification number or notation.
      c. Indicate knockout elevations for all piping entering each manhole.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
   1. Manhole rings, covers and frames:
      a. Neenah Foundry.
   2. Manhole steps:
      a. M. A. Industries.
      b. Neenah Foundry
      c. Deeter Foundry.
   3. Black mastic joint compound:
      a. Kalktite 340.
      b. Tufflex.

c. Plastico.
4. Premolded joint compound:
   a. Ram Nec.
   b. Kent Seal.

B. Submit request for substitution in accordance with Specification Section 01640.

2.2 SANITARY SEWER, STORM AND DRAIN MANHOLE STRUCTURE COMPONENTS

A. Manhole Components:
1. Reinforcement: ASTM C478.
2. Minimum wall thickness: 5 IN.
3. Minimum base thickness: 12 IN.
4. Provide the following components for each manhole structure:
   a. Base (precast) with integral bottom section or (cast-in-place).
   b. Precast bottom section(s).
   c. Precast barrel section(s).
   d. Precast eccentric transition section.
   e. Precast adjuster ring(s).
   f. Precast concrete transition section.
   g. Precast flat top.
5. Unless dimensioned or specifically noted on Drawings, provide manhole section with minimum 48 IN inside dimensions.

B. Nonpressure Type Frames and Cover:
1. Cast iron frame and covers: ASTM A48, Class 35 (minimum).
2. Use only cast iron of best quality, free from imperfections and blow holes.
3. Furnish frame and cover of heavy-duty construction a minimum total weight of 450 LBS.
4. Machine all horizontal surfaces.
5. Furnish unit with solid nonventilated lid with concealed pickholes.
   a. Letter covers "WATER".
6. Ensure minimum clear opening of 24 IN DIA.

PART 3 - EXECUTION

3.1 MANHOLE CONSTRUCTION

A. General:
1. Construct cast-in-place concrete base slabs.

B. Build each manhole to dimensions shown on plans and at such elevation that pipe sections built into wall of manhole will be true extensions of line of pipe.

C. Seal all pipe penetrations in manhole.
1. Form pipe openings smooth and well shaped.
2. After installation, seal cracks with, non shrink grout.
3. After grout cures, wire brush smooth and apply two coats emulsified fibrated asphalt compound to minimum wet thickness of 1/8 IN to ensure complete seal.

D. Set and adjust frame and cover final 6 IN (minimum) to 18 IN (maximum) to match finished pavement or finished grade elevation using precast adjuster rings.

END OF SECTION

SECTION 02660
WATER MAIN CONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Coordination and interface with existing facilities and utilities.
   2. Connections to existing watermains.
   3. Testing, flushing and disinfection. The Related Specification Sections paragraph is used to reference those Specification Sections which may significantly impact the work of this Specification Section. Always reference Division 00 and Division 01. Do not list those Specification Sections impacted by this Specification Section.

B. Related Specification Sections include but are not necessarily limited to:
   1. Northern Kentucky Water District Standard Specifications and Drawings for the Installation of Water Mains, 2021.
   2. Division 2.
   3. Section 03300 – Cast In Place Concrete.
   4. Section 15060 - Pipe and Pipe Fittings: Basic Requirements.
   5. Section 15100 - Valves: Basic Requirements.
   6. Section 15101 - Gate Valves.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Water Work Association (AWWA):
      a. B300, Standard for Hypochlorites.
      b. B301, Standard for Liquid Chlorine.
      c. C651, Standard for Disinfecting Water Mains.

1.3 SUBMITTALS

A. Submit results of the leakage tests, identifying the specific length of pipe tested, the test pressure, the duration of test and the amount of leakage.

B. Submit satisfactory bacteriological test reports on disinfection requirements.

C. Operation and Maintenance Manuals:
   1. See Specification Section 01342 for requirements for:
      a. The mechanics and administration of the submittal process.
      b. The content of Operation and Maintenance Manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Pipe: Refer to Specification Sections 15060, 15062, 15064 and 15067.

B. In-Line Valves:
   1. Refer to Specification Section 15101.
   2. Provide adjustable valve boxes unless noted otherwise on the Drawings.
      a. Include price of valve boxes in price of valve installed complete.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install water main to the line and grade on the Drawings.
   1. Water mains to be staked at a minimum 100 FT intervals and at horizontal bends.

B. Field verify depth of utilities that will be crossed.
   1. Adjust water main elevation as required during construction.
   2. No separate payment will be made for field verification or adjustment of main depths as required.

C. Contractor will restore all existing structures or services damaged by Contractor's operations at no cost to Owner.

3.2 INTERRUPTION OF SERVICE

A. Planned interruption of service to water users shall be approved by NKWD in advance and shall not exceed 4 HRS.
   1. Notify property owners of interruption a minimum of 24 HRS in advance.

3.3 UNDERGROUND SERVICES

A. Notify utility representative prior to construction to obtain available information on location of existing utilities.
   1. Contractor shall be responsible for locating all utilities.

B. Existing water services are not to be connected to the new transmission water mains.
   1. Damage to existing water service s are to be repaired to NKWD standards.

3.4 DRIVEWAY REMOVAL AND REPLACEMENT

A. All Portland cement concrete and asphalt noted for removal and replacement shall be cut prior to removal.
   1. Cut by sawing, vertical cut to be 1 IN minimum.
   2. The remaining depth of section may be broken out in a manner subject to Engineers approval.
   3. Width of section removed to be broken out to the nearest joint.

B. Replace Portland cement concrete and asphalt equal to or better than original paving.

C. Debris resulting from the above operations shall be removed and hauled as directed by the Engineer.

D. Include driveway removal and replacement in cost of the bid unit price of the water main.

3.5 GRAVEL SURFACED DRIVES AND ROADWAYS

A. Contractor shall restore all damaged gravel surfaced drives and roadways to a condition equal to or better than original.
   1. Payment to be at bid unit price for this item.
   2. Replacement gravel gradation.

3.6 PROTECTION OF EXISTING UTILITIES

A. Contractor to verify the location of all underground utilities.
   1. Omission from, or the inclusion of utility locations on the plans is not to be considered as the nonexistence of or a definite location of existing underground utilities.

B. A representative of the underground utilities shall be notified 24 HRS in advance of crossings.

3.7 CONNECTIONS TO EXISTING WATERMAINS

A. Make connections to existing water mains as shown on Drawings, by attaching to existing or changed fitting.
   1. Cost for making connections shall include cost of all fittings including couplings and joint restraints and shall be included in the bid unit price of the water main connection.

B. Contractor is responsible for controlling and disposing of water in the trench at no additional cost to the Owner.

3.8 SEWER CROSSINGS

A. Water mains crossing house sewers, storm sewers or sanitary sewers shall be laid to provide a vertical separation of at least 18 IN between the bottom of the water main and the top of the sewer, whenever possible.
   1. A water main may be laid closer than 10 FT if the crown of the sewer is at least 18 IN below the water main invert.
   2. In the event 18 IN of vertical separation cannot be provided at a sewer crossing, the sewer shall be removed for a distance of 10 FT on each side of the water main and replaced with one 20 FT length of ductile iron pipe of the same size.

B. The Contractor is responsible for locating sewer laterals and shall use care when working near them.

C. The Contractor shall be responsible for any and all damage to a sewer lateral in the area of their work.
   1. In the event of a sewer lateral is damaged, the contractor shall immediately notify Sanitation District #1and follow all of their procedures for repair and inspection of the repair.

D. Concrete collars shall be provided at each end of the ductile iron pipe to connect to the existing sewer pipe as shown on the Drawings.

E. Payment for crossings shall be included in the bid unit price of the water main.

3.9 FENCES, SIGNS, MAILBOXES, ETC.

A. Restore all damaged fences, signs, mailboxes, etc., to their original conditions.
   1. No separate payment will be made for these items.

3.10 FIELD QUALITY CONTROL

A. Sealing, Flushing, Testing and Disinfection of Potable Water Systems:
   1. Contractor shall provide all labor, materials, tools, equipment, and incidentals required to test the mains for watertightness and disinfect the mains as directed by the District and as specified herein. Gauges for the test shall be furnished by the Contractor.
   2. The Owner will provide the water required to fill the main initially and will pay for the water required to flush the main once.
      a. Filling and flushing shall be performed during periods of low usage, between the hours of midnight and 4:00 AM.
      b. Flushing water will be based on a maximum of 8 HRS total.
      c. Any additional refilling or reflushing to be at the Contractor's expense at NKWD’s commercial water rates.
   3. Maintain interior of all pipes, fittings and other accessories free from dirt and foreign material at all times.
      a. If, in the opinion of the Engineer, the pipe contains dirt that will not be removed by flushing, the pipe interior shall be cleaned and swabbed with bactericidal solution.
      b. At close of day's work or whenever workmen are absent from jobsite, plug, cap or otherwise provide watertight seal from open ends of pipe to prevent ingress of foreign material.
      c. If water is in trench, seal shall remain in place until trench is pumped dry.

4. After the main has been installed and backfilled all newly installed pipe or any valved section thereof shall be considered a test section.
5. All tests performed for each test section shall be witnessed and approved by the District before acceptance. In the event the Contractor performs any test without witness by the District, the Contractor will be required to test the section again in conformance with this specification at no cost to the District.
6. When it is necessary to interrupt service to water customers, each customer affected shall be notified in advance of the proposed service interruption and its probable duration in accordance with the project requirements.
7. Upon completion of chlorination but before sampling and bacteriological testing, Contractor shall remove all heavily chlorinated water from the main and temporary services by flushing with potable water at the maximum velocity which can be developed under the direction and control of the District.
    a. Flush each segment of the system to provide a flushing velocity of not less than 2.5 FT per second.
8. Perform disinfection in accordance with NKWD Standards.
    a. During construction or after the installation of the pipe and fittings is complete, an approved disinfection method, according to governing standards, shall be used. The disinfection solution shall be allowed to stand in the main and associated appurtenances for a period of at least twenty-four (24) hours.
    b. During disinfection, all valves, hydrants, and service line connections shall be operated to ensure that all appurtenances are disinfected. Valves shall be manipulated in such a manner that the strong disinfection solution in the main from flowing back into the supply line. Check valves shall be used if required.
    c. All non-disinfected fittings used for tie-ins or repairs shall be cleaned and swabbed with a liquid sodium hypochlorite disinfecting solution prior to installation.
    d. Tag the system during the disinfection procedure.
9. Following disinfection for required contact period, neutralize chlorine residual in water by treating with reducing agent.
    a. Refer to AWWA C651.
    b. Disposal of chlorinated water will be in accordance with 401 KAR5:031.
    c. Drain flushing water to location approved by the Owner.
    d. Flush all treated water from pipeline at its extremities until replacement water throughout pipe, upon test is proved comparable in quality to water in existing system.
    e. Take two (2) samples to test for bacteriological quality as directed by Engineer.
    f. Repeat disinfection procedure until two (2) satisfactory results are obtained.
    g. Quality of water delivered by the new water main to remain satisfactory for a minimum period of two (2) days.
10. After favorable performance of pressure test and prior to final acceptance, thoroughly flush the entire potable water piping system and perform disinfection as prescribed.
    a. Perform all work including preventative measures during construction in full compliance to AWWA C651 and Kentucky Division of Water.
11. Upon completion of final flushing, the District will perform chlorine residual tests to ensure the chlorine residual in the main and temporary services is not higher than that generally prevailing in the remainder of the water distribution system and is acceptable to the District.
12. Secure satisfactory bacteriological reports on samples from the system.
    a. Sampling and testing of water in the main and temporary services will be performed by the District after final flushing.
    b. Ensure all sampling and testing procedures are in full compliance to AWWA C651, NKWD Standards and applicable requirements of the Kentucky Division of Water.
        1) No separate payment will be made for this item.
        2) A standard plate count will be made by the District for each sample.

c. Should the bacteriological tests indicate the presence of coliform organisms at any sampling point, the main and temporary services shall be re-flushed, re-sampled, and re-tested. If check samples show the presence of coliform organisms, the main and temporary services shall be re-chlorinated at no additional cost to the District until results acceptable to the District are obtained.
d. Re-disinfection shall be completed by the continuous feed or by the slug method. Unless otherwise permitted, the chlorination agent shall be injected into the main and temporary services at the supply end through a corporation cock installed in the top of the pipe. All materials, equipment and labor necessary for the re-disinfection shall be supplied by Contractor at no additional cost to the District.

13. Hydrostatic Testing:
    a. Hydrostatic Testing will be in accordance with AWWA C600.
    b. The water main being tested shall have all air expelled by additional flushing or installation of taps on high points in the line.
    c. The pressure of the water main shall be gradually increased to obtain a minimum pressure of 100 psi over the design pressure (250 psi minimum) at the lowest elevation point of the water main or as directed by the District. The test will be for a two (2) hour duration and will not vary by more than 5 psi. All tests performed for each test section shall be witnessed and approved by a representative of the District, in the event any test is performed without a representative of the District, the Contractor shall be required to test the section again. Leakage is defined as the amount of water used to maintain the test pressure.

END OF SECTION

SECTION 02930
RESTORATION OF LAWNS AND GRASSES

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. 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.

1.2 SOD

A. Swales and slopes greater than 4H to 1V shall be provided with sod. Other areas may be sodded if seed cannot be established.

1.3 SEED

A. All disturbed areas outside of paved areas and areas to be sodded shall be seeded in accordance with the Specifications. Included in this item is coconut straw matting that may be required to establish a ground cover that is subject to erosion.

1.4 RELATED WORK

A. Section 01565 - Erosion and Sediment Control

PART 2 - PRODUCTS

2.1 SEED

A. The seed mixture furnished shall be in the following proportions:

a. Urban Areas - All areas to be seeded which are considered to be urban in character, and any area in front of a residence, business or commercial, shall be seeded with the following mixture: (% are by weight)
   a. 40% Fine Lawn Turf-Type Fescue
   b. 40% Creeping Red Fescue (Festuca rubra)
   c. 20% Annual Ryegrass (Lolium multiflorm)

b. Right of way and Easements All areas in right of way or in easements adjacent to right-of-away other than urban areas, shall be seeded with the following mixture: (% are by weight)
   a. 30% Fine Lawn Turf-Type Fescue
   b. 50% Kentucky 31 Fescue (Festuca arundinaces Var. Ky.31.)
   c. 20% Annual Ryegrass (Lolium multiflorum)

c. All Other Areas - All other areas shall be seeded with the following mixture: (% are by weight)
   a. 90% Perennial Ryegrass (Lolium perenne)
   b. 10% Alsike Clover (Trifolium hybridum)

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.

2.2 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 1-2 inches and shall have not less than : 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.

2.3 FERTILIZER

A. 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.

2.4 LIME

A. Lime shall be agricultural grade limestone crushed so that no less than 85% will pass a No. 10 sieve.

2.5 TOPSOIL

A. Topsoil shall not contain more than 40% clay in that portion passing a No.10 sieve and shall contain not less than 5% or more than 20% organic matter as determined by loss on ignition of samples oven dried to constant weight at 212 degrees Fahrenheit..

2.6 MULCH

A. Mulch shall be straw reasonably free of weed seed and any foreign materials which may affect plant growth. Other materials may be used if approved by the District.

PART 3 - EXECUTION

3.1 SEQUENCE OF WORK

All finish grading in a general area shall be complete before fertilizing and seeding or sodding begins.

3.2 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 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 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.

3.3 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 the Owner for acceptance.

END OF SECTION

SECTION 03300
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall provide all labor, materials, equipment and incidentals as shown, specified and required to furnish and install cast-in-place concrete, reinforcement and related materials.

B. Coordination:
   1. Review installation procedures under other Sections and coordinate the installation of items that must be installed in the concrete.

C. Related Sections:
   1. Section 02221 – Trenching, Backfilling, and Compacting for Utilities
   2. Section 02515 - Precast Concrete Manhole Structures

1.2 QUALITY ASSURANCE

A. Source Quality Control:
   1. Concrete Testing Service:
      a. OWNER shall employ acceptable testing laboratory to perform materials evaluation, testing and design of concrete mixes.

B. Reference Standards: Comply with the applicable provisions and recommendations of the following, except as otherwise shown or specified.
   1. ACI 301, Specifications for Structural Concrete for Buildings (includes ASTM Standards referred to herein except ASTM A 36).
   2. ACI 304, Guide for Measuring, Mixing, Transporting, and Placing Concrete.
   3. ACI 305, Hot Weather Concreting.
   4. ACI 306, Cold Weather Concreting.
   5. ACI 315, Manual of Engineering and Placing Drawings for Reinforced Concrete Structures.
   6. ACI 318, Building Code Requirements for Reinforced Concrete.
   7. ACI 347, Guide to Formwork for Concrete.
   8. ACI 350, Environmental Engineering Concrete Structures.
   9. ASTM A 36, Specification for Structural Steel.
   10. Concrete Reinforcing Steel Institute, Manual of Standard Practice, includes ASTM Standards referred to herein.

1.3 SUBMITTALS

A. Samples: Submit samples of materials as specified and may be requested by ENGINEER, including names, sources and descriptions. Shop Drawings: Submit for approval the following:
   1. Copies of manufacturer's specifications with application and installation instructions for proprietary materials and items, including admixtures, bonding agents, and concrete related materials.
   2. Drawings for fabrication, bending, and placement of concrete reinforcement, and reinforcement accessories. Comply with ACI 315, Chapters 1 through 7.
   3. Concrete Mix Design Report:

4. All concrete mix design reports shall be submitted to ENGINEER at least 15 days prior to start of Work. Do not begin concrete production until mixes have been reviewed and are acceptable to ENGINEER. Mix designs may be adjusted when material characteristics, job conditions, weather, test results or other circumstances warrant. Do not use revised concrete mixes until submitted to and accepted by ENGINEER.
5. Concrete mix design proportions.
6. Mill test reports covering chemical and physical properties of cement included in concrete design mix.
7. Sieve analysis report of fine and coarse aggregates to show compliance with specified requirements.
8. Manufacturer's literature on all admixtures used in the mix design.
    a. All admixtures must be included and tested in the concrete design mix to predetermine satisfactory results.

B. Laboratory Batch Trial Test Reports: ENGINEER'S review will be for general information only. Production of concrete to comply with specified requirements is the responsibility of CONTRACTOR.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver concrete reinforcement materials to the site bundled, tagged and marked. Use metal tags indicating bar size, lengths, and other information corresponding to markings shown on placement diagrams.

B. All materials used for concrete must be kept clean and free from all foreign matter during transportation and handling and kept separate until measured and placed in the mixer. Bins or platforms having hard clean surfaces shall be provided for storage. Suitable means shall be taken during hauling, piling and handling to insure that segregation of the coarse and fine aggregate particles does not occur and the grading is not affected.

PART 2 - GENERAL

2.1 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type II.

B. Aggregates: ASTM C 33.
1. Fine Aggregate: Clean, sharp, natural sand free from loam, clay, lumps or other deleterious substances. Dune sand, bank run sand and manufactured sand are not acceptable.
2. Coarse Aggregate: Clean, uncoated, processed aggregate containing no clay, mud, loam, or foreign matter, as follows:
    a. Crushed stone, processed from natural rock or stone.
    b. Washed gravel, either natural or crushed. Use of slag and pit or bank run gravel is not permitted.

C. Coarse Aggregate Size: Size to be ASTM C 33, Nos. 57 or 67, unless permitted otherwise by ENGINEER.

D. Water: Clean, drinkable.

E. Air-Entraining Admixture: ASTM C 260.

F. Water-Reducing Admixture: ASTM C 494, Type A. Only use admixtures which have been tested and accepted in mix designs. Only to be added onsite by a certified admixture representative of the concrete supplier.

G. Water-Reducing High Range Admixture: ASTM C 494, Type F/G. Only use admixtures which have been tested and accepted in mix designs. Only to be added onsite by a certified admixture representative of the concrete supplier.

2.2 CONCRETE

A. Proportioning and Design Mix
   1. Minimum compressive strength at 28 days: 4000 psi.
   2. Maximum water cement ratio by weight: 0.44.
   3. Minimum cement content: 564 pounds per cubic yard.
   4. Normal weight: 145 pounds per cubic foot.
   5. Use air-entraining admixture in all concrete: provide not less than 4 percent nor more than 8 percent entrained air for all concrete.
   6. Slump Limits:
      a. Proportion and design mixes to result in concrete slump at the point of placement of not less than 1 inch and not more than 4 inches. If Water-Reducing Admixtures or Superplasticizers are used slump after addition of the admixture shall not exceed 8 inches.
   7. Calcium Chloride: Do not use calcium chloride in concrete, unless otherwise authorized in writing by ENGINEER. Do not use admixtures containing calcium chloride.

2.3 FORM MATERIALS

A. Provide form materials with sufficient stability to withstand pressure of placed concrete without bow or deflection.

B. Exposed Concrete Surfaces: Acceptable panel-type to provide continuous, straight, smooth, as-cast surfaces. Use largest practical sizes to minimize form joints.

C. Unexposed Concrete Surfaces: Suitable material to suit project conditions.

D. Provide 3/4-inch chamfer at all exposed corners.

E. Form Ties:
   1. Provide factory-fabricated, removable or snapoff metal form ties, designed to prevent form deflection, and to prevent spalling of concrete surfaces upon removal. Materials used for tying forms will be subject to approval of ENGINEER.
   2. Unless otherwise, shown, provide ties so that portion remaining within concrete after removal of exterior parts is at least 1-inch from the outer concrete surface. Unless otherwise shown, provide form ties that will leave a hole no larger than 1-inch diameter in the concrete surface.
   3. Ties for exterior walls and walls subject to hydrostatic pressure shall have waterstops.
   4. Provide wood or plastic cones for ties, where concrete is exposed in the finish structure and in the interior of tanks.
   5. Wire ties are not acceptable.

2.4 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A 615, Grade 60.

B. Welded Wire Fabric: ASTM A 185.

C. Steel Wire: ASTM A 82.

D. Supports for Reinforcement: Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcement in place.
   1. Use wire bar type supports complying with CRSI recommendations, except as specified below. Do not use wood, brick, or other unacceptable materials.
   2. For slabs on grade, use supports with sand plates or horizontal runners where base materials will not support chair legs.
   3. For all concrete surfaces, where legs of supports are in contact with forms, provide supports complying with CRSI, Manual of Standard Practice as follows:
      a. Either hot-dip galvanized, plastic protected or stainless steel legs.

E. Adhesive Dowels:

1. Where adhesive dowels are shown or required to be installed into concrete, adhesive material shall be used for the installation of all reinforcing bars.
2. Adhesive Material:
    a. Capsule or injectable adhesive material shall be a two-component system which includes a hardener and a resin.
    b. Product and Manufacturer: Provide adhesive material by one of the following:
        1) HY 150 or HVA capsule by Hilti Fastening Systems, Inc.
        2) Power-Fast or Needle-Capsule by Powers Fastening, Inc.
        3) Or equal.
    c. Dowel:
        1) Dowel reinforcing bars shall meet the ASTM standards for Grade 60, A615 steel.

F. Form Savers: Form savers may be used as a mechanical connection in applications where drilling holes in form material is not desired. This connection shall be a full mechanical connection that shall develop in tension or compression, as required, at least 125 percent of specified yield strength (fy) of the bar in accordance with ACI 318 Section 12.14.3.
1. Product and Manufacturer: Provide one of the following:
    a. Form Saver by Lenton Rebar Splicing Division of Erico Products, Inc.
    b. Or equal.

2.5 RELATED MATERIALS

A. 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. Product and Manufacturer: Provide PVC waterstops as manufactured by one of the following:
        1) Style No. 783 or No. 724, Greenstreak Plastic Products Company.
        2) Style No. R6-38T or No. RSB6-38, Vinylex Corporation.
        3) Or equal.
2. Adhesive Waterstop:
    a. Provide preformed 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. Product and Manufacturer: Provide waterstops as manufactured by one of the following:
        1) Synko-Flex Waterstop by Synko-Flex Products, Division of Henry Products, Inc.
        2) Or equal.
3. Hydrophilic Waterstops:
    a. Hydrophilic waterstop may be used as an alternate to the adhesive waterstop.
    b. Product and Manufacturer: Provide waterstops as manufactured by one of the following:
        1) Hydrotite CJ-0725-3K and Leakmaster LV-1, Greenstreak Plastic Products Company.
        2) Adeka MC201OM and P201 by Adeka, Inc.
        3) Or equal.

B. Membrane-Forming Curing compound: ASTM C 309, Type I-D.
1. Provide without fugitive dye when requested by ENGINEER.

C. Epoxy Bonding Agent:
1. Two-component epoxy resin bonding agent.
    a. Product and Manufacturer: Provide one of the following:
        1) Sikadur 32, Hi-Mod LPL, as manufactured by Sika Chemical Corporation.
        2) Epoxtite Binder (Code No. 2390), as manufactured by A.C. Horn, Incorporated.

3) Or equal.

D. Latex bonding Adhesive:
   1. Provide a latex bonding adhesive formulated for use in both interior and exterior locations. The bonding adhesive shall be stable in submerged locations and shall not be affected by chlorine. Adhesive shall be capable of being applied to damp or dry surfaces. The latex bonding adhesive shall comply with ASTM C1059, Type II, where specified.
   2. Product and Manufacturer: Provide one of the following:
      a. Weld-Crete by Larsen Products Corp.
      b. Or equal.

2.6 GROUT

A. Nonshrink Grout:
   1. Prepackaged nonstaining cementitious grout requiring only the addition of water at the job site.
   2. Product and Manufacturer: Provide one of the following:
      a. Euco N-S, as manufactured by the Euclid Chemical Company.
      b. Masterflo 713, as manufactured by Master Builders Company.
      c. Or equal.

B. Grout Fill:
   1. Except where otherwise specified use 1 part cement to 3 parts sand complying with the following:
      a. Cement: ASTM C 150, Type II.
      b. Fine and Coarse Aggregate (No. 7) meeting ASTM C 33.
      c. Specified 28-day Compressive Strength: 3,000 psi.
      d. Maximum Water-Cement Ratio by Weight: 0.50.
      e. Air Content Percentage 7±1%.
      f. Minimum Cement Content in Pounds per Cubic Yard: 611.

PART 3 - EXECUTION

3.1 INSPECTION

A. CONTRACTOR and his installer shall examine the substrate and the conditions under which Work is to be performed and notify ENGINEER in writing of unsatisfactory conditions. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.

3.2 FORMWORK

A. Construct the concrete members and structures to correct size, shape, alignment, elevation and position, complying with ACI 347.

B. Provide openings in formwork to accommodate Work of other trades. Accurately place and securely support items built into forms.

C. Clean and adjust forms prior to concrete placement. Apply form release agents or wet forms, as required. Retighten forms during and after concrete placement if required to eliminate mortar leaks.

3.3 REINFORCEMENT MATERIALS

A. Comply with the applicable recommendations of specified codes and standards, and CRSI, Manual of Engineering and Placing Drawings, for details and methods of reinforcement placement and supports.

B. Clean reinforcement to remove loose rust and mill scale, earth, ice, and other materials which reduce or destroy bond with concrete.

C. Position, support, and secure reinforcement against displacement during formwork construction or concrete placement, including sidewalks. Locate and support reinforcing by metal chairs, runners, bolsters, spacers and hangers, as required.
   1. Place reinforcement to obtain the minimum concrete coverages as shown and as specified in ACI 318. Arrange, space, and securely tie bars and bar supports together with 16 gage wire to hold reinforcement accurately in position during concrete placement operations. Set with ties so that twisted ends are directed away from exposed concrete surfaces.
   2. Reinforcing steel shall not be secured to forms with wire, nails or other ferrous metal. Metal supports subject to corrosion shall not touch formed or exposed concrete surfaces.

D. Provide sufficient numbers of supports of strength required to carry reinforcement. Do not place reinforcing bars more than 2 inches beyond the last leg of any continuous bar support. Do not use supports as bases for runways for concrete conveying equipment and similar construction loads.

E. Splices:
   1. Provide standard reinforcement splices by lapping ends, placing bars in contact, and tying tightly with wire. Comply with requirements shown for minimum lap of spliced bars in accordance with ACI 318.

F. Install welded wire fabric in as long lengths as practical, lapping at least one mesh. Locate and support fabric by metal chairs, runners, bolsters, spacers and hangers, as required for proper placement of the concrete.

G. Installation of Embedded Items: Set and build into the Work anchorage devices and embedded items required for other Work that is attached to, or supported by cast-in-place concrete. Use setting diagrams, templates and instructions provided under other Sections and other contracts for locating and setting. Refer also to Paragraph 1.1.B., Coordination.

H. Adhesive Dowels:
   1. Drilling equipment used and installation of adhesive dowel 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 conform to following for adhesive dowels:

Bar Size	Embedment Depth
#3	3 ¾”
#4	5 ½”
#5	7”
#6	8 ½”
#7	10”
#8	11 ¾”
#9	12 ¾”

(If an alternate adhesive material is submitted, CONTRACTOR must submit embedment depths per manufacture’s recommendation. Embedment depths shall be based on a compressive strength of 2000 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 the OWNER. Each installer shall be certified in writing by the manufacturer to be qualified to install the adhesive dowels.

3.4 CONSTRUCTION JOINTS

A. Comply with ACI 301, Chapter 6, and as specified below.

B. Locate and install construction joints as shown. Additional construction joints shall be located as follows:
   1. In walls locate joints at a spacing of 50 feet maximum.
   2. Provide other additional construction joints as required to satisfactorily complete all work.

C. Horizontal Joints:
   1. Roughen the surface in an acceptable manner that exposes the aggregate uniformly and does not leave laitance, loosened particles of aggregate, or damaged concrete at the surface.
   2. Remove laitance, waste mortar or other substance which may prevent complete adhesion.
   3. For concrete over 45 days old, apply concrete epoxy bonding adhesive prior to placing new concrete.

D. Vertical Joints:
   1. Roughen the surface in an acceptable manner that exposes the aggregate uniformly and does not leave laitance, loosened particles of aggregate, or damaged concrete at the surface.
   2. Remove laitance, waste mortar or other substance which may prevent complete adhesion.
   3. For concrete over 45 days old, apply concrete epoxy bonding adhesive prior to placing new concrete.

3.5 BONDING TO HARDENED CONCRETE

A. The surface of hardened concrete upon which fresh concrete is to be palced shall be rough, clean, sound, and damp. Before placement of new plastic concrete, the hardened surface shall be cleaned of all laitance and foreign substances (including curing compound), washed with clean water and wetted thoroughly.

B. For bonding to hardened concrete less than 30 days old, coarse aggregate shall be omitted from the first batch or batches of concrete placed against hardened concrete. The mortar puddle shall cover the hardened concrete with at least 2 inches at every point.

C. Use epoxy bonding agent for the following:
   1. Bonding of fresh concrete to concrete cured greater than 30 days or to existing concrete.
   2. Handle and store epoxy adhesive in compliance with the manufacturer's printed instructions, including safety precautions.
   3. Mix the epoxy adhesive in complete accordance with the instructions of the manufacturer.
   4. Before placing fresh concrete, thoroughly roughen and clean hardened concrete surfaces and coat with epoxy grout not less than 1/16-inch thick. Place fresh concrete while the epoxy material is still tacky, without removing the in-place grout coat, and as directed by the epoxy manufacturer.

3.6 LATEX BONDING ADHESIVE

A. Use latex bonding adhesive as an alternative to epoxy bonding agent in specific applications as approved by the ENGINEER.

B. Handle and store latex bonding adhesive in compliance with the manufacturer’s printed instructions, including safety precautions.

C. Mix the latex bonding adhesive in complete accordance with the instructions of the manufacturer.

D. Before applying latex bonding adhesive, thoroughly roughen and clean hardened concrete surfaces.

E. Latex bonding adhesive shall not be exposed to water from the time it is placed up to a period of at least 7 days after the concrete has been placed.

3.7 CONCRETE PLACEMENT

A. CONTRACTOR is solely responsible for the means and methods used to properly transport concrete onsite from the unloading point to the point of placement. The mechanism and equipment used to properly transport concrete shall be closely considered when the CONTRACTOR is planning his Work. Pumping of concrete is not required, however, if the CONTRACTOR fails to place the concrete to the satisfaction of the OWNER and ENGINEER by means other than pumping, the concrete shall be pumped by the CONTRACTOR at no additional cost to the OWNER.

B. Concrete shall not be placed until all reinforcement materials are inspected and permission for placing concrete is granted by ENGINEER. All concrete placed in violation of this provision will be rejected.

C. Inspection: Notify OWNER and ENGINEER at least 1 full working day in advance before starting to place concrete.

D. Manufacturing and delivery shall be in accordance with ASTM C 94.

E. Discharge Time:
   1. As determined by set time, do not exceed 1-1/2 hours after adding cement to water unless special approved time delay admixtures are used. Coordinate time delay admixture information with manufacturer and ENGINEER prior to placing concrete.
   2. Maintain required slump throughout time of concrete placement and consolidation. Discontinue use of high range water reducing admixture (superplasticizers) and provide new mix design if it fails to maintain slump between 4 to 6 inches and produce good consolidation for the length of time required. Redesign mix adjusting set control admixtures to maintain setting time in range required.

F. Job-Site Mixing: Not permitted for this project.

G. All concrete for liquid retaining structures, and all concrete in contact with earth, water, or exposed directly to the elements shall be watertight.

H. Concrete Placement: Comply with ACI 304, placing concrete in a continuous operation within planned joints or sections. Do not begin placement until work of other trades affecting concrete is completed.

I. Provide sufficient illumination in the interior of forms so concrete deposition is visible, permitting confirmation of consolidation quality.

J. Make all concrete solid, compact and smooth, and free of laitance, cracks and cold joints.

K. Pumping of Concrete:
   1. Provide standby pump, conveyor system, crane and concrete bucket, or other system onsite during pumping, for adequate redundancy to assure completion of concrete placement without cold joints in case of primary placing equipment breakdown.
   2. Minimum Pump Hose (Conduit) Diameter: 4 inches.
   3. Replace pumping equipment and hoses (conduits) that are not functioning properly.

L. Consolidate placed concrete using mechanical vibrating equipment with hand rodding and tamping, so that concrete is worked around reinforcement and other embedded items and into all parts of forms.
   1. Consolidate concrete with internal vibrators with minimum frequency of 8,000 cycles per minute and amplitude as required to consolidate concrete in section being placed.
   2. Provide at least one standby vibrator in operable condition at placement site prior to placing concrete.
   3. Consolidation Equipment and Methods: ACI 309R.
   4. During concrete placement, vibration consolidation shall not exceed distance of 3 feet from point of top of concrete being placed.
   5. Vibrate concrete in vicinity of joints to obtain impervious concrete.

M. Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placement, and curing.
   1. In hot weather comply with ACI 305.
   2. In cold weather comply with ACI 306.

3.8 CURING

A. Curing: Begin initial curing as soon as free water has disappeared from exposed surfaces. Where possible, keep continuously moist for not less than 72 hours or apply curing compound immediately after final floating and finish. Continue curing through use of moisture-retaining cover or membrane-forming curing compound. Cure formed surfaces by moist curing until forms are removed. Provide protection as required to prevent damage to exposed concrete surfaces.

3.9 FINISHES

A. Slab Finish:
   1. After placing concrete slabs, do not work the surface further until ready for floating. Begin floating when the surface water has disappeared or when the concrete has stiffened sufficiently. Use a wood float only. Check and level the surface plane to a tolerance not exceeding 1/4-inch in 10 feet when tested with a 10 foot straightedge placed on the surface at not less than 2 different angles. Cut down high spots and fill all low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat the surface to a uniform, smooth, granular texture.
   2. After floating, begin the first trowel finish operation using a power-driven trowel. Begin final troweling when the surface produces a ringing sound as the trowel is moved over the surface.
   3. Consolidate the concrete surface by the final hand troweling operation. Finish shall be free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding 1/8-inch in 10 feet when tested with a 10-foot straight edge. Grind smooth surface defects which would telegraph through applied floor covering system.
   4. Use trowel finish for the following:
      a. Interior exposed slabs unless otherwise shown or specified.
   5. Apply non-slip broom finish to exterior concrete slab and elsewhere as shown on the Drawings.

B. Formed Surfaces:
   1. Rough Form Finish:
      a. Standard rough form finish shall be the concrete surface having the texture imparted by the form material used, with tie holes and defective areas repaired and patched with mortar of 1 part cement to 1 1/2 parts sand and all fins and other projections exceeding 1/4-inch in height rubbed down or chipped off.
      b. Use rough form finish for the following:
         1) Exterior vertical surfaces up to 1 foot below grade.
         2) Interior exposed vertical surfaces of liquid containers up to 1 foot below liquid level.
         3) Interior and exterior exposed beams and undersides of slabs.
         4) Other areas shown.
   2. Smooth Form Finish:
      a. Produce smooth form finish by selecting form materials which will impart a smooth, hard, uniform texture. Arrange panels in an orderly and symmetrical manner with a minimum of seams. Repair and patch defective areas as above with all fins or other projections completely removed and smoothed.
      b. Use smooth form finish for surfaces that are to be covered with a coating material. The material may be applied directly to the concrete or may be a covering bonded to the concrete such as waterproofing, dampproofing, painting or other similar system.
   3. Smooth Rubbed Finish:

a. Provide smooth rubbed finish to concrete surfaces which have received smooth form finish as follows:
    1) Rubbing of concrete surfaces not later than the day after form removal.
    2) Moistening of concrete surfaces and rubbing with carborundum brick or other abrasive until a uniform color and texture is produced. Do not apply cement grout other than that created by the rubbing process.
b. Except where surfaces have been previously covered as specified above, use smooth rubbed finish for the following:
    1) Interior exposed walls and other vertical surfaces.
    2) Exterior exposed walls and other vertical surfaces down to 1 foot below grade.
    3) Interior and exterior horizontal surfaces, except exterior exposed slabs and steps.
    4) Interior exposed vertical surfaces of liquid containers down to 1 foot below liquid level.
    5) Other areas shown.

4. Grout Cleaned Finish:
    a. Provide grout cleaned finish to concrete surfaces which have received smooth form finish as follows:
        1) Combine 1 part portland cement to 1-1/2 parts fine sand by volume, and mix with water to the consistency of thick paint. Blend standard portland cement and white portland cement, amounts determined by trial patches, so that the final color of dry grout will closely match adjacent concrete surfaces.
        2) Thoroughly wet the concrete surface and apply grout uniformly by brushing or spraying immediately to the wetted surfaces. Scrub surface with cork float or stone to coat surface and fill surface holes. Remove excess grout by scraping, followed by rubbing with clean burlap to remove any visible grout film. Keep grout damp during the setting period by means of fog spray at least 36 hours after final rubbing. Complete any area in the same day it is started, with the limits of any area being natural breaks in the finished surface.
    b. Except where surfaces have been previously covered as specified above, use grout cleaned finish for the following:
        1) Interior exposed walls and other vertical surfaces.
        2) Exterior exposed walls and other vertical surfaces down to 1 foot below grade.
        3) Interior and exterior horizontal surfaces, except exterior exposed slabs and steps.
        4) Interior exposed vertical surfaces of liquid containers down to 1 foot below liquid level.
        5) Other areas shown.
5. Related Unformed Surfaces:
    a. At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike off smooth and finish with a texture matching the adjacent formed surfaces. Continue the final surface treatment of formed surfaces uniformly across the adjacent unformed surfaces, unless otherwise shown.

3.10 GROUT PLACEMENT

A. Nonshrink:
1. Place nonshrink grout as shown and in accordance with manufacturer's instructions. If manufacturer's instructions conflict with the Specifications do not proceed until ENGINEER provides clarification.
2. Drypacking of nonshrink grout will not be permitted.
3. Placing grout shall conform to the temperature and weather limitations described in Article 3.4 above.

B. Grout Fill:
1. Grout Fill shall be placed, cured, and finished as described in Article 3.7, 3.8 and 3.9.

3.11 FIELD QUALITY CONTROL

A. Reinforcement Materials
   1. The CONTRACTOR shall correct improper workmanship, remove and replace, or correct as instructed, found unacceptable or deficient.
   2. Adhesive Dowels:
      a. OWNER will retain an independent testing laboratory to perform field quality testing of installed adhesive dowels. A minimum of ten percent of the adhesive dowels shall be tested to fifty percent of the yield capacity of the reinforcing bar.
      b. CONTRACTOR shall provide access for the testing agency to places where work is being produced so that required inspection and testing can be accomplished.
      c. If failure of any of the adhesive dowels occur, the CONTRACTOR will be required to pay for the costs involved in testing the remaining ninety percent of the adhesive dowels.
      d. The CONTRACTOR shall pay for all corrections and subsequent tests required to confirm the integrity of the dowels.
      e. The independent testing and inspection agency shall complete a report on each area. The report should summarize the observations made by the inspector and be submitted to the ENGINEER.

B. Concrete Work
   1. Quality Control: OWNER'S testing laboratory will perform sampling and testing during concrete placement, as follows:
      a. Sampling: ASTM C 172.
      b. Slump: ASTM C 143, one test for each load at point of discharge.
      c. Air Content: ASTM C 31, one for each set of compressive strength specimens.
      d. Compressive Strength: ASTM C 39, one set of 4 cylinders for each 10 cubic yards or fraction thereof of each class of concrete as directed by OWNER or ENGINEER; 1 specimen tested at 7 days, 2 specimens tested at 28 days, 1 specimen tested at 56 days.
      e. Report test results in writing to ENGINEER on same day tests are made.
   2. Cut out and properly replace to the extent ordered by ENGINEER, or repair to the satisfaction of ENGINEER, surfaces which contain cracks or voids, are unduly rough, or are in any way defective. Patches or plastering will not be acceptable.
   3. Repair, removal, and replacement of defective concrete as ordered by ENGINEER shall be at no additional cost to OWNER.

END OF SECTION

SECTION 05505
METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Custom fabricated metal items and certain manufactured units not otherwise indicated to be supplied under work of other Specification Sections.
2. Design of all temporary bracing not indicated on Drawings.

B. Related Specification Sections include but are not necessarily limited to:
1. Division 1 - General Requirements.
2. Division 3 - Concrete.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
1. Aluminum Association (AA):
   a. ADM-1, Aluminum Design Manual.
   b. 45, Designation System for Aluminum Finishes.
2. American Association of State Highway and Transportation Officials (AASHTO):
   a. Standard Specification for Highway Bridges.
3. American Institute of Steel Construction (AISC):
   a. Manual of Steel Construction - Allowable Stress Design (ASD).
   b. 360, Specifications for Structural Steel Buildings (referred to herein as AISC Specification).
4. American National Standards Institute (ANSI):
   a. A14.3, Ladders - Fixed - Safety Requirements.
5. ASTM International (ASTM):
   a. A6, Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling.
   b. A36, Standard Specification for Carbon Structural Steel.
   c. A47, Standard Specification for Ferritic Malleable Iron Castings.
   d. A48, Standard Specification for Gray Iron Castings.
   e. A53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
   f. A108, Standard Specification for Steel Bars, Carbon and Alloy, Cold Finished.
   g. A123, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
   h. A153, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
   i. A197, Standard Specification for Cupola Malleable Iron.
   j. A269, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
   k. A276, Standard Specification for Stainless Steel Bars and Shapes.
   l. A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
   m. A312, Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.
   n. A325, Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
   o. A496, Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement.
   p. A500, Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

q. A501, Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
r. A536, Standard Specification for Ductile Iron Castings.
s. A554, Standard Specification for Welded Stainless Steel Mechanical Tubing.
t. A572, Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
u. A666, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
v. A668, Standard Specification for Steel Forgings, Carbon and Alloy, for General Industrial Use.
w. A780, Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
x. A786, Standard Specification for Hot-Rolled Carbon, Low-.Alloy, High-Strength Low-Alloy, and Alloy Steel Floor Plates.
y. A992, Standard Specification for Steel for Structural Shapes.
z. B26, Standard Specification for Aluminum-Alloy Sand Castings.
aa. B209, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
bb. B221, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
cc. B308, Standard Specification for Aluminum-Alloy 6061-T6 Standard Structural Profiles.
dd. B429, Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.
ee. B632, Standard Specification for Aluminum-Alloy Rolled Tread Plate.
ff. F467, Standard Specification for Nonferrous Nuts for General Use.
gg. F468, Standard Specification for Nonferrous Bolts, Hex Cap Screws, and Studs for General Use.
hh. F593, Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
ii. F1554, Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.

6. American Welding Society (AWS):
   a. A5.1, Standard Specification for Carbon Steel Electrodes for Shielded Metal Arc Welding.
   b. D1.1, Structural Welding Code Steel.
   c. D1.2, Structural Welding Code Aluminum.
7. National Association of Architectural Metal Manufacturers (NAAMM):
   a. AMP 510, Metal Stairs Manual.
   b. MBG 531, Metal Bar Grating Manual.
8. Occupational Safety and Health Administration (OSHA):
   a. 29 CFR 1910, Occupational Safety and Health Standards, referred to herein as OSHA Standards.
9. Building code:
   a. International Code Council (ICC):
      1) International Building Code and associated standards, 2009 Edition including all amendments, referred to herein as Building Code.

B. Qualifications:
1. Qualify welding procedures and welding operators in accordance with AWS.
2. Fabricator shall have minimum of 10 years experience in fabrication of metal items specified.
3. Engineer for contractor-designed systems and components: Professional structural engineer licensed in the State of Kentucky.

1.3 DEFINITIONS

A. Installer or Applicator:

1. Installer or applicator is the person actually installing or applying the product in the field at the Project site.
2. Installer and applicator are synonymous.

B. Hardware: As defined in ASTM A153.

C. Galvanizing: Hot-dip galvanizing per ASTM A123 or ASTM A153 with minimum coating of 2.0 OZ of zinc per square foot of metal (average of specimens) unless noted otherwise or dictated by standard.

1.4 SUBMITTALS

A. Shop Drawings:
1. See Specification Section 01340 for requirements for the mechanics and administration of the submittal process.
2. Fabrication and/or layout drawings and details:
   a. Submit drawings for all fabrications and assemblies.
      1) Include erection drawings, plans, sections, details and connection details.
   b. Identify materials of construction, shop coatings and third party accessories.
3. Product technical data including:
   a. Acknowledgement that products submitted meet requirements of standards referenced.
   b. Manufacturer's installation instructions.
   c. Provide manufacturer's standard allowable load tables for the following:
      1) Grating and checkered plate.
      2) Expansion anchor bolts.
      3) Adhesive anchor bolts.
      4) Castings, trench covers and accessories.
4. Contractor designed systems and components, including but not limited to, stairs, landings and ladders:
   a. Certification that manufactured units meet all design loads specified.
   b. Shop Drawings and engineering design calculations:
      1) Indicate design live loads.
      2) Sealed by a professional structural engineer.
      3) Engineer will review for general compliance with Contract Documents.

B. Miscellaneous Submittals:
1. See Specification Section 01340 for requirements for the mechanics and administration of the submittal process.
2. Certification of welders and welding processes.
   a. Indicate compliance with AWS.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver and handle fabrications to avoid damage.

B. Store above ground on skids or other supports to keep items free of dirt and other foreign debris and to protect against corrosion.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
1. Headed studs and deformed bar anchors:
   a. Nelson Stud Welding Div., TRW Inc.
   b. Stud Welding Products, Inc.
2. Expansion anchor bolts:

a. Hilti Inc.
b. ITW Ramset/Red Head.
c. Simpson Strongtie.

3. Epoxy adhesive anchor bolts:
   a. Hilti Inc.
   b. ITW Ramset/Red Head.
   c. Simpson Strongtie.
4. Castings, trench covers and accessories:
   a. Neenah Foundry Co.
   b. Deeter Foundry Co.
   c. Barry Craft Construction Casting Co.
   d. McKinley Iron Works.
5. Aluminum ladders:
   a. Any manufacturer capable of meeting the requirements of this Specification Section.
6. Galvanizing repair paint:
   a. ZRC Products.
7. Equipment Cabinets
   a. Derby Welding, Louisville, KY
8. Access Hatches
   a. U.S. Fabrication and Design, LLC. Walled Lake, MI
   b. U.S.F Fabrication, Inc. Hialeah, FL

B. Submit request for substitution in accordance with Specification Section 01640.

2.2 MATERIALS

A. Steel:
1. Structural:
   a. W-shapes and WT-shapes: ASTM A992, Grade 50.
   b. All other plates and rolled sections: ASTM A36.
2. Pipe: ASTM A53, Types E or S, Grade B or ASTM A501.
3. Structural tubing:
   a. ASTM A500, Grade B (46 ksi minimum yield).
4. Bolts, nuts and washers, high strength:
   a. ASTM A325.
   b. Provide two (2) washers with all bolts.
5. Bolts and nuts:
   a. ASTM A307, Grade A.
6. Welding electrodes: AWS D1.1, E70 Series.
7. Steel forgings: ASTM A668.

B. Iron:
1. Ductile iron: ASTM A536.
2. Gray cast iron: ASTM A48 (minimum 30,000 psi tensile strength).
3. Malleable iron: ASTM A47, ASTM A197.

C. Stainless Steel:
1. Minimum yield strength of 30,000 psi and minimum tensile strength of 75,000 psi.
   a. Bars, shapes: ASTM A276, Type (316).
   b. Tubing and pipe: ASTM A269, ASTM A312 or ASTM A554, Type 316.
   c. Strip, plate and flat bars: ASTM A666, Type 316, Grade A.
   d. Bolts and nuts: ASTM F593, Type 316.
2. Minimum yield strength of 25,000 psi and minimum tensile strength of 70,000 psi.
   a. Strip, plate and flat bar for welded connections, ASTM A666, Type 316L.
3. Welding electrodes: In accordance with AWS for metal alloy being welded.

D. Aluminum:
1. Alloy 6061-T6, 32,000 psi tensile yield strength minimum.

a. ASTM B221 and ASTM B308 for shapes including beams, channels, angles, tees and zees.
b. Weir plates, baffles and deflector plates, ASTM B209.

2. Alloy 6063-T5 or T6, 15,000 psi tensile yield strength minimum.
a. ASTM B221 and ASTM B429 for bars, rods, wires, pipes and tubes.
3. ASTM B26 for castings.
4. ASTM F468, alloy 2024 T4 for bolts.
5. ASTM F467, alloy 2024 T4 for nuts.
6. Electrodes for welding aluminum: AWS D1.2, filler alloy 4043 or 5356.

E. Washers: Same material and alloy as found in accompanying bolts and nuts.

F. Embedded Anchor Bolts:
1. Building anchor bolts:
a. Type 316 stainless steel with matching nut and washer.

G. Expansion Anchor Bolts and Adhesive Anchor Bolts:
1. Stainless steel, Type 316.
2. Provide minimum edge distance cover and spacing as recommended by manufacturer, or as indicated on Drawings whichever is larger.
a. Minimum embedment as recommended by manufacturer or eight (8) diameters of bolt, whichever is larger.
b. Notify Engineer if required depth of embedment cannot be achieved at a particular anchor bolt location.
c. Follow manufacturer's recommendations for installation and torque.

H. Headed Studs: ASTM A108 with a minimum yield strength of 50,000 psi and a minimum tensile strength of 60,000 psi.

I. Deformed Bar Anchors: ASTM A496 with a minimum yield strength of 70,000 psi and a minimum tensile strength of 80,000 psi.

J. Iron and Steel Hardware: Galvanized in accordance with ASTM A153 when required to be galvanized.

K. Galvanizing Repair Paint:
1. High zinc dust content paint for regalvanizing welds and abrasions.
2. Dried film shall contain not less than 93 percent zinc dust by weight.
3. Similar to ZRC by ZRC Products.
4. VOC: 0 LBS per GAL.

2.3 MANUFACTURED UNITS

A. Heavy-Duty Castings, Trench Covers, and Accessories:
1. Prefabricated, cast iron (ASTM A48), ductile iron (ASTM A536), or cast aluminum (ASTM B26).
2. Design load: AASHTO HS-20 wheel loading for indicated span.
3. Machine horizontal mating surfaces.

2.4 FABRICATION

A. Verify field conditions and dimensions prior to fabrication.

B. Form materials to shapes indicated with straight lines, true angles, and smooth curves.
1. Grind smooth all rough welds and sharp edges.
a. Round all corners to approximately (1/32 - 1/16) IN nominal radius.

C. Provide drilled or punched holes with smooth edges.
1. Punch or drill for field connections and for attachment of work by other trades.

D. Weld Permanent Shop Connections:
1. Welds to be continuous fillet type unless indicated otherwise.

2. Full penetration butt weld at bends in stair stringers and ladder side rails.
3. Weld structural steel in accordance with AWS D1.1 using Series E70 electrodes conforming to AWS A5.1.
4. Weld aluminum in accordance with AWS D1.2.
5. All headed studs to be welded using automatically timed stud welding equipment.
6. Grind smooth welds that will be exposed.

E. Conceal fastenings where practicable.

F. Fabricate work in shop in as large assemblies as is practicable.

G. Tolerances:
1. Rolling:
   a. ASTM A6.
   b. When material received from the mill does not satisfy ASTM A6 tolerances for camber, profile, flatness, or sweep, the Contractor is permitted to perform corrective work by the use of controlled heating and mechanical straightening, subject to the limitations of the AISC Specifications.
2. Fabrication tolerance:
   a. Member length:
      1) Both ends finished for contact bearing: 1/32 IN.
      2) Framed members:
         a) 30 FT or less: 1/16 IN.
         b) Over 30 FT: 1/8 IN.
   b. Member straightness:
      1) Compression members: 1/1000 of axial length between points laterally supported.
      2) Non-compression members: ASTM A6 tolerance for wide flange shapes.
   c. Specified member camber (except compression members):
      1) 50 FT or less: Minus 0/plus 1/2 IN.
      2) Over 50 FT: Minus 0/plus 1/2 IN (plus 1/8 IN per 10 FT over 50 FT).
      3) Members received from mill with 75 percent of specified camber require no further cambering.
      4) Beams/trusses without specified camber shall be fabricated so after erection, camber is upward.
      5) Camber shall be measured in fabrication shop in unstressed condition.
   d. At bolted splices, depth deviation shall be taken up by filler plates.
      1) At welded joints, adjust weld profile to conform to variation in depth.
      2) Slope weld surface per AWS requirements.
   e. Finished members shall be free from twists, bends and open joints.
      1) Sharp kinks, bends and deviation from above tolerances are cause for rejection of material.

H. Fabricate grating, checkered plate and accessories using stainless steel or aluminum unless shown otherwise on Drawings.
1. Finish:
   a. Aluminum: Mill finished unless scheduled or otherwise specified or, if approved by Engineer, finished in manufacturer's standard.
   b. Coat surfaces in contact with dissimilar materials.

I. Maximum tolerance for difference in depth between checkered plate or grating depth and seat or support angle depth: 1/8 IN.

J. Distance between edge of grating or checkered plate and face of embedded seat angle or face of wall or other structural member shall be 1/4 IN.
1. Tolerance per NAAMM MBG 531.

PART 3 - EXECUTION

3.1 PREPARATION

A. Provide items to be built into other construction in time to allow their installation.
   1. If such items are not provided in time for installation, cut in and install.

B. Prior to installation, inspect and verify condition of substrate.

C. Correct surface defects or conditions which may interfere with or prevent a satisfactory installation.
   1. Field welding aluminum is not permitted unless approved in writing by Engineer.

3.2 INSTALLATION

A. Set metal work level, true to line, plumb.
   1. Shim and grout as necessary.

B. Bolt Field Connections: Where practicable, conceal fastenings.

C. Grind welds smooth where field welding is required.

D. Field cutting grating or checkered plate to correct fabrication errors is not acceptable.
   1. Replace entire section.

E. Remove all burrs and radius all sharp edges and corners of miscellaneous plates, angles, framing system elements, etc.

F. Unless noted or specified otherwise:
   1. Connect steel members to steel members with 3/4 IN DIA ASTM A325 high strength bolts.
   2. Connect aluminum to aluminum with 3/4 IN DIA aluminum bolts.
   3. Connect aluminum to structural steel using 3/4 IN DIA stainless steel bolts.
      a. Provide dissimilar metals protection.
   4. Connect aluminum and steel members to concrete and masonry using stainless steel expansion anchor bolts or adhesive anchor bolts unless shown otherwise.
      a. Provide dissimilar materials protection.
   5. Provide washers for all bolted connections.
   6. Where exposed, bolts shall extend a maximum of 3/4 IN and a minimum of 1/2 IN above the top nut.
      a. If bolts are cut off to required maximum height, threads must be dressed to allow nuts to be removed without damage to the bolt or the nuts.

G. Install and tighten ASTM A325 high-strength bolts in accordance with the AISC Manual of Steel Construction - Allowable Stress Design (ASD).
   1. Provide hardened washers for all ASTM A325 bolts.
      a. Provide the hardened washer under the element (nut or bolt head) turned in tightening.

H. After bolts are tightened, upset threads of ASTM A307 unfinished bolts or anchor bolts to prevent nuts from backing off.

I. Secure metal to wood with lag screws of adequate size with appropriate washers.

J. Do not field splice fabricated items unless said items exceed standard shipping length or change of direction requires splicing.
   1. Provide full penetration welded splices where continuity is required.

K. Provide each fabricated item complete with attachment devices as indicated or required to install.

L. Anchor such that work will not be distorted nor fasteners overstressed from expansion and contraction.

M. Set beam and column base plates accurately on nonshrink grout as indicated on Drawings.

1. See Division 3 Specification Sections for non-shrink grout.
2. Set and anchor each base plate to proper line and elevation.
    a. Use metal wedges, shims, or setting nuts for leveling and plumbing columns and beams.
        1) Wedges, shims and setting nuts to be of same metal as base plate they support.
        2) Tighten nuts on anchor bolts.
    b. Fill space between bearing surface and bottom of base plate with nonshrink grout.
        1) Fill space until voids are completely filled and base plates are fully bedded on wedges, shims, and grout.
    c. Do not remove wedges or shims.
        1) Where they protrude, cut off flush with edge of base plate.
    d. Fill sleeves around anchor bolts solid with non-shrink grout.

N. Tie anchor bolts in position to embedded reinforcing steel using wire.
1. Tack welding prohibited.
    a. Coat bolt threads and nuts with heavy coat of clean grease.
2. Anchor bolt location tolerance:
    a. 1/16 IN.
    b. Provide steel templates for all column anchor bolts.

O. Accurately locate and place frames for openings before casting into floor slab so top of plate is flush with surface of finished floor.
1. Keep screw holes clean and ready to receive screws.

P. Attach grating to end and intermediate supports with grating saddle clips and bolts.
1. Maximum spacing: 2 FT OC with minimum of two (2) per side.
2. Attach individual units of aluminum grating together with clips at 2 FT OC maximum with a minimum of two (2) clips per side.

Q. Repair damaged galvanized surfaces in accordance with ASTM A780.
1. Prepare damaged surfaces by abrasive blasting or power sanding.
2. Apply galvanizing repair paint to minimum 6 mils DFT in accordance with manufacturer's instructions.

3.3 CLEANING

A. After erection, installation or application, clean all miscellaneous metal fabrication surfaces of all dirt, weld slag and other foreign matter.

END OF SECTION

SECTION 13110

CORROSION CONTROL

PART 1 - GENERAL

1.1 DEFINITIONS

A. OWNER: Northern Kentucky Water District, owner/operator of completed cathodic protection system and associated piping.

B. CONTRACTOR: Firm responsible for installation of cathodic protection system.

C. CONTRACTOR'S CORROSION ENGINEER: Corrosion engineer employed by cathodic protection installation CONTRACTOR, typically on-site during installation and testing of cathodic protection system.

1.2 THE REQUIREMENT

A. The CONTRACTOR shall furnish all tools, equipment, materials and supplies, and shall perform all labor required to provide complete installation of the cathodic protection systems in accordance with the requirements of this specification and other contract documents.

B. Unless specifically indicated otherwise in the contract documents, all work shall be in accordance with the best standard practices as set forth in the manuals of Standard Practices by NACE International (NACE) (formerly, National Association of Corrosion Engineers).

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. All work specified herein shall conform to or exceed the applicable requirements of the referenced portions of the following publications to the extent that the provisions thereof are not in conflict with other provisions of these specifications.

B. Comply with the latest applicable editions of the following codes, regulations and standards:

1. Codes and Regulations:
    a. American Public Works Administration (APWA) Uniform Color Code
    b. National Fire Protection Association (NFPA) 70 National Electrical Code (NEC)
2. Industry Standards:
    a. Cathodic Protection
        (1) ASTM International (ASTM) ASTM B843, Standard Specification for Magnesium Alloy Anodes for Cathodic Protection
        (2) NACE SP0104, The Use of Coupons for Cathodic Protection Monitoring Applications
        (3) NACE SP0169, Control of External Corrosion on Underground or Submerged Metallic Piping Systems
        (4) NACE SP0286, Electrical Isolation of Cathodically Protected Pipelines
    b. Coating Standards:
        (1) American Water Works Association (AWWA) C217, Petrolatum and Petroleum Wax Tape Coatings for the Exterior of Connections and Fittings for Steel Water Pipelines
    c. Electrical Standards:
        (1) ASTM B267, Standard Specification for Wire for Use In Wire-Wound Resistors

(2) ASTM B3, Standard Specification for Soft or Annealed Copper Wire

(3) ASTM B8, Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft

(4) ASTM D3032, Standard Test Methods for Hookup Wire Insulation

(5) NEMA TC2, Electrical Polyvinyl Chloride (PVC) Conduit

d. Safety Standards:

(1) ANSI/NSF Standard 61, Drinking Water System Components

C. Where the Drawings or specifications require a higher degree of workmanship or better quality of material than implied by the above codes and standards, the Drawings and specifications shall prevail.

1.4 CONTRACTOR SUBMITTALS

A. All submittals shall be made in accordance with the General Requirements, and as specified herein.

B. CONTRACTOR Qualifications:

1. Required cathodic protection experience qualifications of the CONTRACTOR must be submitted to the OWNER as specified herein, including contract information for project references.

2. No other submittals from the CONTRACTOR shall be reviewed until the CONTRACTOR's qualifications are reviewed and approved by the OWNER.

C. Material Submittals

1. The CONTRACTOR shall provide complete data on each product and method of application specified in this specification section. Acceptance shall be received from the OWNER before the materials are delivered to the jobsite for installation. This procedure shall be followed whether or not the materials and methodologies that the CONTRACTOR proposes to use are described in the contract documents.

2. Submitted data shall show where and for what use each product is proposed with cross-reference made to the article and paragraph of this specification section. Each product shall include data that shows that it meets the requirements of these specifications.

3. The CONTRACTOR shall provide manufacturer's published literature, such as brochures, catalogue cut sheets, and installation instructions.

4. The Contractor shall provide the manufacturer's published instructions for use as a guide in specifying and applying the proposed materials with complete instructions for application in the environment and for the conditions specified in the contract documents.

5. The Contractor shall provide safety data sheets for each product to be used at the jobsite.

D. Proposed alternate testing methods.

E. Magnesium anode ASTM G97 current capacity tests. Acceptance shall be received from the OWNER before the anodes are installed.

F. Final Checkout Report:

1. The CONTRACTOR'S CORROSION ENGINEER shall conduct system activation testing (as described in the CATHODIC PROTECTION SYSTEM ACTIVATION article of this specification section) and prepare a final cathodic protection system checkout report upon completion of the activation of the cathodic protection system. The OWNER may witness activation testing. The final cathodic protection system checkout report shall be submitted for OWNER's acceptance.

2. Final acceptance of the project will not be issued and the project shall be considered incomplete until the final cathodic protection system checkout report is accepted by the OWNER.

G. As-Built Drawings:

1. The CONTRACTOR'S CORROSION ENGINEER shall submit red-lined as-built drawings upon completion of cathodic protection system activation. Red-lined drawings shall be submitted to the OWNER for incorporation into a set of final drawings. Markups shall identify any change in the type and location of installed equipment and material. Markups shall show the exact final locations of all buried insulating flanges, wires, anodes, and cathodic protection test stations using sub-foot accuracy GPS coordinates.

2. Final acceptance of the project will not be issued and the project shall be considered incomplete until the red-lined as-built drawings are reviewed and approved by the OWNER.

1.5 QUALITY ASSURANCE

A. General:

1. The CONTRACTOR shall give the OWNER a minimum of 3 days advance notice of the start of any field preparation work, and a minimum 7 days advance notice of the start of any shop preparation work, that requires witness or approval by the OWNER.

2. All cathodic protection system installation work shall be performed only in the presence of the CONTRACTOR'S CORROSION ENGINEER, unless the CONTRACTOR'S CORROSION ENGINEER has granted prior authorization to perform such work in his/her absence.

3. The CONTRACTOR shall permit access to the OWNER during the course of all work.

B. CONTRACTOR Qualifications:

1. Provide references that show that the CONTRACTOR has a minimum of five (5) years previous successful experience installing galvanic anode cathodic protection systems. Include the name, address and telephone number of the owner of five (5) installations for which the CONTRACTOR provided satisfactory work.

2. Where work is to be performed by CONTRACTOR's Subcontractor, said Subcontractor shall provide references that show that the Subcontractor has previous successful experience. Include the name, address and telephone number of the owner of each installation for which the Subcontractor provided satisfactory work.

C. CONTRACTOR'S CORROSION ENGINEER Qualifications:

1. The CONTRACTOR'S CORROSION ENGINEER shall be a registered professional engineer licensed by the State of Kentucky with certification or licensing that includes education and experience in cathodic protection of buried or submerged metal structures, or a person certified by NACE at the level of Cathodic Protection Specialist (i.e. NACE CP-4).

2. The CONTRACTOR'S CORROSION ENGINEER shall have not less than five years of experience on pipeline cathodic protection systems.

D. Standard of Care:

1. The CONTRACTOR shall provide all materials, equipment, labor, and supervision necessary for the completion of all installation and testing of the cathodic protection system.

2. The installation of the cathodic protection system's electrical components shall conform to the NEC, applicable local codes, and the practices of NACE SP0169.

3. Methods and Procedures: Tests described in this specification section shall be conducted per NACE SP0169, NACE SP0286, NACE SP0104, and other applicable standards.

4. The criteria used to indicate adequate corrosion protection shall be in accordance with NACE SP0169 and NACE SP0286, as applicable.

E. As-Built Drawings:

1. The CONTRACTOR shall maintain red-lined as-built drawings of the cathodic protection system throughout the installation of the equipment. The CONTRACTOR shall record all changes by using a red pen on full size drawings. Red-lined drawings shall properly document variations in the type and location of system components from what is shown on the drawings. These markups shall also show the exact installed locations of all anodes, buried wires, cathodic protection test stations, using sub-foot accuracy GPS coordinates.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Manufactured materials shall be delivered in original unbroken packages, or containers, bearing the manufacturer's name, product description, and rating.

B. All materials shall be carefully stored in an area that is protected from the elements as recommended by the manufacturer. Storage shall be in a manner that will prevent damage to the material and its finish.

C. All materials shall be carefully handled in a manner that will prevent damage to the material function and finish.

PART 2 - PRODUCTS

2.1 GENERAL

A. All materials to be installed shall be new and of a quality generally accepted by the industry and shall comply with the regulations and codes as specified in Article entitled "Reference Specifications, Codes, and Standards" herein. Nothing in the Drawings and specifications shall be construed as permitting work not conforming to these regulations and codes. Where larger size or better grade materials than required by the above-mentioned regulations and codes are specified, these Drawings and specifications shall have precedence. All equipment and materials supplied shall be similar to that which has been in satisfactory service for at least 5 years.

B. Products used in the work shall be produced by manufacturers regularly engaged in the manufacture of similar items.

C. Where materials are not specified, the CONTRACTOR shall provide corrosion-resistant materials suitable for long-term service life.

D. The cost of all tests and analysis of any proposed substitute materials proposed by the CONTRACTOR shall be paid for by the CONTRACTOR. If the proposed substitutions require changes in the contract work, the CONTRACTOR shall bear the costs related to such substitutions.

E. Identification tags, labels, and devices shall be installed where directed by the CONTRACTOR'S CORROSION ENGINEER. All wording shall be in accordance with the Drawings, be verified and be subject to acceptance by the OWNER before fabrication.

2.2 TEST STATIONS

A. Surface Mounted Test Stations:

1. The traffic box enclosure for the cathodic protection test station shall be a G5 Utility Box as manufactured by Christy Concrete Products, Inc., or No. 3RT Utility Box as manufactured by Brooks Products.

2. Traffic box enclosure covers shall be cast iron with welded bead legend "NKWD CP" and the Test Station Number as indicated in the Drawings (e.g., NKWD CP TS01).

3. The traffic box enclosure shall have a concrete collar at unpaved sites. The collar shall consist of a reinforced concrete pad with nominal dimensions of 24-inch square by 6-inch

thick concrete, constructed of 4,000-psi ready-mix concrete and No. 4 reinforcing bar as shown on Drawings.

B. Terminal Boards for Test Stations:

1. The test station terminal box inside the enclosure, unless otherwise indicated or specified on the Drawings, shall be a Big Fink as manufactured by Cott Manufacturing Company, or Model T-3 as manufactured by Tinker & Rasor.

2. The terminal board enclosure shall be made from Makrolon or Lexan polycarbonate and color coded to match the APWA Uniform Color Code for the corresponding pipeline service.

3. 0.01-amp current rated shunts mounted on Makrolon or Lexan polycarbonate circuit boards with nickel-plated brass components shall be used. Resistance wires shall be manganin per ASTM B267. Terminal holes shall be 1/4-inch diameter and 1 inch on center. The overall shunt dimensions shall allow easy connection to the terminal board. Use yellow COTT shunt as manufactured by Cott Manufacturing Company, or yellow shunt as manufactured by Tinker & Rasor.

4. The magnetic switch to be installed on terminal boards of test stations shall be model SM-ADJ as manufactured by Electrochemical Devices, Inc. The switch shall be normally closed unless shown otherwise in the Drawings. The magnetic switch shall have the following electrical specifications:

a. Switching Current: 0.5 amps

b. Carry current: 1.0 amp

c. Switching Voltage: 175 volts

d. Breakdown voltage: min. 200 VDC

e. Contact resistance: 150 mohm

f. Operating temp.: -40F to 260F

5. A Schedule 40 PVC lead-in conduit shall be attached to the bottom of the test station terminal box enclosure. This conduit shall have a minimum length of 3 inches and de-burred edges to prevent chafing of wire insulation.

2.3 WIRE

A. Conductors shall consist of stranded copper of the gage indicated. Wire sizes shall be based on American Wire Gage (AWG) and conform to the requirements of NEC. Copper wire shall be in conformance with ASTM B3 and ASTM B8.

B. All wires terminating in a test station terminal box shall have a wire identifier attached within 4 inches of end of wire at terminal board, prior to backfill, as specified under Article entitled "Wire Identification" herein and as shown in the details.

C. A visual inspection of all wire shall be performed. Any wire with nicks, cuts, or other defects or damage in the insulation shall be rejected and immediately removed from the jobsite. If the integrity of any wire is in question, testing of the wire per ASTM D3032 for insulation-continuity proof shall be performed to the satisfaction of the CONTRACTOR'S CORROSION ENGINEER. Any wire that fails the insulation-continuity proof test shall be rejected and immediately removed from the jobsite.

D. Structure Test Wires:

1. The wires shall be single conductor, stranded copper, sized and with insulation type and color as indicated on the Drawings.

2. Each test lead or lead wire shall be of sufficient length to extend from the attachment point on the pipe to the appropriate test board without splices and provide a minimum of 24 inches of slack within the test box.

3. Wires with cut or damaged insulation will not be accepted and require replacement of the entire length of wire.

E. Joint Bonds:

1. Joint bond wires shall be of the number and size shown on the Drawings.

2. Bond wire insulation shall be high molecular weight polyethylene (HMWPE) specifically designed for cathodic protection services and suitable for direct burial in corrosive soil, conforming to ASTM D1248, Type 1, Class C, Grade 5.

3. The joint bond length shall be the minimum required to make the connection.

F. Unless otherwise indicated or specified on the Drawings, wire size, insulation, and color for the wires shall be as follows:

Description	Wire Size (AWG)	Wire Insulation Type	Wire Color
Protected Pipe	No. 8 stranded	THHN/THWN	Black
Unprotected Pipe	No. 8 stranded	THHN/THWN	White
Galvanic Anode	No. 10 stranded	THHN/THWN	Red
Casing Pipe	No. 8 stranded	THHN/THWN	Blue
Reference Electrode	No. 14 stranded	RHH-RHW	Yellow
Coupon	No. 12 stranded	THHN/THWN	Green
Foreign Pipe	No. 8 stranded	THHN/THWN	Purple
Joint Bond	No. 4 stranded	HMWPE	--

2.4 WIRE IDENTIFICATION

A. All wires shall be coded with heat shrinkable labels with a high resistance to oils, solvents and mild acids. The label shall fully encircle the wire with imprinted alpha-numeric characters for pipeline identification, as shown in the Drawings.

B. Use abbreviations as shown on the Drawings.

2.5 ELECTRICAL CONDUIT

A. Electrical conduit shall be Schedule 80 PVC and as sized on the Drawings. Conduit shall be NEMA TC2 and TC3 rated, and UL listed.

2.6 PLASTIC WARNING TAPE

A. Plastic warning tape for horizontal runs of buried wire in trenches shall be a minimum of 4 mils thick and 6 inches wide, inert yellow plastic film designed for prolonged use underground. The tape shall have the words, "CAUTION CATHODIC PROTECTION WIRE BELOW", or similar, clearly visible in repeating patterns along its entire length.

2.7 PIN BRAZING

A. All pin brazing hardware and consumable material shall be the product of a single manufacturer. Pin brazing shall be “BAC Pin Brazing” by BAC Corrosion Control.

B. Pin brazing shall be provided for connecting wires to structures in strict accordance with the manufacturer’s recommendations. Connections shall be made at locations indicated. All pin brazing shall be at least 2 to 3 feet away from all heat-affected zones.

C. The pin brazing unit shall use an electric-arc silver soldering process specifically designed to minimize the pipeline heat effects associated with the wire connection process.

D. The brazing gun ferule holder shall be sized accordingly to accommodate the brazing pin and ferule.

E. The brazing pins shall be a direct-connect type, with no threaded connections. The brazing pins shall be type “direct brazing pin, standard with fuse wire” for brazing No. 6 AWG wire and smaller. The brazing pins shall be type “direct brazing pin, extra solder with fuse wire” for brazing No. 4 AWG wire and larger.

F. The ferrule shall be ceramic and sized accordingly to accommodate the brazing pin.

G. The wire lug shall be the brazed connection type; crimp lugs shall not be allowed. The wire lug shall be type M1.

2.8 WELD COATING

A. The coating shall be a 100 percent solids, surface tolerant, fast cure epoxy for coating metal and concrete in wet or damp locations. Use TC 7100 Wet Bond Epoxy as manufactured by The Tapecoat Company, or Splash Zone A-788 as manufactured by Carboline.

2.9 WELD CAPS

A. Weld caps shall be 4-inch square prefabricated assembly designed for sealing pin-brazed test leads.

B. The exterior shall be minimum 10-mil thick plastic sheet formed with an igloo shaped dome and entry tunnel for the lead wire.

C. The plastic dome interior shall have a malleable elastomeric compound soft enough to mold itself around and completely cover the irregular welded profile. The interior surface shall have an adhesive with integrated primer.

D. Weld caps shall be Royston Handy Cap IP as manufactured by Royston Laboratories, Inc., or thermOcap PC Weld Cover, as manufactured by thermOweld.

2.10 INSULATING FLANGE KITS

A. General: Insulating flange kits shall consist of Type E, full face sealing element retainers, insulating sleeves and double washers (steel and dielectric) on each end. All insulating material shall be of the type designated by the manufacturer as suitable for the product the pipeline will carry, the operating temperature, and pressure of the service. All components shall be the product of a single manufacturer. Insulating flange kits shall be Pacific Seal, Inc. (Linebacker) or Advanced Products & Systems, Inc. (Trojan), or approved equal. The insulating flange kit components shall have the following properties:

B. Insulating Retainer and Sealing Element: NEMA grade G-10 epoxy glass containing a precision groove to accommodate a rectangular nitrile (Buna-N) O-ring sealing element. Minimum total thickness shall not be less than 1/8-inch. Dielectric strength shall be not less than 550 volts per mil, and compressive strength of not less than 50,000 psi.

C. Sleeves: Use 1/32-inch thick G-10 epoxy glass tube material as per NEMA LI 1. Dielectric strength shall be not less than 400 volts per mil. The length of the sleeve is a critical requirement. The required length is equal to the distance from one flange to the other (including gasket thickness) plus twice the insulating washer thickness plus the thickness of two steel washers minus 1/16-inch. Provide four extra insulating sleeves.

D. Insulating Washers: 1/8-inch thick G-10 epoxy glass sheet material. Dielectric strength shall not be less than 550 volts per mil, and compressive strength of not less than 50,000 psig. Provide eight extra insulating washers per kit.

E. Steel Washers: 1/8-inch thick cadmium plated or zinc plated carbon steel. The inside diameter of the steel washers shall be a minimum of 1/16-inch larger than the outside diameter of the insulating sleeves to prevent binding. For flanges with bolt sizes of 1-1/4-inch and larger, two steel washers shall be ordered for each side so that the insulating washer can be “sandwiched” between the two for additional support.

F. Internal Lining: Lining material shall be a smooth, thixotropic, 100% solids epoxy, certified to the requirements of ANSI/NSF Standard 61, and designed for potable water. Use Raven AquataPoxy coating as manufactured by Raven Linings Corporation, or approved equal.

2.11 WAX TAPE

A. General: A wax tape coating system consists of two parts: surface primer and wax-tape. Both parts shall be the product of a single manufacturer.

B. The primer shall be a blend of petrolatum, plasticizer, and corrosion inhibitors having a paste like consistency. It shall have a pour point of 100°F to 110°F and a flash point of 350°F or greater. Use Trenton Wax-Tape Primer, or Denso Paste.

C. The wax-tape shall consist of a synthetic-fiber felt, saturated with a blend of high melt microcrystalline wax, solvents, and corrosion inhibitors, forming a tape coating that is easily formable over irregular surfaces and which firms up after application. The tape shall have a saturant pour point between 125°F and 135°F and a dielectric strength equal to a minimum of 100-volts per mil. Tape thickness shall be 70 to 90 mils in 6-inch wide rolls. Use Trenton #2 Wax-Tape, or Denso Densyl Tape.

2.12 MAGNESIUM ANODES

A. Magnesium anodes shall be of the high potential type, with cast magnesium alloy ingots conforming to ASTM B843. The high potential magnesium alloy chemical composition (by weight) shall be as follows:

Aluminum	0.01% max.
Manganese	0.5% to 1.3% max.
Copper	0.02% max.
Silicon	0.05% max.
Iron	0.03% max.
Nickel	0.001% max.
Others (each)	0.05% max.
Magnesium	Balance

A. The minimum open-circuit potential of each anode shall be -1.70 volts with respect to a copper sulfate reference electrode.

B. The anode's current capacity, as measured using the ASTM G97 standard test procedure, shall be minimum 480 amp-hours per pound. If anodes are of the cast type, the anode foundry or the anode retail supplier shall have a quality control program that includes random ASTM G97 testing. ASTM G97 current capacity tests shall be performed on randomly selected anodes at a minimum rate of one for every 2,500 anodes cast. Submit the ASTM G97 current capacity test results for the testing date that is closest to the production date of the anodes. All cast high potential magnesium anodes shall bear a stamp with its foundry heat number for traceability.

C. Anodes shall be prepackaged in a cloth bag containing backfill of the following composition; 75 percent gypsum, 20 percent bentonite and 5 percent sodium sulfate.

D. Anodes shall be cast with a galvanized steel core strap. One end of the anode shall be recessed to provide access to the rod for connection of the lead wire. The lead wire shall be silver brazed to the rod, making a mechanically secure connection. The connection shall be insulated to a 600-volt rating by filling the recess with asphalt. The asphalt material shall be extended over the lead wire insulation by not less than 1/2 inch.

E. The CONTRACTOR shall repair any damaged lead wire insulation as directed by the CONTRACTOR'S CORROSION ENGINEER and at no additional cost to the OWNER.

F. The anode lead wire shall be long enough to extend to the test box without any splices and provide for a minimum of 24 inches of slack within the test box and an additional 24 inches of slack at the anode connection.

G. Anode weight and dimensions shall be as indicated on the Drawings.

2.13 REFERENCE ELECTRODES

A. Reference electrodes on new test stations shall be copper/copper-sulfate, suitable for direct burial and designed to remain stable for at least 20 years.

B. The reference electrode shall have a minimum of 28 square inches of sensing surface area.

C. Reference electrode be capable of maintaining a potential within plus or minus 10 millivolts of a freshly made cell while draining three microamperes.

D. Reference electrode shall contain a barrier to inhibit migration of chloride ions from the soil into the reference electrode.

E. Reference cell lead wire shall be No.14 AWG, stranded copper, with yellow RHH-RHW insulation and shall be silver soldered to the copper core of the reference cell with the connection epoxy sealed by the manufacturer.

F. If recommended by the manufacturer, reference cells shall be encased in special backfill.

G. Use Stelth 2 Model SRE-007-CUY by Borin Manufacturing, or Staperm Model CU-1-UGPC by GMC Corrosion.

2.14 COUPON

A. Ductile iron coupon shall be cylindrical with twin wires. Wires shall be No. 12 AWG stranded copper wire with THWN green colored insulation. Ductile iron coupons shall be model COU200 by M.C. Miller Company, Inc.

B. Carbon steel coupons shall be cylindrical with twin wires. Wires shall be No. 12 AWG stranded copper wire with THWN green colored insulation. Carbon steel coupons shall be model COU100 by M.C. Miller Company, Inc.

PART 3 - EXECUTION

3.1 GENERAL

A. The CONTRACTOR shall install equipment and appurtenances in accordance with the requirements of the manufacturer, applicable codes, the contract documents, and these specifications.

B. Upon completion of installation of all components as shown on the Drawings and in accordance with these specifications, testing shall be performed to demonstrate that the installation has been completed and is in working order in conformance with the contract documents. In no case shall the testing be less than that outlined herein unless requested in writing by the CONTRACTOR and accepted by the OWNER.

C. As necessary, the CONTRACTOR shall provide interim testing of the system, during installation.

D. The test data shall be submitted to the OWNER for acceptance to demonstrate that the system is in proper working order. The cost of the any additional testing not described herein shall be borne by the OWNER. Expenses that result from re-testing due to equipment or installation that is not in conformance with the contract documents shall be borne by the CONTRACTOR.

E. Additional testing may be performed as necessary during the course of installation by the CONTRACTOR'S CORROSION ENGINEER. Any deficiencies identified shall be repaired by the CONTRACTOR, at the CONTRACTOR's expense.

3.2 EXCAVATION AND BACKFILL

A. Buried wires shall have a minimum cover of 24 inches.

B. Backfill the trenches with native rock-free excavated material.

C. Do not use large rocks, stones, boulders or other foreign materials as or in backfill material.

D. Place the backfill in 6 inch layers and thoroughly and carefully tamp until the wires and conduit have a depth of cover not less than 18 inches.

E. Compacting the backfill with water will not be permitted.

F. Permanent anode wire identification labels shall be placed on the wire prior to backfilling. Temporarily labels are allowed to facilitate installation.

3.3 TEST STATIONS

A. Test stations shall be placed at the locations indicated on the Drawings. Test station placement shall facilitate access for future monitoring and testing activities. Do not install test station in traffic lanes or parking lot stalls. The CONTRACTOR shall field verify final location of the test stations, subject to acceptance by the OWNER.

B. Wire identifiers shall be placed on all wire prior to backfill and installation of test stations

C. For at grade test stations, place bottom of test box on native soil. Do not place rock, gravel, sand, or debris in bottom of test box.

D. Route wires to the terminal board with PVC collar as shown on the Drawings. Connect each wire to the terminal board using copper ring tongue connectors, crimped and soldered to each wire. Attach terminal board cover. Place terminal board enclosure in concrete test box upright, as shown on the Drawings.

E. For at-grade test stations, install a 4,000-psi concrete collar with reinforcement after placement of the test box to finished grade as detailed on the Drawings. Provide sufficient sloping in the concrete pad or surrounding pavement to provide drainage away from the concrete test box.

F. After installation, all wire connections shall be tested at the test station by the CONTRACTOR'S CORROSION ENGINEER, to ensure that they meet the requirements of this specification.

3.4 WIRES

A. Wires buried in the ground shall be laid straight, without kinks. Each wire run shall be continuous in length and free of joints or splices, unless otherwise indicated. Care shall be taken during installation to avoid punctures, cuts or other damage to the wire insulation. Damage to insulation shall require replacement of the entire length of wire or anode assembly at the CONTRACTOR's expense.

B. 24 inches of slack (coiled) shall be left for each conductor at each test station housing. Wire shall not be bent into a radius of less than 8 times the diameter of the wire.

C. For all horizontal buried wire runs and vertical runs to test stations, route wires in PVC conduit along entire length of wires. Where buried wire is to be placed in existing conduit, the conduit shall be of sufficient diameter to accommodate the additional wire. This shall be determined by the number and size of both the existing and new wire in accordance with all applicable codes and standards. This shall also apply where new wire is to be installed in new PVC conduit.

D. PVC conduit shall be installed to a minimum depth of 48 inches below grade. Where physical obstructions that are not movable do not permit the depth of the conduit to be 24 inches or greater, the conduit may be placed at the lowest possible depth and encased in cement slurry. Solvent weld all conduit joints.

E. Install caution tape above buried wire and conduits at a maximum depth of 12 inches below grade over the wire and conduit location. Every 3 feet, double-over the tape for a distance of 8 inches to increase the apparent flexibility of the tape.

F. Heat shrinkable label markers shall be placed on the wires prior to backfill as shown on the Drawings.

3.5 PIN BRAZING CONNECTIONS

A. Pin brazed connections shall be installed in the manner and at the locations indicated. Coating materials shall be removed from the surface over an area of sufficient size to make the connection. The metal surface shall be cleaned to bright, shiny metal by grinding or filing prior to pin brazing the conductor. The use of resin impregnated grinding wheels shall not be allowed. The conductor shall be brazed to the pipeline by the pin brazing process per the manufacturer's instructions. Only enough insulation shall be removed such that the copper conductor can be placed in the lug.

B. After the pin brazed connection has cooled, all slag shall be removed and the metallurgical bond shall be tested for adherence to the pipe. All defective pin brazed connections shall be removed and replaced. All exposed surfaces of the copper and steel shall be covered with the coating as indicated. No connections to the piping shall be buried prior to inspection and acceptance by the CONTRACTOR'S CORROSION ENGINEER.

3.6 COATING OF PIN BRAZED CONNECTIONS

A. The CONTRACTOR shall furnish all materials, clean surfaces, and repair all damage to protective coatings and linings damaged as a result of pin brazing connections.

B. All surfaces shall be clean and dry and free of oil, dirt, loose particles, and all other foreign materials prior to application of the coating.

C. Apply a weld cap to all pin brazed connections in accordance with the manufacturers' recommendations.

D. Coat the weld cap and all remaining exposed metal in accordance with the manufacturers' recommendations. The coating shall be a fast cure epoxy as listed in these specifications. A coating shall be applied to all pin brazed connection locations.

3.7 REFERENCE ELECTRODES

A. The CONTRACTOR'S CORROSION ENGINEER shall measure the accuracy of each copper/copper sulfate reference electrode before installation by measuring the direct current (DC) voltage difference between it and one or more reference electrodes of known accuracy. The measurements shall be less than plus or minus 0.010 DC volts for all reference electrodes. The testing will be performed after totally submerging the reference electrodes in a 5-gallon bucket of potable water for a minimum period of 15 minutes. Brackish water or saltwater is not permitted. Any reference electrode which does not meet this criteria shall be replaced at the CONTRACTOR's expense.

B. Install the copper/copper sulfate reference electrodes as shown on the Drawings, per the manufacturer's guidelines. Provide a minimum 12 inches of slack wire around the reference electrode to allow for movement during backfill and soil compaction. Exercise care so as not to damage or pierce the insulation of the reference electrode lead wire. Cover the reference electrode with 6 inches of native rock-free soil and saturate it with a minimum 5 gallons of potable drinking water. Backfill as shown on the Drawings.

C. At foreign line crossings place the reference electrode equidistant between the subject pipeline and the foreign line.

D. Exercise care so as not to damage or pierce the insulation of the reference electrode lead wire. Any damaged insulation shall result in the rejection of the entire reference electrode and wire assembly.

3.8 GALVANIC ANODE INSTALLATION

A. Install prepackaged anodes at the locations indicated on the Drawings. Remove plastic wrapping from the anode prior to lowering the anode into the hole. Do not remove anode from cloth sack.

B. DO NOT suspend anodes by the lead wire. Backfill the anodes with native soil or backfill approved by the CONTRACTOR'S CORROSION ENGINEER. Under no circumstances shall cement slurry be used for backfill of the anodes, or be installed within three feet of the anodes.

C. Upon completion of compaction of backfill to the top of the anode, and prior to filling the hole and compacting the backfill to the surface, pour a minimum of 10 gallons of water into the hole to saturate the prepackaged anode backfill and surrounding soil.

D. Backfill the anode in 6-inch lifts, compacting the soil around the anode during each lift until the backfill has reached grade. Damage to the cloth bag, anode-to-wire connection, copper wire, or wire insulation shall require replacement of the entire assembly at the CONTRACTOR's expense. Do not backfill anodes prior to inspection and acceptance by the CONTRACTOR'S CORROSION ENGINEER.

E. Upon completion of installation, test the open-circuit potential of all anodes with a copper sulfate reference electrode. If any installed anode has a potential more electropositive than −1.7 V, the anode is to be replaced at the CONTRACTOR's expense. All testing procedures and results are to be verified by the CONTRACTOR'S CORROSION ENGINEER.

3.9 COUPONS

A. Install each ductile iron and carbon steel coupon as shown on the Drawings. The coupon should not contact the reference electrode, but shall be installed no further than six inches away from the reference electrode.

B. Provide a minimum 12 inches of slack wire around the coupon to allow for movement during backfill and soil compaction. Exercise care so as not to damage or pierce the insulation of the coupon lead wires.

C. Place local soil around the coupon as backfill. Make sure no rocks larger than a centimeter in diameter are within a centimeter of the coupon.

3.10 JOINT BONDS

A. Bond wire shall be installed across all flexible couplings, valves, appurtenances, and all non-welded joints on the metallic piping system to be protected to ensure electrical continuity. Joint bonds shall be installed as indicated on the Drawings.

B. Do not bond across insulating joints.

3.11 INSULATING FLANGE KITS

A. The CONTRACTOR'S CORROSION ENGINEER shall test the effectiveness of electrical isolation of the below-grade mating pipe flanges where isolation kits are installed.

1. Effectiveness of the insulated pipe flange shall be evaluated immediately after assembly, and again after final application of wax tape and backfill.

2. Isolation effectiveness shall be judged in accordance with NACE SP0286, Section 9.2.7.

3. Below-grade isolation joints shall be tested prior to backfill using a M.C. Miller Gas Electronics Model 601 or Tinker & Rasor RF-IT insulation checker. When using the insulation checker, multiple tests and test contact points must be used around the flanges circumference.

4. Below-grade isolation joints shall be tested after wax taping and backfill using the circulating current testing method

5. Any insulating flanges that are not functioning as indicated by the test data shall be considered deficient and shall be repaired and retested at the CONTRACTOR's expense.

6. All testing procedures and results are to be submitted to the OWNER as part of the activation test report as described at the end of this specification section.

B. Install insulating kits as indicated or specified on the Drawings and as recommended by the manufacturer. Carefully prevent all moisture, soil, or other foreign matter from contacting any portion of the mating surfaces prior to installing the insulator gasket. If moisture, soil, or other foreign matter contacts any portion of these surfaces, disassemble the entire joint and clean with a suitable solvent. Dry the entire joint. Once completely dry, reassemble the joint.

C. Prior to assembly, apply an internal lining to the pipeline on both sides of the insulating joint. Lining shall be applied for a distance of 24 inches away from the joint in both upstream and downstream directions.

D. Care shall be taken to prevent any excessive bending or flexing of the gasket. Creased or damaged gaskets shall be rejected and removed from the job site.

E. Properly align the flange and gasket using alignment pins.

F. Follow the manufacturer's recommended bolt tightening sequence. Center the bolt insulating sleeves within the insulation washers so that the insulating sleeve is not compressed and damaged.

G. After initial assembly and testing of the isolation joint, coat below-grade flanges, including all flange bolts, with wax tape per AWWA C217 prior to backfill.

3.12 WAX TAPE COATING

A. Coat buried isolation flanges and all locations shown in the Drawings with a wax tape coating system.

B. Apply wax tape coating system in accordance with AWWA C217 and the manufacturer’s recommendations.

C. Extend the wax tape coating system over the adjacent pipe coating by a minimum 12 inches or 18 inches away from the outside joint face, whichever distance is greater.

3.13 CASING ISOLATION TESTING

A. Test for electrical isolation between any metallic pipeline and metallic casing per NACE SP0200.

B. Upon completion of backfilling operations, test the electrical isolation between the pipeline and all casings the pipe passes through to ensure the casing is not shorted to the pipeline. If the casing is found to be electrically shorted or electrolytically coupled to the pipeline, the CONTRACTOR shall correct the deficiency at the CONTRACTOR’s expense.

3.14 TESTING OF PIN BRAZED CONNECTIONS

A. Test all pin brazed connections for mechanical adherence to the pipe. Use a minimum 22-ounce hammer for adherence testing by striking a blow to the pin brazed connection while steadily pulling on the wire. Do not unnecessarily cold-work the wire near the weld during installation or testing. Take care to avoid hitting the wires. Remove and re-weld or re-pin braze all welds that break loose or show signs of separating, as determined by the CONTRACTOR’S CORROSION ENGINEER.

3.15 CATHODIC TEST STATION TESTING

A. Wire Identification: The OWNER shall be given the opportunity to verify that buried pipe lead wires and anode lead wires are properly identified with heat shrinkable label prior to backfilling the wires and the pin brazed connections.

B. Pipe Test Wire Integrity Tests: After the pipe is buried, the pipe lead wire trenches are backfilled, and the cathodic test boxes are installed, the CONTRACTOR’S CORROSION ENGINEER shall test each set of pipe lead wires for electrical continuity to the pipe. If more than twice the theoretical resistance of the pipe lead wire lengths is measured, the CONTRACTOR shall excavate the pipe and replace the pipe lead wires.

Wire Size	Resistance (Ohms/100 feet at 77 degrees Fahrenheit)
No. 4 AWG	0.027
No. 6 AWG	0.043
No. 8 AWG	0.068
No. 10 AWG	0.108
No. 12 AWG	0.172
No. 14 AWG	0.273

3.16 WAX TAPE COATING TESTING

A. Each tape wrapped component shall be inspected by the CONTRACTOR'S CORROSION ENGINEER. Backfilling shall not be done until this inspection is complete and the tape wrap application is approved.

B. Inspect each wax tape-wrapped component visually and by hand.

1. Verify primer was applied to substrate surfaces.
2. Ensure the wax tape has fully encapsulated all portions of the metal substrate.
3. Ensure that the wax tape is in intimate contact with the metal substrate.
4. Verify that the wax tape has been applied to the specified thickness.

3.17 JOINT BOND TESTING

A. The integrity of joint bonds shall be verified by the CONTRACTOR'S CORROSION ENGINEER prior to backfill of the pipe, and after backfill of the pipe.

B. Testing shall be performed using the circulating current testing method and comparison of measured pipe span resistance with theoretical pipe span resistance. The theoretical resistance calculation shall be calculated prior to testing and must include: pipe resistance; joint bond resistance; and fringing effect. CONTRACTOR to supply to OWNER the following information: pipe wall thickness, number of bonds per pipe joint, length of pipe joints, bond wire AWG wire size, bond wire length, and number of pipe bonds in each pipe span. The theoretical pipe resistance calculations are to be supplied by the CONTRACTOR to the OWNER.

C. The testing shall be performed prior to backfill of the pipe and shall be verified upon completion of backfilling operations. The resistance measured shall not exceed 120 percent of the theoretical resistance.

D. Any sections of pipe that fail to meet the 120 percent of the theoretical resistance criteria shall be repaired and retested by the CONTRACTOR, at the CONTRACTOR'S expense, until the acceptance criteria is met.

E. The CONTRACTOR is responsible for the electrical continuity of pipe where the bonding is performed.

F. All test procedures and results are to be submitted to the OWNER as part of the activation test report as described at the end of this specification section.

3.18 CATHODIC PROTECTION SYSTEM ACTIVATION

A. The CONTRACTOR'S CORROSION ENGINEER shall conduct final inspection, activation, adjustment, and evaluation of the effectiveness of the cathodic protection system after system is installed to ensure compliance with the contract documents.

B. The CONTRACTOR'S CORROSION ENGINEER shall provide a minimum of five days advance notice to the OWNER before the cathodic protection system activation will be performed to allow for coordination and observance of these tests.

C. The system shall be tested to determine if it has been correctly installed and meets the requirements of NACE SP0169. The CONTRACTOR shall be responsible for correcting any deficiencies in the installation of the system discovered during testing at no additional cost to the OWNER.

D. At a minimum, the CONTRACTOR'S CORROSION ENGINEER shall conduct the following activities:

1. Measure the potential of each galvanic anode before it is connected to the pipe wires inside the cathodic protection test station. Verify minimum open-circuit potentials of the anodes (-1.7 volts with respect to a copper sulfate electrode). While making these measurements, place the copper sulfate reference electrode in the soil directly over the anode holes.

2. Measure the "Native Potential" (i.e. baseline pipe-to-soil potentials) at all cathodic protection test stations prior to connecting anodes and activating the cathodic protection system. Measure the "Native Potential" on each cathodic protection test station wire, including wires leading to non-protected pipes, foreign pipes, casings, and both sides of all insulating joints.

a. Where two wires are attached to the same pipe, measure and record the "Native Potential" on each wire. If, within a given test station, the potential measurements for a pair of wires landing on the same pipe differ by more than 5 millivolts, the CONTRACTOR'S CORROSION ENGINEER shall investigate the cause, and correct the issue until the potential measurement differs by less than 5 millivolts.

b. At corrosion test stations constructed with buried copper/copper sulfate reference electrodes (i.e. stationary reference electrode) measure "Native Potentials" using both the stationary reference electrode and a portable copper sulfate reference electrode.

3. Activate the cathodic protection system by connecting all the anode wires to the shunts inside the cathodic protection test station. Measure the "On Potentials" at all cathodic protection test stations. Measure "On Potentials" on each cathodic protection test station wire, including wires leading to non-protected pipes, foreign pipes, and on both sides of all insulating joints.

a. Where two wires are attached to the same pipe, measure and record the "On Potential" on each wire. If, within a given test station, the "On Potential" measurements for a pair of wires landing on the same pipe differ by more than 5 millivolts, the CONTRACTOR'S CORROSION ENGINEER shall investigate the cause, and correct the issue until the "On Potential" measurements differ by less than 5 millivolts.

b. At corrosion test stations constructed with buried copper/copper sulfate reference electrodes (i.e. stationary reference electrode) measure "On Potentials" using both the stationary reference electrode and a portable copper sulfate reference electrode. Measure the "On Potentials" at the same locations where "Native Potentials" were previously measured.

4. Measure and record the cathodic protection current at each cathodic protection test station by measuring the voltage drop across the calibrated shunts provided.

a. Calculate the corresponding amount of direct current flow using the shunt rating. Explicitly state the shunt rating on each data sheet.

b. Use the most recent current output of all galvanic anodes to calculate the anode replacement dates assuming continued uniform current outputs and the appropriate anode alloy consumption rate. Assume an 85 percent utilization rate for all anode ingots. Where

multiple anodes are routed to test stations, measure all anode current outputs individually and calculate anode life cycles individually.

5. Ensure the coupons have been installed for the minimum elapsed time as instructed by the coupon manufacturer. Resurvey the cathodic protection system at least two weeks after the initial energization to allow for the development of the cathodic polarization process.

a. Using the magnetic switch in each of the test stations, measure the "On Potential" and "Off Potential" of each coupon in each test station when the switch is in the open position.

b. Measure the "On Potentials" on each wire in each test station, as was done previously when measuring "Native Potentials".

E. Furnish all test results including all potential readings, anode current readings, insulating flange test data, dates, and times. Reference all data to pipeline station numbers. Submit all data along with a letter report to the OWNER. The letter report shall include a description of the test methods, analysis of the data, and conclusions about the CP system's effectiveness. Tabulate all activation test data, including previously-collected insulating flange kit test data and joint bond test data, and submit to OWNER.

END OF SECTION

SECTION 15060
PIPE AND PIPE FITTINGS: BASIC REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Utility piping systems.

B. Related Specification Sections include but are not necessarily limited to:
   1. Northern Kentucky Water District Standard Specifications and Drawings for the Installation of Water Mains, 2021.
   2. Section 02221 - Trenching, Backfilling, and Compacting for Utilities.
   3. Section 15100 - Valves: Basic Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. ASTM International (ASTM):
      a. A126, Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
      b. A536, Standard Specification for Ductile Iron Castings.
      c. B88, Standard Specification for Seamless Copper Water Tube.
      d. C443, Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
   2. American Water Works Association (AWWA):
      a. B300, Standard for Hypochlorites.
      b. C651, Standard for Disinfecting Water Mains.
      c. C800, Standard for Underground Service Line Valves and Fittings.
   3. American Water Works Association/American National Standards Institute (AWWA/ANSI):
      a. C110/A21.10, Standard for Ductile-Iron and Gray-Iron Fittings.
      b. C111/A21.11, Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
      c. C115/A21.15, Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
      d. C151/A21.51, Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water.
      e. C153/A21.53, Standard for Ductile-Iron Compact Fittings for Water Service.
   4. Chlorine Institute, Inc. (CI):
      a. Pamphlet 6, Piping Systems for Dry Chlorine.
   5. National Fire Protection Association (NFPA):
      a. 54, National Fuel Gas Code.
      b. 69, Standard on Explosion Prevention Systems.
   6. Underwriters Laboratories, Inc. (UL).

B. Coordinate flange dimensions and drillings between piping, valves, and equipment.

1.3 SUBMITTALS

A. Shop Drawings:
   1. See Specification Section 01340 for requirements for the mechanics and administration of the submittal process.
   2. Product technical data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.

b. Copies of manufacturer's written directions regarding material handling, delivery, storage and installation.
c. Separate schedule sheet for each piping system scheduled in this Specification Section showing compliance of all system components.
1) Attach technical product data on gaskets, pipe, fittings, and other components.

3. Fabrication and/or layout drawings:
a. Piping drawings (minimum scale 1 IN equals 10 FT) with information including:
1) Dimensions of piping lengths.
2) Invert or centerline elevations of piping crossings.
3) Acknowledgement of bury depth requirements.
4) Details of fittings, tapping locations, thrust blocks, restrained joint segments, harnessed joint segments, hydrants, and related appurtenances.
5) Acknowledge designated valve or gate tag numbers, manhole numbers, instrument tag numbers, pipe and line numbers.
6) Line slopes and vents.

B. Operation and Maintenance Manuals:
1. See Specification Section 01342 for requirements for:
a. The mechanics and administration of the submittal process.
b. The content of Operation and Maintenance Manuals.

C. Informational Submittals:
1. Qualifications of lab performing disinfection analysis on water systems.
2. Test reports:
a. Copies of pressure test results on all piping systems.
b. Reports defining results of dielectric testing and corrective action taken.
c. Disinfection test report.
d. Notification of time and date of piping pressure tests.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Protect pipe coating during handling using methods recommended by manufacturer.
1. Use of bare cables, chains, hooks, metal bars or narrow skids in contact with coated pipe is not permitted.

B. Prevent damage to pipe during transit.
1. Repair abrasions, scars, and blemishes.
2. If repair of satisfactory quality cannot be achieved, replace damaged material immediately.

PART 2 - PRODUCTS

2.1 COMPONENTS AND ACCESSORIES

A. Insulating Components:
1. Dielectric flange kits:
a. Flat faced.
b. 1/8 IN thick dielectric gasket, phenolic, non-asbestos.
c. Suitable for 175 psi, 210 DegF.
d. 1/32 IN wall thickness bolt sleeves.
e. 1/8 IN thick phenolic insulating washers.
2. Dielectric unions:
a. Screwed end connections.
b. Rated at 175 psi, 210 DegF.
c. Provide dielectric gaskets suitable for continuous operation at union rated temperature and pressure.

B. Reducers:

1. Furnish appropriate size reducers and reducing fittings to mate pipe to equipment connections.
2. Connection size requirements may change from those shown on Drawings depending on equipment furnished.

C. Protective Coating and Lining:
1. Include pipe, fittings, and appurtenances where coatings, linings, paint, tests and other items are specified.

D. Underground Warning Tape:
1. See NKWD Standards.

E. Sacrificial Anode Cathodic Protection:
1. See Specification Section 13110.

F. Valves:
1. See Drawings for valve types and locations.
2. See Specification Section 15100.

G.

PART 3 - EXECUTION

3.1 EXTERIOR BURIED PIPING INSTALLATION

A. Unless otherwise shown on the Drawings, provide a minimum of 3 FT cover over exterior buried piping systems and appurtenances.

B. When entering or leaving structures with buried mechanical joint piping, install joint within 2 FT of point where pipe enters or leaves structure.
1. Install second joint not more than 6 FT nor less than 4 FT from first joint.

C. Install expansion devices as necessary to allow expansion and contraction movement.

D. Laying Pipe In Trench:
1. Excavate and backfill trench in accordance with Specification Section 02221.
2. Clean each pipe length thoroughly and inspect for compliance to specifications.
3. Grade trench bottom and excavate for pipe bell and lay pipe on trench bottom.
4. Install gasket or joint material according to manufacturer's directions after joints have been thoroughly cleaned and examined.
5. Except for first two (2) joints, before making final connections of joints, install two (2) full sections of pipe with earth tamped along side of pipe or final with bedding material placed.
6. Lay pipe in only suitable weather with good trench conditions.
   a. Never lay pipe in water except where approved by Engineer.
7. Seal open end of line with watertight plug if pipe laying stopped.
8. Remove water in trench before removal of plug.

E. Lining Up Push-On Joint Piping:
1. Lay piping on route lines shown on Drawings.
2. Deflect from straight alignments or grades by vertical or horizontal curves or offsets.
3. Observe maximum deflection values stated in manufacturer's written literature.
4. Provide bends when specified or where required alignment exceeds allowable deflections stipulated.
5. Install shorter lengths of pipe in such length and number that angular deflection of any joint, as represented by specified maximum deflection, is not exceeded.

F. Preventing movement of piping caused by forces in buried piping tees, plugs or bends shall be accomplished by both anchorage and blocking and restrained pipe joints.

G. Anchorage and Blocking:

1. Provide reaction blocking, anchors, joint harnesses, or other acceptable means for preventing movement of piping caused by forces in or on buried piping tees, wye branches, plugs, or bends.
2. Provide reaction blocking, anchors, joint harnesses, or other acceptable means for preventing movement of piping caused by forces in or on buried piping tees, wye branches, plugs, or bends.
3. Place concrete blocking so that it extends from fitting into solid undisturbed earth wall.
   a. Concrete blocks shall not cover pipe joints.
4. Provide bearing area of concrete in accordance with drawing details.

H. Provide restrained joint pipe and fittings as called for on the Drawings.

I. Install underground hazard warning tape per NKWD Standards.

J. Install insulating components where dissimilar metals are joined together.

3.2 CONNECTIONS WITH EXISTING PIPING

A. Where connection between new work and existing work is made, use suitable and proper fittings to suit conditions encountered.

B. Perform connections with existing piping at time and under conditions which will least interfere with service to customers affected by such operation.

C. Undertake connections in fashion which will disturb system as little as possible.

D. Provide suitable equipment and facilities to dewater, drain, and dispose of liquid removed without damage to adjacent property.

E. Where connections to existing systems necessitate employment of past installation methods not currently part of trade practice, utilize necessary special piping components.

F. Where connection involves potable water systems, provide disinfection methods as prescribed in this Specification Section.

G. Once tie-in to each existing system is initiated, continue work continuously until tie-in is made and tested.

3.3 ACCESS PROVISIONS

A. Provide access doors or panels in walls, floors, and ceilings to permit access to valves, piping and piping appurtenances requiring service.

3.4 CATHODIC PROTECTION

A. Isolate, dielectrically, all piping from all other metals including reinforcing bars in concrete slabs, other pipe lines, and miscellaneous metal.

B. Make all connections from wire or cable by Thermit Cadwelding accomplished by operators experienced in this process.

C. Install all cables with a loop and overhead knot around each pipe and slack equal to at least 50 percent of the straight line length.

D. After cadwelding, coat all exposed metallic surfaces with hot applied tape.

3.5 CLEANING, DISINFECTION AND PURGING

A. Cleaning:
1. Clean interior of piping systems thoroughly before installing.
2. Maintain pipe in clean condition during installation.
3. Before jointing piping, thoroughly clean and wipe joint contact surfaces and then properly dress and make joint.

4. Immediately prior to pressure testing, clean and remove grease, metal cuttings, dirt, or other foreign materials which may have entered the system.

3.6 LOCATION OF BURIED OBSTACLES

A. Furnish exact location and description of buried utilities encountered and thrust block placement.

B. Reference items to definitive reference point locations such as found property corners, entrances to buildings, existing structure lines, fire hydrants and related fixed structures.

C. Include such information as location, elevation, coverage, supports and additional pertinent information.

D. Incorporate information on "As-Recorded" Drawings.

END OF SECTION

SECTION 15062
PIPE: DUCTILE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Ductile iron piping, fittings, and appurtenances.

B. Related Sections include but are not necessarily limited to:
   1. Northern Kentucky Water District Standard Specifications and Drawings for the Installation of Water Mains, 2021.
   2. Section 15060 - Pipe and Pipe Fittings: Basic Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Society of Mechanical Engineers (ASME):
      a. B1.1, Unified Inch Screw Threads (UN and UNR Thread Form).
      b. B16.1, Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
   2. American Water Works Association/American National Standards Institute (AWWA/ANSI):
      a. C105/A21.5, Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems.
      b. C110/A21.10, Standard for Ductile-Iron and Gray-Iron Fittings.
      c. C111/A21.11, Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
      d. C115/A21.15, Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
      e. C150/A21.50, Standard for Thickness Design of Ductile-Iron Pipe.
      f. C151/A21.51, Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water.

1.3 SUBMITTALS

A. Shop Drawings:
   1. See Specification Section 01340 for requirements for the mechanics and administration of the submittal process.
   2. See Specification Section 15060.
   3. Certification of factory hydrostatic testing.
   4. If mechanical coupling system is used, submit piping, fittings, and appurtenant items which will be utilized to meet system requirements.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
   1. Flanged adaptors:
      a. Rockwell Style 913 steel or Style 912 cast.
      b. Dresser Style 128 steel or Style 127.
   2. Compression sleeve coupling:
      a. Rockwell Style 431 (cast) or Style 411 (steel).
      b. Dresser Style 153 (cast)Style 38 (steel).
   3. Mechanical coupling:

a. Victaulic (Style 31).
b. Tyler.

4. Insulating couplings:
   a. Rockwell (Style 416).
   b. Dresser (Style 39).
5. Reducing couplings:
   a. Rockwell (Style 415).
   b. Dresser (Style 62).
6. Transition coupling:
   a. Rockwell (Style 413).
   b. Dresser (Style 62).
7. Polyethylene encasement tape:
   a. Chase (Chasekote 750).
   b. Kendall (Polyken 900).
   c. 3 M (Scotchrap 50).
8. Restrained joints:
   a. American (Lock Fast) - 12 IN and below.
   b. U.S. Pipe (TR-Flex) - 4 IN to 54 IN.
   c. American (Lock Fast) - Above 12 IN.

B. Submit request for substitution in accordance with Specification Section 01640.

2.2 MATERIALS

A. Ductile Iron Pipe:
1. AWWA/ANSI C115/A21.15.
2. AWWA/ANSI C150/A21.50.
3. AWWA/ANSI C151/A21.51.
4. Provide Class 250 DI pipe for pipe size 24-inches and larger.
5. Provide Class 350 DI pipe for pipe size less than 24-inches.

B. Fittings and Flanges:
1. AWWA/ANSI C110/A21.10.
2. AWWA/ANSI C115/A21.15.
3. Flanges drilled and faced per ASME B16.1 for both 125 and 250 psi applications.

C. Nuts and Bolts:
1. Buried: Cadmium-plated meeting SAE AMS-QQ-P-416, Type 1, Class 2 (Cor-Ten) for buried application.
2. Exposed: Mechanical galvanized ASTM B695, Class 40.
3. Heads and dimensions per ASME B1.1.
4. Threaded per ASME B1.1.
5. Project ends 1/4 to 1/2 IN beyond nuts.

D. Gaskets: See individual piping system requirements in Section 15060.

E. If mechanical coupling system is used, utilize pipe thickness and grade in accordance with AWWA C606.

F. Polyethylene Encasement:
1. See AWWA/ANSI C105/A21.5.
2. Polyethylene wrap shall be blue in color.
3. Material Thickness:
   a. 8-mil thickness low-density film or
   b. 4-mil thickness high-density cross-laminated polyethylene tube

G. Tracing Wire
1. 2 gauge solid copper (P.V.C coated) tracing wire

2.3 MANUFACTURED UNITS

A. Couplings:
   1. Flanged adaptors:
      a. Unit consisting of steel or carbon steel body sleeve, flange, followers, Grade 30 rubber gaskets.
      b. Provide units specified in Article 2.1.
      c. Supply flanges meeting standards of adjoining flanges.
      d. Rate entire assembly for test pressure specified on piping schedule for each respective application.
   2. Compression sleeve coupling:
      a. Unit consisting of steel sleeve, followers, Grade 30 rubber gaskets.
      b. Provide units specified in Article 2.1.
      c. Supply flanges meeting standards of adjoining flanges.
      d. Entire assembly to be rated for test pressure specified on piping schedule for each respective application.
      e. Provide field coating for buried couplings per AWWA C203.
   3. Mechanical couplings:
      a. Use of mechanical couplings and fittings in lieu of flanged joints is acceptable where specifically specified in Section 15060.
      b. Utilize units defined in Article 2.1.

2.4 FABRICATION

A. Furnish and install without outside coatings of bituminous material any exposed pipe scheduled to be painted.

B. Furnish cast parts with lacquer finish compatible with finish coat.

2.5 LININGS AND COATINGS

A. Provide cement-mortar lining in accordance with AWWA/ANSI C104/A21.4.

B. Provide asphaltic bitumatic coating in accordance with AWWA/ANSI C104/A21.51.

2.6 SOURCE QUALITY CONTROL

A. Factory Test:
   1. Subject pipe to hydrostatic test of not less than 500 psi with the pipe under the full test pressure for at least 10 seconds.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Joining Method - Push-On Mechanical (Gland-Type) Joints:
   1. Install in accordance with AWWA/ANSI C111/A21.11.
   2. Assemble mechanical joints carefully according to manufacturer's recommendations.
   3. If effective sealing is not obtained, disassemble, thoroughly clean, and reassemble the joint.
   4. Do not overstress bolts.
   5. Where piping utilizes mechanical joints with tie rods, align joint holes to permit installation of harness bolts.

B. Joining Method - Push-On Joints:
   1. Install in accordance with AWWA/ANSI C151/A21.51.
   2. Assemble push-on joints in accordance with manufacturer's directions.
   3. Bevel and lubricate spigot end of pipe to facilitate assembly without damage to gasket.

a. Use lubricant that is non-toxic, does not support the growth of bacteria, has no deteriorating effects on the gasket material, and imparts no taste or odor to water in pipe.

4. Assure the gasket groove is thoroughly clean.
5. For cold weather installation, warm gasket prior to placement in bell.
6. Taper of bevel shall be approximately 30 degrees with centerline of pipe and approximately 1/4 IN back.

C. Joining Method - Flanged Joints:
1. Install in accordance with AWWA/ANSI C115/A21.15.
2. Extend pipe completely through screwed-on flanged and machine flange face and pipe in single operation.
3. Make flange faces flat and perpendicular to pipe centerline.
4. When bolting flange joints, exercise extreme care to ensure that there is no restraint on opposite end of pipe or fitting which would prevent uniform gasket compression or would cause unnecessary stress, bending or torsional strains to be applied to cast flanges or flanged fittings.
5. Allow one (1) flange free movement in any direction while bolts are being tightened.
6. Do not assemble adjoining flexible joints until flanged joints in piping system have been tightened.
7. Gradually tighten flange bolts uniformly to permit even gasket compression.

D. Restrained Joint:
1. Install in accordance with AWWA/ANSI C115/A21.15.
2. All pipes, bends, tees, etc. shall be restrained push-on joint pipe and fittings utilizing ductile iron components.
3. All restrained joint pipe and fittings shall be boltless, flexible and capable of deflection after installation.
4. Restrained joint pipe and fittings shall be U.S. Pipe's TR FLEX restrained joint system, American's Flex-Ring or pre-approved equal.
5. Restraint of field cut pipe shall be provided with U.S. Pipe's TR FLEX GRIPPER® Ring, TR FLEX Pipe field weldments or pre-approved equal.
6. Method of restraining and laying schedule shall be approved by the District prior to the start of the project.
7. Manufacturer installation instructions shall be followed.
8. Restrained joints shall be capable of withstanding a maximum joint pressure of 250 psi. unless otherwise noted.

E. Flange Adaptors 12 IN and Less:
1. Locate and drill holes for anchor studs after pipe is in place and bolted tight.
2. Drill holes not more than 1/8 IN larger than diameter of stud projection.

F. Cutting:
1. Do not damage interior lining material during cutting.
2. Use abrasive wheel cutters or saws.
3. Make square cuts.
4. Bevel and free cut ends of sharp edges after cutting.

G. Install buried piping in accordance with Section 15060.

H. Install bonded joints in accordance with Section 13110.

I. Polyethylene Encasement:
1. All ductile iron pipe, fittings, valves, and fire hydrant leads shall be polyethylene wrapped, installed according to the current edition of AWWA C105 and ANSI A21.5.
2. Ductile iron fittings, valves, and fire hydrant leads used in the installation of P.V.C. pipe shall be included.
3. The contractor shall cut the roll in tubes 2 feet longer than a standard length of pipe.

4. Each tube shall be slipped over the length of pipe, centering to allow a one foot overlap on each adjacent pipe section.
5. After the lap is made, slack in the tubing shall be taken up for a snug fit and the overlay shall be secured with polyethylene tape.
6. Pipe shall not be wrapped and stored on site for any period of time, but wrapped and immediately placed in the trench, fittings shall be wrapped prior to installing blocking or pads. (see Standard Drawing #104)
7. Odd shaped appurtenances such as valves, tees, fittings, and other ferrous metal pipeline appurtenances shall be wrapped by using a flat sheet of polyethylene. Wrapping shall be done by placing the sheet under the appliances and bringing the edges together, folding twice, and taping down.

J. Tracing Wire:
1. All pipe shall be installed with a 12 gauge solid copper (P.V.C coated) tracing wire taped to the top of the pipe every 5'.
2. Maximum tracing wire length shall be 500' without terminating in a curb stop box.
3. Water main installations that stop short of the permanent fire hydrant tee, the tracing wire shall be terminated in a curb stop box.
4. Splices in the tracing wire shall be kept to minimum and approved by the District.
5. If splices are required, they shall be made with copper split bolt (Ilsco #IK 8 or approved equal) and taped with electrical tape.
6. Should the new pipe be fitted to an existing pipe without a tracing wire, the tracing wire shall be terminated in a curb stop box at the point where the transition is made.
7. Curb stop boxes shall not be located in pavement.

3.2 FIELD QUALITY CONTROL

A. Test piping systems in accordance with Section 15060 & 02660.

END OF SECTION

SECTION 15065
PIPE: POLYVINYL CHLORIDE (FUSIBLE PVC)

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Fusible PVC pipe.

B. Related Specification Sections include but are not necessarily limited to:
   1. Section 02224 - Pipeline Undercrossings.
   2. Section 02446 – Horizontal Directional Drilling.
   3. Section 02660 – Water Main Construction.
   4. Section 15060 - Pipe and Pipe Fittings: Basic Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. ASTM International (ASTM):
      a. D638, Standard Test Method for Tensile Properties of Plastics.
      b. D790, Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
      c. D1238, Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer.
      d. D1505, Standard Test Method for Density of Plastics by the Density-Gradient Technique.
      e. D1603, Standard Test Method for Carbon Black Content in Olefin Plastics.
      f. D1784, Rigid Poly (Vinyl Chloride) Compounds and Chlorinated Poly (Vinyl Chloride) Compounds.
      g. D2152, Test Method for Degree of Fusion of Extruded Poly (Vinyl Chloride) Pipe and Molded Fittings by Acetone Immersion.
      h. D2837, Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products.
      i. D3139, Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
      j. F477, Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
      k. F1057, Standard Practice for Estimating the Quality of Extruded Poly (vinyl Chloride) Pipe by the Heat Reversion Technique.
      l. F1674, Standard Method for Joint Restraint Products for Use with PVC Pipe
      m. F2620, Standard Practice for Heat Fusion
   2. American Water Works Association (AWWA):
      a. PVC (polyvinyl chloride) materials:
         1) C605, Standard fo Underground Installation of Polyvinyl Chloride Pressure Pipe and Fittings for Water.
         2) C900, Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 IN Through 12 IN, for Water Distribution.
         3) C905, Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 IN through 48 IN, for Water Transmission and Distribution.
   3. Plastic Pipe Institute (PPI):
      a. Technical Report 3 (TR-3), Policies and Procedures for Developing Hydrostatic Design Basis (HDB), Pressure Design Basis (PDB), Strength Design Basis (SDB), and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials or Pipe.

b. Technical Report 4 (TR-4), PPI Listing of Hydrostatic Design Basis (HDB), Hydrostatic Design Stress (HDS), Strength Design Basis (SDB), Pressure Design Basis (PDB) and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials or Pipe.

B. Manufacturer and Installer Qualifications:
   1. Pipe and fittings shall be by the same manufacturer.
   2. All fusion equipment must be approved by the Fusible PVC pipe manufacturer and operated by workers certified by the Fusible PVC pipe manufacturer.

1.3 ABBREVIATIONS

A. DR: Dimension Ratio.

B. DIPS: Ductile Iron Pipe Size.

C. ESCR: Environmental Stress Crack Resistance.

D. HDB: Hydrostatic Design Basis.

E. PENT: Pennsylvania Notch Test.

F. UV: Ultraviolet.

1.4 SUBMITTALS

A. Shop Drawings:
   1. See Specification Section 01340 for requirements for the mechanics and administration of the submittal process.
   2. Method of pipe fusion.
   3. Method of recording temperature requirements, interfacial fusion pressure and the weld tensile strength for the butt fusion joining method.
   4. Manufacturer's installation instructions.
   5. Installer certifications for each type of fusion method proposed.
   6. Field quality control documents.
   7. Data logger information on each weld including temperature, fusion pressure, weld tensile strength, submitted weekly, identified by pipe station.

B. Fabrication and/or layout drawings:
   1. Piping drawings (minimum scale 1 IN equals 10 FT) with information including:
      a. Dimensions of piping lengths.
      b. Acknowledgement of bury depth requirements.

C. Product technical data including:
   1. Acknowledgement that products submitted meet requirements of standards referenced.
   2. Resin type.
   3. Material thickness and dimensions.
   4. Copies of manufacturer's written directions regarding material handling, delivery, storage and installation.
   5. Separate schedule sheet for each piping system showing compliance of all system components.
      a. Attach technical product data on pipe, fittings, and other components.

D. Miscellaneous Submittals:
   1. Test Reports:
      a. Copies of pressure test results on all piping systems.
      b. Copies of fusion reports.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers of Fusible PVC pipe are acceptable:
   1. Fusible PVC Pipe:
      a. Fusible C-900, Underground Solutions, Inc.
   2. Butt Fusion Equipment:
      a. McElroy Manufacturing, Inc.
      b. Or approved equal.
   3. Data Logger for Butt Fusion:
      a. McElroy Data Logger.
      b. Or approved equal.

2.2 FUSIBLE PVC PIPE

A. General:
   1. Provide DR 21 (200 psi) 36-IN DIPS with a minimum wall thickness of 1.82 IN for pipe and fittings.
   2. Provide fusible PVC pipe in accordance with AWWA C905.
   3. Materials used for manufacturing the fusible PVC pipe and fitting shall be made of ASTM cell class 12454 with the following properties:
      a. Tensile Strength = 7,000 psi.
      b. Modulus of Elasticity = 400,000 psi.

   4. The material shall a minimum Hydrostatic Design Basis (HDB) of 4,000 psi at 73 DegF when tested in accordance with PPI TR-3 and shall be listed in the name of the pipe manufacturer in PPI TR-4.
   5. Identify each length of pipe clearly at intervals of 5 FT or less.
      a. Name and/or trademark of the pipe manufacturer.
      b. Nominal size of pipe.
      c. Dimension ratio.
      d. NSF Approval.
      e. Blue in color (potable water).

B. Flange Adapters:
   1. 36-IN Blind Flanges: DR 21 DIPS with ductile iron back up ring.
   2. Bolts and nuts shall be heavy hexagonal head, Type 316 stainless steel. Bolts shall extend ¼" to ½" beyond the nut after assembly of the joint.

2.3 TRACER WIRE

A. Continuous, insulated TW, THW, THWN, or HMWPE insulated copper, 10 gauge or thicker wire.

PART 3 - EXECUTION

3.1 GENERAL

A. Fusible PVC pipe shall be installed in accordance with the instruction of the manufacturer, as shown on the Drawings, and as specified herein.

B. Care shall be taken in loading, transporting, and unloading to prevent damage to the pipe. Pipe shall not be dropped. All pipe shall be examined before installation and no pipe shall be installed that is found to be defective.

C. Ropes, fabric, or rubber-protected slings and straps shall be used when handling pipe. Chains, cables, or hooks shall not be used.

D. Pipe shall be stored on level ground free of sharp objects that could damage the pipe. Stacking of the pipe shall be limited to a height that will not cause excessive deformation of the bottom layers of pipe in the anticipated temperature conditions. Where necessary due to ground conditions, the pipe shall be stored on wooden sleepers, spaced suitably and of such width as not to allow deformation of the pipe at the point of contact with the sleeper or between supports.

3.2 INSTALLATION

A. Joining Procedures:
   1. Joining method of the pipe and fittings shall be the butt fusion method in accordance with ASTM F2620.
   2. All joint fusion shall be performed in accordance with the joining equipment and fusible PVC pipe manufacturer's recommendations.
   3. All fusion equipment must be approved by the fusible PVC pipe manufacturer and operated by operators certified by the fusible PVC pipe manufacturer.
   4. Fusion joiner must be qualified by type of fusion (e.g. butt fusion) and fuse pipe only as qualified.
   5. Cost for testing and certifying personnel shall be born by the Contractor.
   6. Fuse PVC joints on the surface prior to installation
   7. Each joint must be visually inspected inside and outside for damage, dirt, moisture, or any other abnormalities prior to fusing.

B. Tracer Wire:
   1. All pipe shall be installed with a tracer wire for pipeline location purposes by means of an electronic line tracer.
   2. The wires shall be installed along the entire length of the pipe.
   3. Sections of wire shall be spliced together using approved splice caps and waterproof seals. Twisting the wires together is not acceptable.

3.3 FIELD QUALITY CONTROL

A. Fusion reports shall be submitted for each fusion joint performed on the project, including any joints that are rejected. The reports shall include the following:
   1. Pipe size and DR.
   2. Fusion equipment size and identification.
   3. Fusion technician identification.
   4. Job identification number.
   5. Fusion number and joining parameters.
   6. Ambient temperature.

B. Hydrostatic Testing:
   1. Hydrostatic leakage testing shall comply with ASTM F2164.
   2. Water required for hydrostatic testing shall be potable water.
      a. Potable water for passing test will be provided by the Owner.
      b. Contractor is responsible for providing all equipment and temporary piping, hosing and valves to perform the test.
      c. Transporting and storage of potable water shall be provided by the Contractor.
   3. Preparation:
      a. Notify the Engineer 48 HRS prior to each test.
      b. Fill pipe with water at least 24 hours before beginning the testing procedure to allow the water, pipe, and soil to thermally stabilize.
      c. Fill pipe slowly with water to prevent surges and air entrapment.
      d. Ensure that all air is removed from the pipe before applying pressure.
      e. Before applying pressure, all piping and all components in the test section must be restrained against movement.

f. Perform pressure test using calibrated pressure gauge. Select gauge so that the specified test pressure falls within the upper half of the gauge's range.

4. Required Test Pressure:
   a. The fusible PVC finished water main shall be tested at a gauge pressure equivalent to 200 psi at the lowest part of the main.
   b. Pressure shall not vary by more than ±5 psi from the required test pressure.
5. Testing Procedure:
   a. Apply and maintain test pressure for 3 hours to allow for initial expansion of the pipe.
   b. Reduce test pressure by 10 percent and monitor pressure for one hour. If the test pressure remains steady (within 5 percent of the test pressure less the 10 percent reduction) for 1 hour, no leakage is indicated.

6. Bear the cost of all testing and inspecting, locating and remedying of leaks and any necessary retesting and re-examination.

END OF SECTION

SECTION 15067
PIPE: POLYETHYLENE (HDPE)

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Polyethylene pipe.

B. Related Specification Sections include but are not necessarily limited to:
   1. Section 02224 - Pipeline Undercrossings.
   2. Section 02446 – Horizontal Directional Drilling.
   3. Section 02660 – Water Main Construction.
   4. Section 15060 - Pipe and Pipe Fittings: Basic Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. ASTM International (ASTM):
      a. D638, Standard Test Method for Tensile Properties of Plastics.
      b. D790, Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
      c. D1238, Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer.
      d. D1505, Standard Test Method for Density of Plastics by the Density-Gradient Technique.
      e. D1603, Standard Test Method for Carbon Black Content in Olefin Plastics.
      f. D1693, Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics.
      g. D2837, Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products.
      h. D3261, Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.
      i. D3350, Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
      j. F714, Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter.
      k. F1473, Standard Test Method for Notch Tensile Test to Measure the Resistance to Slow Crack Growth of Polyethylene Pipes and Resins.
      l. F2164, Standard Practice for Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure.
      m. F2620, Standard Practice for Heat Fusion
   2. American Water Works Association (AWWA):
      a. C906, Polyethylene (PE) Pressure Pipe and Fittings, 4 In. through 63 In. for Water Distribution and Transmission.
   3. Plastic Pipe Institute (PPI):
      a. Technical Report 3 (TR-3), Policies and Procedures for Developing Hydrostatic Design Basis (HDB), Pressure Design Basis (PDB), Strength Design Basis (SDB), and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials or Pipe.
      b. Technical Report 4 (TR-4), PPI Listing of Hydrostatic Design Basis (HDB), Hydrostatic Design Stress (HDS), Strength Design Basis (SDB), Pressure Design Basis (PDB) and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials or Pipe.

B. Manufacturer and Installer Qualifications:

1. Pipe and fittings shall be by the same manufacturer.
2. All fusion equipment must be approved by the HDPE pipe manufacturer and operated by workers certified by the HDPE pipe manufacturer.
3. Manufacture and install HDPE in accordance with the Plastic Pipe Institute (PPI) recommendations.

1.3 ABBREVIATIONS

A. DR: Dimension Ratio.

B. CTS: Copper Tube Size.

C. DIPS: Ductile Iron Pipe Size.

D. ESCR: Environmental Stress Crack Resistance.

E. HDB: Hydrostatic Design Basis.

F. HDPE: High Density Polyethlene.

G. PE: Polyethlene.

H. PENT: Pennsylvania Notch Test.

I. UV: Ultraviolet.

1.4 SUBMITTALS

A. Shop Drawings:
1. See Specification Section 01340 for requirements for the mechanics and administration of the submittal process.
2. Method of pipe fusion.
3. Method of recording temperature requirements, interfacial fusion pressure and the weld tensile strength for the butt fusion joining method.
4. Manufacturer's installation instructions.
5. Installer certifications for each type of fusion method proposed.
6. Field quality control documents.
7. Data logger information on each weld including temperature, fusion pressure, weld tensile strength, submitted weekly, identified by pipe station.

B. Fabrication and/or layout drawings:
1. Piping drawings (minimum scale 1 IN equals 10 FT) with information including:
   a. Dimensions of piping lengths.
   b. Acknowledgement of bury depth requirements.

C. Product technical data including:
1. Acknowledgement that products submitted meet requirements of standards referenced.
2. Resin type.
3. Material thickness and dimensions.
4. Copies of manufacturer's written directions regarding material handling, delivery, storage and installation.
5. Separate schedule sheet for each piping system showing compliance of all system components.
   a. Attach technical product data on pipe, fittings, and other components.

D. Miscellaneous Submittals:
1. Test Reports:
   a. Copies of pressure test results on all piping systems.
   b. Copies of fusion reports.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers of PE pipe are acceptable:
   1. HDPE Pipe:
      a. Phillips Driscopipe.
      b. ISCO Industries.
      c. Polypipe.
      d. Or approved equal.
   2. Butt Fusion Equipment:
      a. McElroy Manufacturing, Inc.
      b. Or approved equal.
   3. Data Logger for Butt Fusion:
      a. McElroy Data Logger.
      b. Or approved equal.

2.2 HIGH DENSITY POLYETHYLENE (HDPE) PIPE

A. General:
   1. Provide PE 4710 HDPE piping with fittings and appurtenances to locations shown on Drawings.
   2. All HDPE pipe shall conform to ASTM F714. All HDPE pipe and fittings shall be the product of single manufacturer.
   3. Pipe shall have a working pressure of 200 psi minimally.
   4. Provide DR 11 36-IN DIPS pipe with a minimum wall thickness of 3.273 IN for pipe and fittings.
   5. Fittings (bends and reducing tees) shall be fabricated from HDPE pipe of a compound matching the compound used in the pipe manufacturing. Mitered bends shall be fabrication as follows:
      a. 45-degree bends shall be fabricated with three (3) segments with 22.5-degree miter angles.
      b. Bends with a 22.5-degree and below shall be constructed of two (2) segments.

B. HDPE Pipe and Fittings
   1. Shall be manufactured in accordance with AWWA C906. Materials used for manufacturing the polyethylene pipe and fittings shall be PE 4710 HDPE meeting ASTM D3350 cell classification of PE 445474C, as specified in the following table:

Cell Classification	Property	Test Method	Cell Classification Limits	Units
4	Density	ASTM D1505	0.947 to 0.955	g/cm^3
4	Melt Index	ASTM D1238	less than < 0.15	gm/10 min
5	Flexural Modulus	ASTM D790	110,000 to 160,000	psi
5	Tensile Strength	ASTM D638	3,500 to 4,000	psi
7	Slow Crack Growth (ESCR)	ASTM D1693	greater than 5,000 (in 100% Igepal solution)	hours
	Slow Crack Growth (PENT)	ASTM F1473	greater than 500	hours

4	HDB (at 73 DegF)	ASTM D2837	1,600	psi
C	UV Stabilizer	ASTM D1603	2 to 2.5%	carbon-black content by weight

2. The material shall a minimum Hydrostatic Design Basis (HDB) of 1,600 psi at 73 DegF when tested in accordance with PPI TR-3 and shall be listed in the name of the pipe manufacturer in PPI TR-4.
3. Identify each length of pipe clearly at intervals of 5 FT or less.
   a. Name and/or trademark of the pipe manufacturer.
   b. Nominal size of pipe.
   c. Dimension ratio.
   d. The letters PE followed by the polyethylene grade in accordance with ASTM D1248 followed by the hydrostatic design basis.
   e. Manufacturing standard reference (e.g. ASTM F714).
   f. A production code from which the date and place of manufacture can be determined.
   g. NSF Approval.

C. Flange Adapters:
   1. 36-IN Blind Flanges: DR 11 IPS with ductile iron back up ring.
   2. Bolts and nuts shall be heavy hexagonal head, Type 316 stainless steel. Bolts shall extend ¼" to ½" beyond the nut after assembly of the joint.

2.3 TRACER WIRE

A. Continuous, insulated TW, THW, THWN, or HMWPE insulated copper, 10 gauge or thicker wire.

PART 3 - EXECUTION

3.1 GENERAL

A. HDPE pipe shall be installed in accordance with the instruction of the manufacturer, as shown on the Drawings, and as specified herein.

B. Care shall be taken in loading, transporting, and unloading to prevent damage to the pipe. Pipe shall not be dropped. All pipe shall be examined before installation and no pipe shall be installed that is found to be defective.

C. Ropes, fabric, or rubber-protected slings and straps shall be used when handling pipe. Chains, cables, or hooks shall not be used.

D. Pipe shall be stored on level ground free of sharp objects that could damage the pipe. Stacking of the pipe shall be limited to a height that will not cause excessive deformation of the bottom layers of pipe in the anticipated temperature conditions. Where necessary due to ground conditions, the pipe shall be stored on wooden sleepers, spaced suitably and of such width as not to allow deformation of the pipe at the point of contact with the sleeper or between supports.

3.2 INSTALLATION

A. Joining Procedures:
   1. Joining method of the pipe and fittings shall be the butt fusion method in accordance with ASTM D3261 and ASTM F2620.
   2. All joint fusion shall be performed in accordance with the joining equipment and HDPE pipe manufacturer's recommendations.
   3. All fusion equipment must be approved by the HDPE pipe manufacturer and operated by operators certified by the HDPE pipe manufacturer.

4. Fusion joiner must be qualified by type of fusion (e.g. butt fusion) and fuse pipe only as qualified.
5. Cost for testing and certifying personnel shall be born by the Contractor.
6. Fuse HDPE joints on the surface prior to installation. Each joint must be visually inspected inside and outside for damage, dirt, moisture, or any other abnormalities prior to fusing.

B. Tracer Wire:
1. All pipe shall be installed with a tracer wire for pipeline location purposes by means of an electronic line tracer.
2. The wires shall be installed along the entire length of the pipe.
3. Sections of wire shall be spliced together using approved splice caps and waterproof seals. Twisting the wires together is not acceptable.

3.3 FIELD QUALITY CONTROL

A. Fusion reports shall be submitted for each fusion joint performed on the project, including any joints that are rejected. The reports shall include the following:
1. Pipe size and DR.
2. Fusion equipment size and identification.
3. Fusion technician identification.
4. Job identification number.
5. Fusion number and joining parameters.
6. Ambient temperature.

B. Hydrostatic Testing:
1. Hydrostatic leakage testing shall comply with ASTM F2164.
2. Water required for hydrostatic testing shall be potable water.
   a. Potable water for passing test will be provided by the Owner.
   b. Contractor is responsible for providing all equipment and temporary piping, hosing and valves to perform the test.
   c. Transporting and storage of potable water shall be provided by the Contractor.
3. Preparation:
   a. Notify the Engineer 48 HRS prior to each test.
   b. Fill pipe with water at least 24 hours before beginning the testing procedure to allow the water, pipe, and soil to thermally stabilize.
   c. Fill pipe slowly with water to prevent surges and air entrapment.
   d. Ensure that all air is removed from the pipe before applying pressure.
   e. Before applying pressure, all piping and all components in the test section must be restrained against movement.
   f. Perform pressure test using calibrated pressure gauge. Select gauge so that the specified test pressure falls within the upper half of the gauge's range.
4. Required Test Pressure:
   a. The HDPE finished water main shall be tested at a gauge pressure equivalent to 200 psi at the lowest part of the main..
   b. Pressure shall not vary by more than ±5 psi from the required test pressure.
5. Testing Procedure:
   a. Apply and maintain test pressure for 3 hours to allow for initial expansion of the pipe.
   b. Reduce test pressure by 10 percent and monitor pressure for one hour. If the test pressure remains steady (within 5 percent of the test pressure less the 10 percent reduction) for 1 hour, no leakage is indicated.

6. Bear the cost of all testing and inspecting, locating and remedying of leaks and any necessary retesting and re-examination.

END OF SECTION

SECTION 15100
VALVES: BASIC REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Valving, actuators, and valving appurtenances.

B. Related Specification Sections include but are not necessarily limited to:
   1. Northern Kentucky Water District Standard Specifications and Drawings for the Installation of Water Mains, 2021.
   2. Division 01 - General Requirements.
   3. Section 09905 - Painting and Protective Coatings.
   4. Section 11005 - Equipment: Basic Requirements.
   5. Section 15060 - Pipe and Pipe Fittings: Basic Requirements.
   6. Section 15101 - Gate Valves.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Society of Mechanical Engineers (ASME):
      a. B1.20.1, Pipe Threads, General Purpose.
      b. B16.1, Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
      c. B16.18, Cast Copper Alloy Solder Joint Pressure Fittings.
   2. American Water Works Association (AWWA):
      a. C509, Standard for Resilient-Seated Gate Valves for Water Supply Service.
      b. C550, Standard for Protective Coatings for Valves and Hydrants.
      c. C606, Standard for Grooved and Shouldered Joints.
   3. American Water Works Association/American National Standards Institute (AWWA/ANSI):
      a. C111/A21.11, Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

1.3 DEFINITIONS

A. The following are definitions of abbreviations used in this Specification Section or one (1) of the individual valve sections:
   1. CWP: Cold water working pressure.
   2. SWP: Steam working pressure.
   3. WOG: Water, oil, gas working pressure.
   4. WWP: Water working pressure.

1.4 SUBMITTALS

A. Shop Drawings:
   1. See Specification Section 01340 for requirements for the mechanics and administration of the submittal process.
   2. Product technical data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.
      b. Manufacturer's installation instructions.
      c. Valve pressure and temperature rating.
      d. Valve material of construction.
      e. Special linings.
      f. Valve dimensions and weight.

g. Valve flow coefficient.
h. Wiring and control diagrams for electric or cylinder actuators.

3. Test reports.

B. Operation and Maintenance Manuals:
1. See Specification Section 01342 for requirements for:
a. The mechanics and administration of the submittal process.
b. The content of Operation and Maintenance Manuals.

C. Informational Submittals:
1. Verification from valve actuator manufacturer that actuators have been installed properly, that all limit switches and position potentiometers have been properly adjusted, and that the valve actuator responds correctly to the valve position command.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, refer to individual valve Specification Sections for acceptable manufacturers.

2.2 MATERIALS

A. Refer to individual valve Specification Sections.

2.3 VALVE ACTUATORS

A. Valve Actuators - General:
1. Provide actuators as shown on Drawings or specified.
2. Counter clockwise opening as viewed from the top.
3. Direction of opening and the word OPEN to be cast in handwheel or valve bonnet.
4. Size actuator to produce required torque with a maximum pull of 80 LB at the maximum pressure rating of the valve provided and withstand without damage a pull of 200 LB on handwheel or chainwheel or 300 foot-pounds torque on the operating nut.
5. Unless otherwise specified, actuators for valves to be buried, submerged or installed in vaults or manholes shall be sealed to withstand at least 20 FT of submergence.
6. Extension stem:
a. Install where shown or specified.
b. Solid steel with actuator key and nut, diameter not less than stem of valve actuator shaft.
c. Pin all stem connections.
d. Center in valve box or grating opening band with guide bushing.

B. Buried Valve Actuators:
1. Provide screw or slide type adjustable cast iron valve box, 5 IN minimum diameter, 3/16 IN minimum thickness, and identifying cast iron cover rated for traffic load.
2. Box base to enclose buried valve gear box or bonnet.
3. Provide 2 IN standard actuator nuts complying with AWWA C500, Section 3.16.
4. Provide at least two (2) tee handle keys for actuator nuts, with 5 FT extension between key and handle.
5. Extension stem:
a. Provide for buried valves greater than 4 FT below finish grade.
b. Extend to within 6 IN of finish grade.
6. Provide concrete pad encasement of valve box as shown for all buried valves unless shown otherwise.

C. Concrete Valve Vault:
1. Provide in precast concrete vault as shown on Drawings.
2. Aluminum access hatch.

D. Valve Manual Actuators:
   1. Provide gearing for gate valves 20 IN and larger in accordance with AWWA C500.
   2. Gear actuators to be totally enclosed, permanently lubricated and with sealed bearings.

2.4 FABRICATION

A. End Connections:
   1. Provide the type of end connections for valves as required in Specification Section 15060 or as shown on the Drawings.
   2. Comply with the following standards:
      a. Threaded: ASME B1.20.1.
      b. Flanged: ASME B16.1, Class 125 unless otherwise noted or AWWA C207.
      c. Bell and spigot or mechanical (gland) type: AWWA/ANSI C111/A21.11.
      d. Soldered: ASME B16.18.
      e. Grooved: Rigid joints per Table 5 of AWWA C606.

B. Refer to individual valve Specification Sections for specifications of each type of valve used on Project.

C. Nuts, Bolts, and Washers:
   1. Wetted or internal to be bronze or stainless steel.

D. Epoxy Interior Coating: Provide epoxy interior coating for all ferrous surfaces in accordance with AWWA C550.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Painting Requirements: Comply with Specification Section 09905 for painting and protective coatings.

C. Setting Buried Valves:
   1. Locate valves installed in pipe trenches where buried pipe indicated on Drawings.
   2. Set valves and valve boxes plumb.
   3. Place valve boxes directly over valves with top of box being brought to surface of finished grade.
   4. Install in closed position.
   5. Place valve on firm footing in trench to prevent settling and excessive strain on connection to pipe.
   6. After installation, backfill up to top of box for a minimum distance of 4 FT on each side of box.

D. Support exposed valves and piping adjacent to valves independently to eliminate pipe loads being transferred to valve and valve loads being transferred to the piping.

E. Install valves accessible for operation, inspection, and maintenance.

3.2 ADJUSTMENT

A. Adjust valves, actuators and appurtenant equipment to comply with Specification Section 01650.
   1. Operate valve, open and close at system pressures.

END OF SECTION

SECTION 15101
GATE VALVES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Gate valves.

B. Related Specification Sections include but are not necessarily limited to:
   1. Northern Kentucky Water District Standard Specifications and Drawings for the Installation of Water Mains, 2021.
   2. Division 01 - General Requirements.
   3. Section 15100 - Valves: Basic Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. ASTM International (ASTM):
      a. A126, Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
   2. American Water Works Association (AWWA):
      a. C509, Standard for Resilient-Seated Gate Valves for Water Supply Service.
      b. C550, Standard for Protective Epoxy Interior Coatings for Valves and Hydrants.
   3. Manufacturers Standardization Society of the Valve and Fittings Industry Inc. (MSS):
      a. SP-70, Cast Iron Gate Valves, Flanged and Threaded Ends.
   4. NSF International (NSF):
      a. 61, Drinking Water System Components - Health Effects.

1.3 DEFINITIONS

A. NRS: Non-rising Stem.

B. RS: Rising Stem.

1.4 SUBMITTALS

A. Shop Drawings:
   1. See Specification Section 01340 for requirements for the mechanics and administration of the submittal process.
   2. See Specification Section 15100.

B. Operation and Maintenance Manuals:
   1. See Specification Section 01342 for requirements for:
      a. The mechanics and administration of the submittal process.
      b. The content of Operation and Maintenance Manuals.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the manufacturers listed in the applicable Articles below are acceptable.

B. Submit request for substitution in accordance with Specification Section 01640.

C. Acceptable Manufacturers:

1. Clow.
2. Mueller.
3. American Flow Control.
4. M & H.

2.2 VALVES: POTABLE WATER

A. Resilient Wedge Gate Valves:
   1. Comply with AWWA C509, Standard for Resilient Seated Gate Valves, 3 to 30 IN, NRS
   2. Comply with AWWA C515, Standard for Reduced Wall Resilient Seated Gate Valves, 3 to 36 IN, NRS.
   3. Materials:
      a. Stem and stem nut: Bronze.
         1) Wetted bronze parts in low zinc bronze.
      b. Body, gate: Ductile iron.
      c. Resilient wedge: Fully encapsulated rubber wedge
         1) Ethylene Propylene Diene Monomer (EPDM).
      d. All external dome and packing bolts shall be stainless steel.
   4. Design requirements:
      a. Minimum 200 psi working pressure.
      b. Buried: NRS, O-ring stem seal, 2 IN square operating nut.
      c. Counter clockwise open rotation.
      d. Fusion bonded epoxy coating interior and exterior except stainless steel and bearing surfaces.
         1) Comply with AWWA C550.
         2) Comply with NSF 61.
   5. Actuator
      a. Valves 12 N and smaller shall be installed in the vertical position.
      b. Valves 16 IN and larger shall be installed in the horizontal position and have a bevel gear reduction actuator.

2.3 FABRICATION

A. General:
   1. Provide valves with clear waterways the full diameter of the valve.

PART 3 - EXECUTION

3.1 INSTALLATION

A. See Specification Section 15100.

B. Where larger buried valves utilize smaller bypass valves, provide a second valve box installed over the bypass valve operating nut.

C. Do not install gate valves inverted or with the stems sloped more than 45 degrees from the upright unless the valve was ordered and manufactured specifically for this orientation.

END OF SECTION

Appendix A

GEOTECHNICAL SERVICES
LICKING RIVER CROSSING
WILDER-COVINGTON, KENTUCKY

Prepared for:

HDR ENGINEERING, INC.
LEXINGTON, KENTUCKY

Prepared by:

GEOTECHNOLOGY, INC.
ERLANGER, KENTUCKY

Date:

JULY 31, 2020

Geotechnology Project No.:

J025791.01/120976E

SAFETY
QUALITY
INTEGRITY
PARTNERSHIP
OPPORTUNITY
RESPONSIVENESS

GEOTECHNOLOGY INC
FROM THE GROUND UP

July 31, 2020

Mr. Brent Tippey
HDR Engineering, Inc.
2517 Sir Barton Way
Lexington, Kentucky 40509

Re: Geotechnical Services
Licking River Crossing
Wilder-Covington, Kentucky
Geotechnology Project No. J025791.01/120976E

Dear Mr. Tippey:

Summarized in this final revised report are our recommendations for approximately 3,085 feet of newly proposed 36-inch diameter water main that the Northern Kentucky Water District (NKWD) is planning to install underneath the Licking River between Covington and Wilder, along Andrews Way, along South Street, and underneath Licking Pike (KY 9) in both Kenton and Campbell Counties, Kentucky. Our services were authorized via the original Subconsultant Agreement between Thelen Associates, Inc. (Thelen) and HDR, agreement dated December 20, 2012 and signed by Mr. Brent A. Tippey, P.E. In addition, our services were performed in accordance with Task 401 in the Northern Kentucky Water District (NKWD) Request for Proposal for the above referenced project.

We appreciate the opportunity to provide the geotechnical services for this project. If you have any questions regarding this report, or if we may be of any additional service to you, please do not hesitate to contact us.

Respectfully submitted,
GEOTECHNOLOGY, INC.

Michelle E. Casto, PE
Senior Engineer

Andrew C. Casto, PE
Senior Project Manager

MEC/ACC:mec

Copies submitted: Client (email)

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GEOTECHNICAL SERVICES
LICKING RIVER CROSSING
WILDER-COVINGTON, KENTUCKY
July 31, 2020 | Geotechnology Project No. J025791.01/120976E

1.0 INTRODUCTION

Summarized in this report are our recommendations for approximately 3,085 feet of newly proposed 36-inch diameter water main that the Northern Kentucky Water District (NKWD) is planning to install underneath the Licking River between Covington and Wilder, along Andrews Way, along South Street, and underneath Licking Pike (KY 9) in both Kenton and Campbell Counties, Kentucky. The scope of our geotechnical services included an engineering reconnaissance, test borings, a review of available geologic mapping along the alignments, and a review of the Project Plans prepared by HDR Engineering, Inc. (HDR), drawings dated January 2014 and received by us via email on June 29, 2020.

2.0 PROJECT INFORMATION

The proposed alignment is shown on the January 2014 HDR Project Plans. For the purposes of this report, the references to stationing are considered to be approximate. The proposed alignment will begin at Station 10+00, north of the rear yards for the residences along the northern half of Summit Ave in Covington, Kentucky. The beginning of the alignment will consist of a 24-inch diameter segment of pipe that will connect the new 36-inch diameter water main to an existing 24-inch diameter water main. The proposed alignment will continue to the northeast down a wooded hillside before crossing underneath the Licking River between approximately Stations 17+00 and 19+00. From the east bank of the Licking River, the proposed alignment will continue to the northeast until reaching Andrews Way near Station 27+00. From this point, the proposed alignment will follow along the pavement of Andrews Way before turning to the south near Station 35+00. Between Stations 35+00 and about Station 36+80, the proposed alignment will cross a vacant field before reaching the southern edge of South Street. The alignment will continue along and just outside of the south edge of South Street before turning to the northeast at Station 38+00, where the alignment will cross the pavement of South Street and then turn again to the east at Station 39+27 to cross under the pavement of Licking Pike (KY 9). The proposed alignment will end at Station 40+85 by connecting into an existing 36-inch diameter water main near the east edge of Licking Pike.

It is our understanding that the following pipe will be installed as part of this water main project:

- Station 10+00 to Station 10+19.53: 24-inch diameter, Class 250, ductile iron pipe (DIP). The pipe will be installed by traditional open cut method.

- One pipe length before Station 10+19.53 (along the 36-inch diameter alignment) to Station 11+91: 36-inch diameter, Class 250 DIP. The pipe will be installed by traditional open cut method, except for potentially the portion of the pipe within the directional drilling bore pit.

- Station 11+91 to Station 22+75: 36-inch diameter, iron pipe sizes (IPS), dimension ratio (DR) 11, High Density Poly Ethylene Pipe (HDPE). The pipe will be installed by horizontal directional drilling (HDD).

- Station 22+75 to Station 40+85: 36-inch diameter, Class 250 DIP. The pipe will be installed by traditional open cut method, except for potentially the portion of the pipe within the directional drilling bore pit and for the portion of the pipe that will be installed by jack and bore methods under the pavement of Licking Pike between Stations 39+51 and 40+71. A 120 lineal foot, 48-inch diameter steel pipe will be installed to case the water main pipe beneath Licking Pike.

The proposed water main will be installed with typical minimum cover, except for where the pipe will be installed by HDD and jack and bore methods, and where constraints are caused by local topography, geology, structures and existing utilities. Typical minimum soil cover is shown on the HDR Project Plans to be at least 36 inches above the top of the pipe.

We understand that the proposed water main will be on the NKWD 763 pressure system. A maximum test pressure of 250 pounds per square inch (psi) will be assumed for thrust calculations.

Specific descriptions of the proposed water main alignment, our engineering reconnaissance, and our recommendations are provided based on stationing in Sections 5.1 through 5.3 of this report. This report addresses only the geotechnical issues for the water main project.

3.0 SUBSURFACE EXPLORATION & LABORATORY REVIEW

Eleven (11) new test borings were performed as part of the Licking River Crossing Project. A station and offset have been assigned to each of the test borings based on the alignment shown on the HDR Project Plans. The locations of the new test borings have been labeled on the HDR Project Plans as well. Viox & Viox, Inc. (Viox) surveyed the ground surface elevation at each test boring location relative to their field control. In addition, eleven (11) test borings, numbered 101 through 111, were previously performed in the vicinity of the alignment for Thelen Project No. 030799E. These test borings have been added to the subsurface profile discussion and have also been assigned a station and offset based on the HDR Project Plans. The new and previously performed test boring locations are shown on our Boring Plan, Sheet No. 1, in Appendix A. The logs of the new and previously performed test borings are presented in Appendices C and D. The current stations and offsets are labeled in the upper right corner of each previously performed test boring log. The new test boring locations are summarized in Table 3 and the previous test boring locations are summarized in Table 2.

Table 1. New Test Boring Locations.

Test Boring No.	Station	Offset
1	40+52	96’ Right
2	37+18	3’ Right
3	33+89	24.5’ Right
4	29+22	9’ Right
5	23+20	4’ Right
6	19+84	10.5’ Right
7	17+98	3.5’ Left
8	16+23	34’ Right
9	15+10	28’ Right
10	13+97	23’ Right
11	10+57	2’ Right

Table 2. PreviousTest Boring Locations.

Thelen Project No.	Test Boring No.	Station	Offset
030799E	101	21+28	126’ Right
030799E	102	22+51	69’ Right
030799E	103	23+73	98’ Right
030799E	104	22+97	164’ Right
030799E	105	21+83	169’ Right
030799E	106	20+32	153’ Right
030799E	107	20+00	283’ Right
030799E	108	20+94	358’ Right
030799E	109	22+59	275’ Right
030799E	110	25+69	137.5’ Right

The new and previous test borings were made with either a truck or a track-mounted drill rig advancing hollow stem or continuous flight augers. Standard split spoon and Shelby-tube sampling was accomplished ahead of the augers at predetermined intervals.

Concurrent with the drilling operations, the drilling technician prepared the field test boring logs of the subsurface profile noting soil and bedrock types and depths, standard penetration test resistance values (N-values) and groundwater levels or lack thereof. Representative portions of

the split-spoon samples were placed in labeled glass jars. The ends of the labeled Shelby tubes were capped and taped to preserve the in situ moisture content and density of the undisturbed sample. The bedrock was cored in Test Borings 5, 6, 7 and 10 with a 1 ⅞-inch inside diameter (I.D.) NQ size core barrel. The recovered rock core samples were placed in a labeled core box.

Following the completion of the test borings, the samples were returned to our laboratory where they were reviewed and visually classified by the Project Geotechnical Engineer. Final test boring logs were prepared based on the Drilling Technician's field logs and the Engineer's visual classification of the samples. Copies of the test boring logs can be found in Appendices C and D.

The dashed lines on the test boring logs identify the changes between the soil and bedrock types, which were determined by interpolation between samples and should be considered approximate. Only changes that occur within samples can be precisely determined and are indicated by solid lines on the logs. The transition between soil and bedrock types maybe abrupt or gradual.

4.0 SUBSURFACE CONDITIONS

Specific subsurface conditions were only identified in limited areas along the alignment. The following is a general discussion of the subsurface profile encountered within the test borings.

4.1 Summary

4.1.1 Wilder

In general, the subsurface conditions on the Wilder side of the Licking River consist of deep alluvial soil deposits along the relatively gentle eastern flank of the Licking River valley, transitioning to deep terrace deposits east of the north-south portion of the railroad tracks, and west of Licking Pike (KY 9). In addition, artificial fill has been placed to construct Licking Pike in the area of the intersection with South Street and along Andrews Way. The subsurface profile encountered in the test borings typically consists of 1 to 8 inches of topsoil, and then 1 to 18.0 feet of artificial fill, where encountered, followed by deep native alluvium and/or terrace deposits, underlain by the interbedded shale and limestone bedrock. The thickness of the native alluvium and terrace deposits ranged from as little as 5.0 feet to as much as 54.3 feet. The surface of the interbedded shale and limestone bedrock was encountered below a depth ranging from 18.0 to 57.0 feet below the existing ground surface in Test Borings 4 through 6. The overall depth to bedrock increases toward the Licking River and decreases toward Licking Pike.

4.1.2 Covington

In general, the terrain along the alignment on the Covington side of the Licking River consists of a much steeper valley side, which is close to a mapped transition zone between shallow bedrock and deep terrace deposits. The valley side transitions to a relatively gentle ridge top toward the western end of the proposed alignment. The subsurface profile encountered in Test Boring 8, on the steeper valley side, consists of 2.0 feet of topsoil, followed by 2.5 feet of native colluvium and 2.5 feet of native residual soils, underlain by the interbedded shale and limestone bedrock. The surface of the interbedded shale and limestone bedrock was encountered at 7.0 feet below the existing ground surface. The subsurface profile encountered in Test Borings 9 through 11, toward

the relatively gentle ridge top consists of 2 to 4.5 feet of artificial fill, where encountered, and then by 13.3 to 38.5 of native terrace deposits, underlain by the interbedded shale and limestone bedrock. The surface of the interbedded shale and limestone bedrock ranged from 7.0 to 48.0 feet below the existing ground surface.

4.2 Topsoil

Topsoil was encountered in Test Borings 1, 2, 5 and 8 with thicknesses of 1, 2, 8 and 24 inches, respectively. Topsoil was also encountered in Test Borings 101, 102 and 103 and had thicknesses of 24, 6, and 24 inches, respectively.

4.3 Artificial Fill

Artificial fill was encountered in Test Borings 1 through 5 and 9 through 11. A minor amount of fill was also encountered in Test Borings 110 and 111. The artificial fill typically consisted primarily of silty clay or shale and was a mixture of colors, including brown, gray, and green. The artificial fill was also noted to be with and without roots, shale fragments, limestone fragments, limestone floaters, gravel, asphalt fragments, sand, wood, brick fragments, organics, topsoil, and slag. The consistency of the fill widely varied from soft to very stiff. The standard penetration test resistance values (N-values) of the soft and medium stiff artificial fill ranged from 5 to 13 blows per foot (bpf). The N-values of the stiff and very stiff artificial fill typically ranged from 7 to 36 bpf.

The moisture contents of the artificial fill widely ranged from 9.6 to 41.9 percent, with the majority of the values between 15 and 25 percent, with no particular pattern regarding consistency. Two samples of the silty clay fill classified as CL soils according to the Unified Soil Classification System (USCS) with liquid limits of 43 and 45 percent, and corresponding plastic limits of 24 and 24 percent, and plasticity indices of 19 and 21 percent, respectively. One sample of the shale fill classified as an ML soil according to the USCS with a liquid limit, plastic limit and plasticity index of 41, 28, and 13 percent, respectively. One unconfined compression test was performed on a sample of the silty clay fill, which yielded an unconfined compressive strength of 1,230 pounds per square foot (psf), with a corresponding natural dry density of 78.7 pound per cubic foot (pcf).

4.4 Native Alluvial Soils

The native alluvial soils were encountered in Test Borings 1, 5 and 6 and in Test Borings 101 through 111, beneath the ground surface, the topsoil, and/or the artificial fill and were primarily described as brown, or brown with traces of gray, sandy silt or silty clay with and without layering, roots, sand, clayey sand layers, sand seams and shale fragments. The consistency of the native alluvium was primarily soft or medium stiff, with a few stiff layers intermixed. The N-values of the soft or medium stiff alluvial soils typically ranged from 3 to 13 bpf. The N-values of the stiff or very stiff alluvium ranged from 8 to 14 bpf. An exception to the overall profile is that one 9.5-foot thick layer of dense sand and gravel was encountered in Test Boring 5 within the intermixed layers of silty clay. The N-value of this layer was 48 bpf and cobbles were noted within the sand and gravel sample.

The moisture contents of the alluvium ranged from 20.1 to 40.9 percent, with the majority of the values between the low to mid-twenties, with no particular pattern regarding consistency. Two

samples of the silty clay alluvium classified as CL soils according to the Unified Soil Classification System (USCS) with liquid limits of 40 and 28 percent, and corresponding plastic limits and plasticity indices of 25 and 15 percent, and 20 and 8 percent, respectively. Two samples of the silty clay alluvium, with higher silt content classified as CL-ML soils according to the USCS with liquid limits of 28 and 28 percent, and corresponding plastic limits of 22 and 21 percent, and plasticity indices of 6 and 7 percent, respectively. Three unconfined compression tests were performed on samples of the alluvium, which yielded unconfined compressive strengths of 1,310, 3,250 and 5,740 psf, with corresponding natural dry densities of 88.7, 105.5 and 110.4 pcf, respectively. Two particle size analyses were performed on samples of the silty clay alluvium, which yielded corresponding amounts of gravel, sand, silt and clay as follows: Gravel – 0 and 0 percent; Sand – 23.1 and 25.1 percent; Silt – 47.2 and 45.3 percent; and Clay – 29.7 and 29.6 percent. One particle size analysis was performed on a sample of the sand and gravel alluvium, which yielded gravel, sand, silt and clay amounts of 36.0, 37.1, 13.9 and 13.0 percent, respectively.

The USGS Geologic Quadrangle map of the Newport and Withamsville Quadrangle indicates that alluvial deposits are described as varying amounts of silt, clay, sand, and gravel with predominant descriptions of silty clay and clayey silt The deposits along the Licking River contain minor sand and gravel that consists of pebbles and small cobbles of chert, quartz and quartzite.

4.5 Native Terrace Deposits

The native terrace deposits were encountered beneath the artificial fill in Test Borings 4 and 9 through 11. The native terrace deposits were primarily described as varying degrees of brown and/or gray, medium stiff to very stiff, silty clay, with and without roots, sand, clayey sand seams, silt seams, iron oxide stains, and traces of layering. The N-values of the medium stiff terrace deposits typically ranged from 5 to 14 bpf. The N-values of the stiff or very stiff terrace deposits typically ranged from 8 to 16 bpf.

The USGS Geologic Quadrangle map of the Newport and Withamsville Quadrangle indicates that terrace deposits are described as silty clay, with minor sand and gravel. The sand was described as very fine to medium and poorly sorted. The gravel consists of limestone slabs as much as 12 inches in greatest dimension.

4.6 Native Colluvium

Colluvium is a transported soil that is typically deposited by landslide movement. A 2.5-foot thick layer of colluvium was encountered in Test Boring 8 beneath the topsoil, below a depth of 2.0 feet. Colluvium is often characterized by a dense clay matrix with randomly oriented shale fragments, limestone fragments and limestone floaters. The colluvium was described as mottled brown, stiff, silty clay, with shale fragments. The N-value of this colluvium was 5 bpf.

4.7 Native Residual Soils

The native residual soils were encountered in Test Borings 8 through 11. The residual soil has weathered from the underlying bedrock and can be identified by traces of horizontal bedding planes within the soil. The residual soil was primarily described as olive brown with traces of gray,

stiff or very stiff, silty clay, with and without iron oxide stains, limestone fragments, limestone floaters and traces of bedding planes. The N-values of the residual soil ranged from 14 to 25 bpf.

Four moisture contents of the residual soil were 16.9, 17.5, 21.8 and 25.5 percent. Two samples of the residual soil were classified as CL soils according to the USCS with liquid limits, plastic limits, and plasticity indices of 44 and 44 percent, 25 and 26 percent, and 19 and 18 percent, respectively.

4.8 Bedrock

The bedrock was encountered in Test Borings 4 through 11 beneath the topsoil, the artificial fill, and/or the native alluvium and terrace deposits. In the Northern Kentucky area, the bedrock is generally classified in three basic zones characterized by the color and the degree of weathering that has occurred within the shale portion of the bedrock system. Some zones of the bedrock may or may not be locally present due to differential weathering or erosion.

The uppermost zone of the bedrock is termed highly weathered, in which the shale portion has virtually weathered to a clay-like consistency; however, characteristic bedding planes are still prevalent. The surface of the highly weathered zone of the bedrock was encountered in Test Borings 4 and 8, below depths of 18.0 and 7.0 feet, respectively. The average thickness of the highly weathered zone was 2.5 feet

The zone of bedrock underlying the highly weathered portion is generally described as weathered bedrock, which contains olive brown, tougher shale. The weathered zone of the bedrock was encountered in Test Borings 4, 8, 9, 11, and 106 below depths of 20.4, 9.5, 19.5, 22.0, and 30.0 feet, respectively. The average thickness of the weathered zone, where penetrated in Test Borings 8, 9, 11 and 106 was 4.0 feet. Two moisture contents of the weathered zone were 14.4 and 14.6 percent.

The weathered portion of the bedrock is underlain by the interbedded, unweathered, parent, gray shale and limestone. The surface of the unweathered zone of bedrock was encountered in Test Borings 5 through 11, and Test Borings 101, 103, 106, 108 and 109. The depths to the surface of the unweathered bedrock are listed in Table 3.

Table 3. Depth to the Unweathered Bedrock.

Test Boring No.	Depth to the Surface of the Unweathered Bedrock (feet)
5	52.0
6	35.5
7	22.3*
8	14.5
9	22.0
10	48.0
11	28.0
101	58.5
103	51.0
106	39.0
108	27.5
109	34.5

*Note: Test Boring 7 was performed on the Licking River and encountered 17.2 feet of water below the 3.3-foot thick barge, then 1.8 feet of cobbles on the river bottom, and finally the unweathered bedrock.

The unweathered zone of the bedrock was cored in Test Borings 5, 6, 7 and 10. In Test Borings 5, 6 and 7, the recovered cores ranged from 31 to 87 percent shale and 13 to 69 percent limestone, assuming the unrecovered core was shale that washed away. In Test Boring 10, the recovered cores ranged from 91 to 93 percent shale and 7 to 9 percent limestone, assuming the unrecovered core was shale that washed away. The limestone layers within the recovered cores ranged from 1/8-inch to 8 inches thick. The Rock Quality Designations (RQDs) ranged from 8 to 88 percent, with the majority of the values between 23 and 53 percent.

Three moisture contents of the shale portion from the unweathered zone of bedrock were 2.5, 5.0 and 6.7 percent. Two unconfined compression tests were performed on samples of the shale portion of the unweathered zone of bedrock, which yielded unconfined compressive strengths of 66,800 and 250,000 psf (464 and 1730 psi), with corresponding natural dry densities of 150.3 and 154.3 pcf. Four unconfined compression tests were performed on samples of the limestone portion of the unweathered zone of bedrock, which yielded unconfined compressive strengths of 931,000, 974,000, 1,410,000, and 2,280,000 psf (6,470, 6,760, 9,810 and 15,900 psi), with corresponding natural dry densities of 164.7, 164.1, 168.1 and 168.1 pcf.

As indicated on the USGS Geologic Quadrangle Map of the Newport and Withamsville Quadrangle, the bedrock nearest to the ground surface is of the Ordovician Age and transitions between the Kope Formation and the Point Pleasant Formation. According to the USGS Quadrangle Map, the transition between the Kope and the Point Pleasant Formations occurs

between Mean Sea Level Elevations 460 and 490 feet, with the Kope Formation being above the transition and the Point Pleasant Formation being below the transition.

The Kope Formation is described as shale and limestone, with the shale being about 75 to 80 percent and limestone being about 20 to 25 percent of the unit. The shale is described as laminated in beds as much as 6 feet thick. The limestone beds are described as discrete and regular to irregular, and as much as 12 inches thick, but generally less than 8 inches thick.

The Point Pleasant Formation is described as interbedded limestone and shale, with the limestone being 45 to 65 percent and the shale being 35 to 55 percent of the formation. The limestone is in lenticular to tabular beds that are typically less than 12 inches thick, but locally as much as 30 inches thick. The shale is described as laminated and locally fissile and can be found as thin shale partings or as discrete beds as much as 2 feet thick.

4.9 Groundwater

The Drilling Technician recorded groundwater readings during drilling, after the completion of drilling, and at 24 hours after the completion of drilling in Test Borings 8 through 11. The remaining test borings were backfilled immediately, so long-term water readings were not taken. Groundwater was encountered in five of the 11 new test borings at varying depths within the fill, the alluvium, the terrace deposits, and within the bedrock. In addition, it is noted that Test Boring 7, which was performed on the Licking River, encountered 17.2 feet of water from the barge portal to the ground surface at the bottom of the river.

Individual groundwater readings can be found on the logs in the Appendix. Based on our local experience, it is anticipated that groundwater can occur near the ground surface closest to the Licking River, at the fill soil/native soil interface, within lenticular deposits of coarser grained soils, at the native soil/bedrock interface, and along limestone layers within the bedrock. In addition, the amount of groundwater will vary with the time of the year and with the amount of precipitation.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon our engineering reconnaissance of the proposed water main alignment, the new and previous test borings, our understanding of the proposed water main construction, and our experience as Consulting Soil and Foundation Engineers in the Northern Kentucky Area, we have reached the conclusions and make the recommendations in this report.

5.1 Station 10+00 to Station 11+91

The HDR Project Plans indicate that the proposed water main will be installed in relatively flat terrain on the ridge top, with 3 to 7 feet of cover in this section. According to the HDR Project Plans, the bore pit for the HDD section will also be in part of this section between Stations 11+20 and 12+00.

No instability was observed along this section of the alignment and it is our opinion that the water main can be installed at the depth and location shown on the HDR Project Plans.

Test Boring 11 was performed in this Section at Station 10+57, 2 feet right of the alignment. This test boring encountered 2.0 feet of medium stiff artificial fill, followed by 12.5 feet of medium stiff or stiff native terrace deposits, then 7.5 feet of stiff or very stiff residual soil, followed by the 6.0 feet of interbedded weathered shale and limestone bedrock, and then the interbedded unweathered gray shale and limestone bedrock. Groundwater was noted as seepage in the silt layers and in the bedrock below depths of 12.5 feet below the ground surface in Test Boring 11.

We anticipate that the trench and bore pit excavations will encounter the artificial fill soils and the native terrace deposits. The artificial fill and the native terrace deposits consist of primarily silty clay soils, with and without silt seams, that range from medium stiff to stiff in consistency. Please refer to Section 5.4 for general excavating and backfill recommendations and to Section 5.5 for thrust restraint recommendations.

5.2 Station 11+91 to Station 22+75

The HDR Project Plans indicate that the proposed water main will be installed by means of HDD in this section down the steep wooded hillside, under the Licking River and exiting on the eastern river bank at a distance about 375 feet east of the eastern edge of the Licking River. The overall terrain along the western flank of the Licking River slopes steeply downward to the northeast. Evidence of creep was observed on the hillside in the form of leaning, swept and bowed trees. The overall terrain along the eastern flank of the Licking River slopes steeply upward to the northeast for a distance of about 60 feet, and then slopes very gently upward to the northeast until about Station 22+00, where the terrain becomes relatively gentle.

Test Borings 5 through 10, 101 and 102 were performed within or very close to the end of this section. The boring locations are shown on the HDR profile drawings as well. Table 4 lists the depth and the elevation that bedrock was encountered in each test boring.

Based on the proposed invert elevations of the HDD, and the subsurface conditions encountered within Test Borings 5 through 11, the proposed water main will be installed below the surface of the interbedded shale and limestone bedrock in the area of the steep creeping hillside on the western flank of the Licking River. The drilling will initially encounter the native terrace deposits until near Station 13+00, transitioning into the Kope Formation Bedrock at elevations higher than Mean Sea Level Elevation 460 feet until about Station 14+00. Between approximate Stations 14+00 and 20+50, it is anticipated that the HDD will encounter the Point Pleasant Formation Bedrock. From Station 20+50 to the receiving pit, it is anticipated that the drilling will encounter the native alluvium as the Kope Formation Bedrock has been previously eroded away down to the Point Pleasant Formation.

Table 4. Depth to the Surface of the Bedrock.

Test Boring No.	Station	Offset	Depth to the Surface of the Bedrock (feet)	Mean Sea Level Elevation of the Surface of the Bedrock (feet)
5	23+20	4' Right	52.0	441.4
6	19+84	10.5' Right	35.5	434.2
7	17+98	3.5' Left	22.3*	436.5
8	16+23	34' Right	7.0	468.8
9	15+10	28' Right	19.5	477.6
10	13+97	23' Right	48.0	481.6
11	10+57	2' Right	22.0	501.9
101	21+28	126' Right	58.5	429.9
102	22+51	69' Right	Boring not extended to the surface of the bedrock	

*Note: Test Boring 7 was performed on the Licking River and encountered 17.2 feet of water below the 3.3-foot thick barge, then 1.8 feet of cobbles on the river bottom, and finally the unweathered bedrock.

The Kope Formation Bedrock is predominantly shale with limestone interbeds. Limestone percentages from the recovered cores range from 7 to 9 percent. However, the USGS map indicates limestone amounts as high as 25 percent within the Kope Formation. Limestone thicknesses in the recovered cores ranged from 1/4-inch to 4-7/8 inches. The USGS map indicates that limestone beds as thick as 12 inches can exist within the Kope Formation.

The Point Pleasant Formation Bedrock is described on the USGS map as interbedded limestone and shale, with the limestone being 45 to 65 percent and the shale being 35 to 55 percent of the formation. Limestone percentages from the recovered cores in the lower Point Pleasant Formation elevations ranged from 13 to 69 percent limestone. Limestone thicknesses in the recovered cores ranged from 1/8-inch to 8 inches. The USGS map indicates that limestone beds as thick as 30 inches can exist within the Point Pleasant Formation. It should be noted that the HDD elevations below a portion of the alignment are considerably lower than the recovered bedrock core samples. The limestone percentages and thicknesses may vary from the amounts encountered in the recovered core.

Individual bedrock strength and density results are included in the Appendix to this report. The unconfined compressive strengths of the shale portion of the recovered cores ranged from 66,800 to 250,000 psf (464 to 1730 psi). The unconfined compressive strengths of the limestone portion of the recovered cores ranged from 931,000 to 2,280,000 psf (6,470 to 15,900 psi).

We recommend that potential Contractors for this project visit the site to become familiar with the topographical features and the bedrock. There is bedrock exposure on the western riverbank, just south of the proposed alignment. The Contractors should consult the Geologic Map of Parts of Newport and Withamsville Quadrangles, Campbell and Kenton Counties, Kentucky (Gibbons, 1973) for additional bedrock information.

The HDR Plan and Profile Drawings indicate that a bore pit will be excavated between approximate Stations 11+20 and 12+00. The profile drawing indicates that the bore pit will be on the order of 10 to 11 feet deep. Based on Test Borings 10 and 11, it is anticipated that the bore pit excavations will encounter a minor amount of artificial fill and then the native terrace deposits that consist of medium stiff or stiff native silty clay with silt seams and potentially sand seams. The HDR Plan and Profile Drawings do not indicate a receiving pit location or depth. It is anticipated that the receiving pit excavations will encounter the native alluvium, which also consists of medium stiff or stiff native silty clay.

We recommend that the HDD bore and receiving pit excavations be braced, shored, sloped or otherwise stabilized in a manner that satisfies all safety concerns and all federal, state and local regulations. The responsibility of maintaining safe working conditions in the pit excavation and for protecting ground, pavement, structures and infrastructure adjacent to the pit excavation and along the HDD pipe alignment should be the Contractor's.

Groundwater seepage from within lenticular deposits of coarser grained soils within the native terrace deposits and the alluvium above the water table may be encountered during construction, particularly during the wetter periods of the year. Experience indicates that seepage can be controlled by pumping from a sump. Below the water table and the Licking River, granular seams in the alluvium and joints and seams in the bedrock may be hydraulically connected to the Licking River. As such, the groundwater will be prolific and the Contractor will have to be prepared to work under saturated conditions. From a design point of view, the pipe should be selected based upon being submerged below the water table and for potential Licking River flood conditions.

The boreholes for this project were not monitored for any gases. However, boreholes made into the Kope Formation shale and limestone bedrock (similar to the bedrock formation present at this site) on other project sites in Northern Kentucky and Greater Cincinnati have periodically encountered poisonous, toxic and/or combustible gases. Therefore, it should be assumed that such gases may be encountered in excavations or borings made into the bedrock for this project.

Please refer to Section 5.4 for general excavating and backfill recommendations and to Section 5.5 for thrust restraint recommendations.

5.3 Station 22+75 to Station 40+85

The HDR Project Plans indicate that the proposed water main will continue to parallel the railroad after exiting the HDD section, and will enter the dead end of Andrews Way near Station 27+10. Between Stations 27+10 and 34+40, the proposed alignment will be installed under the pavement of Andrews Way. From Station 34+40 to Station 36+80, the proposed alignment will continue to

the east across a vacant field before reaching the south edge of South Street. From Station 36+80 to Station 38+00, the proposed alignment will remain just south of the south edge of South Street before turning to the southeast and crossing the pavement of South Street. At Station 39+27, the water main will turn to the east in order to cross under the pavement of Licking Pike and will end at Station 40+85 near the base of a gentle drainage swale about 35 feet east of Licking Pike. The HDR Project Plans indicate that the proposed water main will be installed by means of jack and bore beneath Licking Pike (KY 9) between Stations 39+51 and 40+71.

In general, the overall terrain in this section is relatively gentle, with the exception of between approximate Stations 28+80 and 32+00. There is a steep fill embankment located along a tributary to the Licking River south/east of Andrews Way. Based on a review of a cross section where the water main will be closest to the crest of the fill embankment, it is our opinion that a satisfactory relationship with regard to long-term stability of the water main will exist between the creek bottom and the closest edge of the trench excavation.

Test Borings 1 through 5 and 101 were performed in this section. Test Boring 5 was performed at Station 23+20, 4 feet right of the alignment. This test boring encountered 2.0 feet of artificial fill, 8 inches of topsoil, 49.3 feet of medium stiff or stiff native silty clay alluvium, followed by the interbedded unweathered gray shale and limestone bedrock.

Test Boring 101 was performed at Station 27+00, 10 feet right of the alignment. This test boring encountered 2.0 feet of artificial fill, followed by at least 12.0 feet of the medium stiff to very stiff native silty clay alluvium.

Test Boring 4 was performed at Station 29+22, 9 feet right of the alignment. This test boring encountered 13.0 feet of artificial fill, followed by 5.0 feet of very stiff silty clay terrace deposits, 2.4 feet of the interbedded highly weathered brown shale and limestone bedrock, and finally the interbedded unweathered gray shale and limestone bedrock.

Test Boring 3 was performed at Station 33+89, 24.5 feet right of the alignment. This test boring encountered at least 16.5 feet of artificial fill ranging in consistency from very soft to very stiff. Three layers of wood were noted from 9.5 to 10.1 feet, 10.5 to 11.6 feet, and 13.0 to 13.3 feet. The description of this fill included dark gray and dark brown colors and appears to indicate waste fill including, but not limited to, organics, wood and bricks.

Test Boring 2 was performed at Station 37+18, 3 feet right of the alignment. This test boring encountered 2 inches of topsoil, followed by at least 11.8 feet of stiff or very stiff artificial fill.

Test Boring 1 was performed at Station 40+52, 96’ right of the alignment and encountered 1 inch of topsoil, followed by 17.9 feet of primarily stiff or very stiff artificial fill, and then by at least 3.5 feet of soft or stiff native alluvium.

No instability was observed in this section of the alignment and it is our opinion that the water main can be installed at the depth and location shown on the HDR Project Plans. Based on the

HDR profile drawings, the trench excavations will extend to depths ranging from 6 to 13 feet. Based on the test boring information, the trench excavations will most likely encounter the medium stiff to stiff native silty clay alluvium, the stiff or very stiff artificial fill with and without limestone floaters, and waste fill that contains a significant amount of wood and organics. According to the HDR profile drawings, the jack and bore section will be on the order of about 14 feet deep. The closest test boring information indicates that the pit excavations and the bore will encounter the stiff to very stiff artificial fill with and without limestone floaters.

Regarding the jack and bore section between Stations 39+51 and 40+71, we recommend that the receiving and bore pit excavations be braced, shored, sloped or otherwise stabilized in a manner that satisfies all safety concerns and all federal, state and local regulations. The responsibility of maintaining safe working conditions in the pit excavations and for protecting ground, pavement, structures and infrastructure adjacent to the pit excavations and along the jack and bore alignment should be the Contractor's.

It is noted that the jack and bore location between Stations 39+51 and 40+71 will require bends to be installed within the vicinity of the bore and receiving pit excavations. These bends do not require restrained joint pipe to be installed and can be restrained by standard full-sized thrust blocks provided that the pit excavations are backfilled with compacted and tested fill in accordance with Section 5.4 of this report. The bearing surface of the thrust blocks must be cast neat against a vertical face in stiff compacted and tested clay fill or stiff native silty clay or clay soils. If these conditions for standard thrust blocks cannot be met, then these bends will have to be restrained with restrained joint pipe that extends continuously through the casing and to the required distances beyond each bend.

Please refer to Section 5.4 for general excavating and backfill recommendations and to Section 5.5 for thrust restraint recommendations. In addition, please refer to the undercutting recommendations in Section 5.4 of this report, should it become necessary when the water main is being installed in the waste fill, such as was encountered in Test Boring 3.

5.4 General Excavating and Backfilling Recommendations

The excavations throughout this project will encounter a variety of materials. Those materials will include artificial fill (comprised primarily of silty clay with and without roots, shale fragments, limestone fragments, limestone floaters, gravel, asphalt fragments, sand, wood, brick fragments, organics, topsoil, and slag), native silty clay alluvium and terrace deposits (also with and without layering, roots, sand, clayey sand layers, silt seams, sand seams and shale fragments), and interbedded shale and limestone bedrock in the HDD section. Please refer to Section 5.3 for information regarding drilling in the bedrock for the HDD section.

The scope of this project involved test borings that were performed in limited areas. Therefore, we recommend that the specifications for this project be based on unclassified excavation and drilling, not on separate cost items for soil excavation and bedrock excavation. The base bid for the project should include the cost of excavating and drilling the materials encountered within the specified water main depths, regardless of soil or bedrock characteristics.

Wherever clay backfill is allowed in the trenches, we expect that the excavated materials can be used as backfill after the appropriate granular pipe bedding and backfill is installed. Fill materials should not include asphalt, concrete, trash, construction or demolition debris, topsoil or frozen material. Large pieces of limestone, which tend to nest or retard compaction, should be excluded from the backfill. Smaller pieces of limestone that can be broken up and dispersed so that they do not nest or retard compaction can be incorporated in the backfill provided that proper protection of the pipe from these pieces of limestone is provided.

The Contractor should be responsible for the stability and safety of all excavations and should exercise all necessary precautions to shore, slope or otherwise maintain stable trench excavations to protect workers, surrounding ground, adjacent pavement, structures, and infrastructure, including utilities. These trenches should be made and maintained in accordance with all Federal, State and Local regulations.

Where the trenches penetrate clay soils with higher silt and sand contents, softer clays, poorly compacted fill or backfill, or waste fill, maintaining the sides of the trench excavations and preventing the undermining of any adjacent pavements, structures, or utilities may be difficult. The Contractor should be prepared to maintain the sides of all excavations and to minimize the sloughing of soils into the trenches.

It is noted that several of the test borings encountered layers of soft or medium stiff terrace deposits and alluvium, and waste fill. If soft or unstable soils are encountered at the bottom of the trench excavations along any portion of the alignment, we recommend that the unstable materials be undercut to stiff native soils, bedrock, or to a maximum depth of 18 inches below the pipe invert level, for the full trench width as necessary and replaced with compacted crushed stone to provide a stable trench bottom. The compacted crushed stone should be wrapped with a non-woven geotextile to minimize the migration of fine-grained soils and fine granular bedding into the crushed stone. The depth of the undercut and crushed stone fill below the pipe invert will vary with the unstable soil conditions encountered, but can be limited to a maximum of 18 inches below pipe invert level. The crushed stone backfill should be placed and compacted in accordance with the recommendations for backfilling presented at the end of this section. The specified pipe bedding should be placed over the compacted crushed stone and geotextile.

The Contractor should anticipate that excavations in some areas of the project alignment may encounter groundwater even though the test borings drilled in or near the section of the alignment may not have encountered groundwater or may have been dry at completion of drilling. The Contractor should be prepared to maintain the sides of all excavations throughout this project regardless of the difficulties that groundwater may present. Surface water should be diverted away from the excavations, and when encountered in the excavations, groundwater should be handled by pumping from dewatering wells, sumps, or other means so that the pipe installation can be properly completed in a relatively dry excavation.

The project specifications should require that the Contractor dewater the alignment to a sufficient distance below pipe invert level to maintain stable excavation sides and bottoms. The dewatering

level should take into account any depth of undercut below pipe level that is necessary due to soft or unstable soils. Dewatering should be a requirement of the entire project, even though it was not specifically discussed in each subsection of this report.

Normal and recommended utility construction practice is to bed and backfill pipes with granular fill to a specified height above the crown of the pipe. We recommend that granular bedding and backfill be used for this project, and must be used in the restrained joint sections. Again, where clay backfill is allowed in the trenches, compaction of trench backfill to a moist, firm, dense condition is important throughout the alignment. Granular bedding and backfill should be compacted to at least 80 percent relative density per ASTM D4253 and D4254 for soils that do not exhibit a well-defined moisture-density relationship, or at least 95 percent of the standard Proctor maximum dry density, ASTM D698, for soils that exhibit a well-defined moisture-density relationship. We recommend that clay backfill for this project be placed in shallow level layers, 4 to 8 inches in thickness, and be compacted to densities not less than 95 percent of the standard Proctor maximum dry density, ASTM D698. The backfill soils should be moisture-conditioned to within the range of 2 percent below to 3 percent above the optimum moisture at the time of compaction. Density tests should be made in the backfill to document that the recommended degree of compaction is being achieved.

5.5 Thrust Restraint

Thrust restraint is required at all horizontal bends, vertical bends, tees, dead end plugs, fire hydrants and other fittings for this entire pipeline project. It is our opinion that thrust restraint can be provided by two different methods for this project. The first method includes installing standard pipe and full-sized thrust blocks for all of the bends and fittings for this entire pipeline project, with the exception of the bends that require restrained joint pipe to be installed to resist thrust forces. In larger diameter pipes, such as the proposed 36-inch diameter ductile iron pipe in this project, full-sized thrust blocks require large bearing areas in order to provide enough restraint for the large thrust forces created at each bend. A second method for providing thrust restraint includes installing fully internally restrained pipe for the entire ductile iron pipe portion of the alignment, such that full-sized thrust blocks are not necessary to restrain the large thrust forces. Reduced-sized thrust blocks could then be installed instead of the full-sized thrust blocks. Based on a review of the January 2014 HDR Project Plans, restrained joint pipe will be installed for all the ductile iron pipe for the entire length of the project, and reduced-size thrust blocks will be installed.

Please refer to Figures 1 and 2 for Concrete Thrust Block Details for Restrained Joint Pipe and Concrete Backing for Vertical Bends for Restrained Joint Pipe, respectively. We have calculated the required thrust block bearing areas for both the reduced-sized blocks, assuming a bearing pressure of at least 2,500 pounds per square foot (psf). We recommend that the soils at the thrust block locations be reviewed to confirm that they are satisfactory for this assumed bearing pressure.

6.0 RECOMMENDED ADDITIONAL SERVICES

The conclusions and recommendations given in this report are based on: Geotechnology's understanding of the proposed design and construction, as outlined in this report; site observations; interpretation of the exploration data; and our experience. Since the intent of the design recommendations is best understood by Geotechnology, we recommend that Geotechnology be included in the final design and construction process, and be retained to review the project plans and specifications to confirm that the recommendations given in this report have been correctly implemented. We recommend that Geotechnology be retained to participate in prebid and preconstruction conferences to reduce the risk of misinterpretation of the conclusions and recommendations in this report relative to the proposed construction of the subject project.

Since actual subsurface conditions between boring locations may vary from those encountered in the borings, our design recommendations are subject to adjustment in the field based on the subsurface conditions encountered during construction. Therefore, we recommend that Geotechnology be retained to provide construction observation services as a continuation of the design process to confirm the recommendations in this report and to revise them accordingly to accommodate differing subsurface conditions. Construction observation is intended to enhance compliance with project plans and specifications. It is not insurance, nor does it constitute a warranty or guarantee of any type. Regardless of construction observation, contractors, suppliers, and others are solely responsible for the quality of their work and for adhering to plans and specifications.

7.0 LIMITATIONS

This report has been prepared on behalf of, and for the exclusive use of, HDR Engineering, Inc. for specific application to the named project as described herein. If this report is provided to other parties, it should be provided in its entirety with all supplementary information. In addition, the client should make it clear that the information is provided for factual data only, and not as a warranty of subsurface conditions presented in this report.

Geotechnology has attempted to conduct the services reported herein in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions. The recommendations and conclusions contained in this report are professional opinions. The report is not a bidding document and should not be used for that purpose.

Our scope for this phase of the project did not include any environmental assessment or investigation for the presence or absence of wetlands or hazardous or toxic materials in the soil, surface water, groundwater, or air, on or below or around this site. Any statements in this report or on the boring logs regarding odors noted or unusual or suspicious items or conditions observed are strictly for the information of our client.

The analyses, conclusions, and recommendations contained in this report are based on the data obtained from the subsurface exploration. The field exploration methods used indicate subsurface

conditions only at the specific locations where samples were obtained, only at the time they were obtained, and only to the depths penetrated. Consequently, subsurface conditions may vary gradually, abruptly, and/or nonlinearly between sample locations and/or intervals.

The conclusions or recommendations presented in this report should not be used without Geotechnology's review and assessment if the nature, design, or location and/or depth of the alignment changed, if there is a substantial lapse in time between the submittal of this report and the start of work at the site, or if there is a substantial interruption or delay during work at the site. If changes are contemplated or delays occur, Geotechnology must be allowed to review them to assess their impact on the findings, conclusions, and/or design recommendations given in this report. Geotechnology will not be responsible for any claims, damages, or liability associated with any other party's interpretations of the subsurface data or with reuse of the subsurface data or engineering analyses in this report.

The recommendations included in this report have been based in part on assumptions about variations in site stratigraphy that may be evaluated further during construction. Geotechnology should be retained to perform construction observation and continue its geotechnical engineering service using observational methods. Geotechnology cannot assume liability for the adequacy of its recommendations when they are used in the field without Geotechnology being retained to observe construction.

A copy of "Important Information about This Geotechnical-Engineering Report" that is published by the Geotechnical Business Council (GBC) of the Geoprofessional Business Association (GBA) is included in Appendix A for your review. The publication discusses some other limitations, as well as ways to manage risk associated with subsurface conditions.

APPENDIX A – IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL-ENGINEERING REPORT

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you —* should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

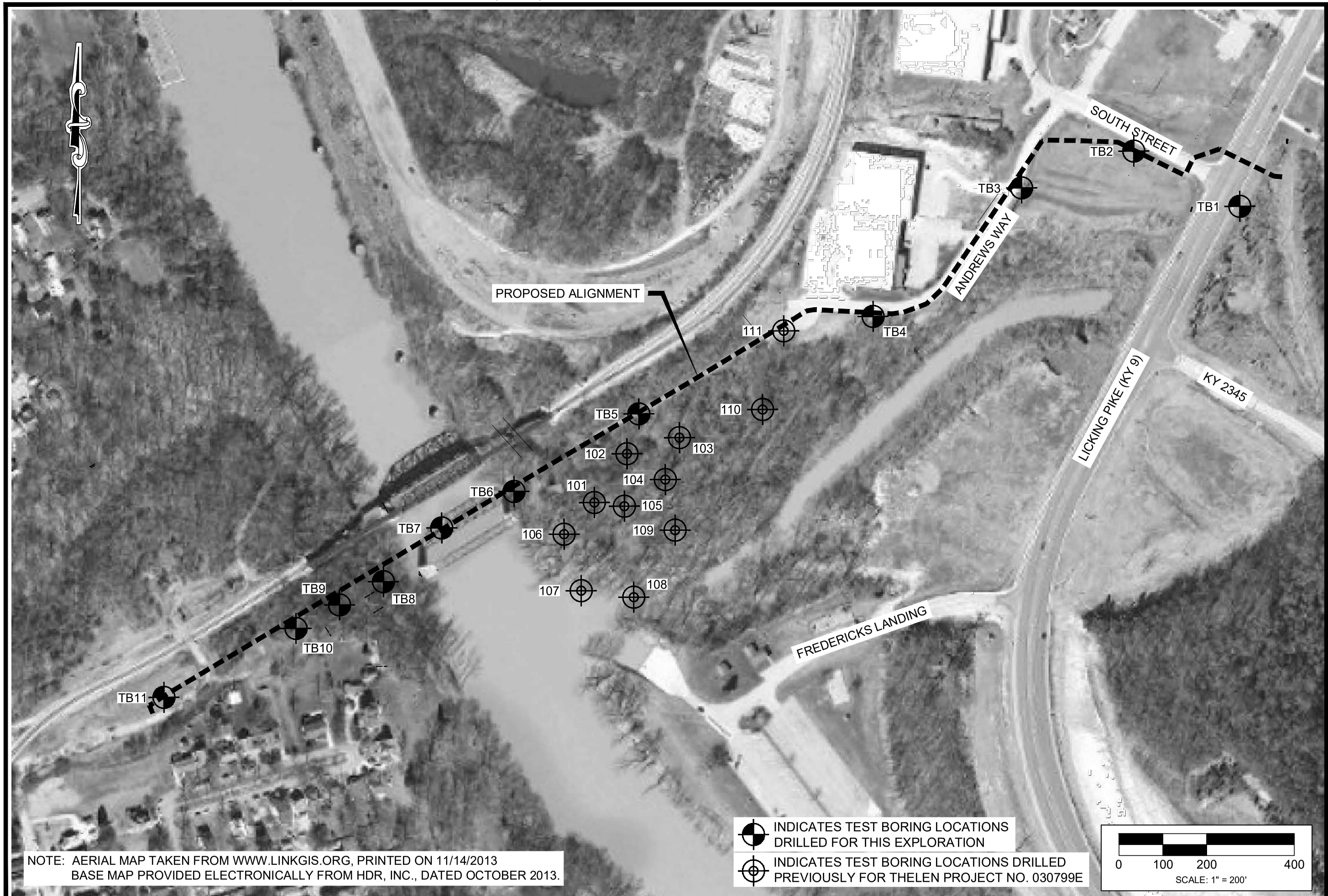
GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@geoprofessional.org www.geoprofessional.org

APPENDIX B – PLANS

Boring Plan, Sheet No. 1

Date Printed: 7/31/2020 10:45 AM Path: \\10.0.12.42\erl\Data\Projects\J025\J025791.01\Draw\J025791.01-Boring Plan.dwg



NOTE: AERIAL MAP TAKEN FROM WWW.LINKGIS.ORG, PRINTED ON 11/14/2013
BASE MAP PROVIDED ELECTRONICALLY FROM HDR, INC., DATED OCTOBER 2013.

GEOTECHNOLOGY INC
FROM THE GROUND UP

Project: Geotechnical Services
36" Licking River Crossing

Location: Wilder-Covington
Kentucky

Title: BORING PLAN

Client: HDR Engineering, Inc.

Date: 7/31/2020
Project No.: J025791.01
Sheet No.: 1

APPENDIX C – BORING INFORMATION

Boring Logs

Soil Classification Sheet

Rock Classification Sheet

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc. **BORING #:** 1

PROJECT: Geotechnical Services, 36" Licking River Crossing **PROJECT #:** 120976E

Wilder-Covington, Kentucky **PAGE #:** 1 of 1

LOCATION OF BORING: Station. 40+52, Offset 96' Right. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
514.7	Ground Surface	0.0	0						
514.6	TOPSOIL (1 inch)	0.1							
514.2	Mixed brown and gray moist very stiff FILL, silty clay, some shale with roots.	0.5		I	1A, 1B, 1C	DS	4-3-4	18	100
	Mixed gray, trace brown moist very stiff FILL, shale, trace silty clay with limestone fragments and roots.			I	2	DS	3-5-19	17	94
510.2		4.5	5						
	Mixed gray, trace brown moist very stiff FILL, shale (ML).			I	3	DS	7-4-6	16	89
				I	4	DS	2-2-3	4	22
505.2		9.5	10						
	Mixed brown and gray moist very stiff FILL, silty clay, little shale, trace topsoil with limestone floaters.			I	5	DS	36-25-11	5	28
502.7		12.0							
	Mixed gray, trace brown moist stiff FILL, shale with limestone fragments.			I	6	DS	5-3-4	14	78
500.2		14.5	15						
	Mixed dark brown, green and gray moist stiff FILL, shale, little topsoil with roots.			I	7A, 7B	DS	4-5-6	18	100
498.4		16.3							
497.7	Mixed brown, trace gray moist stiff FILL, silty clay, trace silt with limestone fragments.	17.0							
496.7	Mixed brown, trace gray moist medium stIff to stiff FILL, silty clay with shale fragments and roots.	18.0		I	8A, 8B	DS	3-4-5	18	100
495.2	Brown, trace gray moist very soft sandy SILT, trace silty clay layers, trace roots (partially layered) (alluvium).	19.5	20						
				I	9	DS	2-4-4	18	100
493.2	Brown moist stiff SILTY CLAY with silt seams (layered) (alluvium).	21.5							
	Bottom of test boring at 21.5 feet.		25						
			30						

Datum: Mean Sea Level | Hammer Weight: 140 lb. | Hole Diameter: 5 in. | Drill Rig: CME 45C

Surface Elevation: 514.7 ft. | Hammer Drop: 30 in. | Rock Core Diameter: -- | Foreman: A. Rogers

Date Started: 5/28/2013 | Pipe Size: 2 in. O.D. | Boring Method: HSA | Engineer: M. Casto

Date Completed: 5/28/2013

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted: None
At Completion: Dry, Caved @ 15.0 ft.
After: --
Backfilled: Immed.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc.
BORING #: 2
PROJECT: Geotechnical Services, 36" Licking River Crossing
PROJECT #: 120976E
Wilder-Covington, Kentucky
PAGE #: 1 of 1
LOCATION OF BORING: Station 37+18, Offset 3' Right. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
515.1	Ground Surface	0.0	0						
514.9	TOPSOIL (2 inches).	0.2							
	Mixed brown, trace gray moist stiff FILL, silty clay, trace gravel with shale fragments, roots and limestone fragments.			I	1A 1B	DS	3-10-12	11	61
512.1		3.0							
	Mixed gray, trace brown moist very stiff FILL, shale with limestone fragments.			I	2	DS	6-7-6	17	94
509.6		5.5	5						
	Mixed gray, little brown moist very stiff FILL, shale, trace silty clay with limestone floaters.			I	3	DS	3-4-6	18	100
				I	4	DS	6-6-7	4	22
504.8		10.3	10						
	Mixed dark brown and gray moist very stiff FILL, silty clay, some shale with limestone floaters.			I	5	DS	5-6-9	4	22
503.1		12.0							
	Bottom of test boring at 12.0 feet.		15						
			20						
			25						
			30						

Datum: Mean Sea Level
Surface Elevation: 515.1 ft.
Date Started: 5/28/2013
Date Completed: 5/28/2013
Hammer Weight: 140 lb.
Hammer Drop: 30 in.
Pipe Size: 2 in. O.D.
Hole Diameter: 5 in.
Rock Core Diameter: --
Boring Method: HSA
Drill Rig: CME 45C
Foreman: A. Rogers
Engineer: M. Casto

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted: None
At Completion: Dry, Caved @ 10.0 ft.
After: --
Backfilled: Immed.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc. **BORING #:** 3

PROJECT: Geotechnical Services, 36" Licking River Crossing **PROJECT #:** 120976E

Wilder-Covington, Kentucky **PAGE #:** 1 of 1

LOCATION OF BORING: Station 33+89, Offset 24.5' Right. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
512.1	Ground Surface	0.0	0						
	Mixed brown, trace gray moist very stiff FILL, silty clay, trace gravel with asphalt fragments, limestone fragments, shale fragments and limestone floaters.			I	1	DS	2-3-4	7	39
509.1		3.0							
	Mixed dark brown moist very stiff FILL, silty clay, trace sand and gravel, trace topsoil with shale and brick fragments (CL).			I	2	DS	8-8-9	18	100
506.6		5.5	5						
505.6	Mixed brown, trace gray moist stiff FILL, silty clay, some sand and gravel with shale fragments.	6.5		I	3A 3B	DS	5-4-4	18	100
504.1	Mixed dark brown and dark gray moist medium stiff FILL, silty clay, trace sand with wood fragments, brick fragments, roots, organics conglomerate fragments, and topsoil.	8.0							
	Mixed dark gray moist stiff FILL, silty clay with organics, trace roots, trace limestone fragments.			I	4	DS	5-4-15	18	100
	Railroad tie fragments from 9.5 to 10.1 feet (7 inches long).		10	I	5	DS	4-21-14	13	72
	Wood fragments from 10.5 to 11.6 feet (13 inches long).								
	Wood fragments from 13.0 to 13.3 feet (3 inches long).			I	6	DS	9-5-6	3	17
497.3	Mixed dark gray wet very soft FILL, silty clay with organics and wood fragments.	14.8	15						
495.6		16.5		I	7	DS	5-3-3	8	44
	Bottom of test boring at 16.5 feet.		20						
			25						
			30						

Datum: Mean Sea Level | Hammer Weight: 140 lb. | Hole Diameter: 5 in. | Drill Rig: CME 45C

Surface Elevation: 512.1 ft. | Hammer Drop: 30 in. | Rock Core Diameter: -- | Foreman: A. Rogers

Date Started: 5/28/2013 | Pipe Size: 2 in. O.D. | Boring Method: HSA | Engineer: M. Casto

Date Completed: 5/28/2013

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted 13.0 ft.
At Completion Dry, Caved @ 11.0 ft.
After --
Backfilled Immed.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc.
BORING #: 4
PROJECT: Geotechnical Services, 36" Licking River Crossing
PROJECT #: 120976E
Wilder-Covington, Kentucky
PAGE #: 1 of 1
LOCATION OF BORING: Station 29+22, Offset 9' Right. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
500.7	Ground Surface	0.0	0						
497.7	Mixed brown and gray moist stiff FILL, silty clay with shale and limestone fragments, trace roots and asphalt fragments.	3.0		I	1	DS	5-3-4	3	17
495.2	Mixed brown moist stiff FILL, silty clay with shale fragments (CL).	5.5	5	I	2	DS	2-2-4	12	67
492.7	Mixed brown moist stiff FILL, silty clay, trace topsoil.	8.0		I	3	DS	2-3-4	14	78
490.2	Mixed brown, trace gray moist stiff FILL, silty clay, trace roots and shale fragments.	10.5	10	I	4	DS	2-3-5	18	100
487.7	Mixed green and gray moist medium stiff to stiff FILL, silty clay with shale fragments, trace organics and slag.	13.0		I	5	DS	3-5-4	18	100
485.2	Mottled brown moist very stiff SILTY CLAY, trace iron oxide stains (terrace deposits).	15.5	15	I	6	DS	4-5-6	18	100
482.7	Mottled brown, trace gray moist very stiff SILTY CLAY, trace iron oxide stains and roots (terrace deposits)..	18.0		I	7	DS	5-7-9	18	100
480.3	Interbedded brown, trace olive brown moist extremely weak highly weathered SHALE and gray medium strong to very strong unweathered LIMESTONE (bedrock).	20.4	20	I	8	DS	7-10-13	18	100
479.2	Interbedded olive brown, trace brown moist very weak weathered SHALE and gray medium strong to very strong unweathered LIMESTONE (bedrock).	21.5		I	9A 9B	DS	8-15-21	18	100
	Bottom of test boring at 21.5 feet.		25						
			30						

Datum: Mean Sea Level
Hammer Weight: 140 lb.
Hole Diameter: 5 in.
Drill Rig: CME 45C
Surface Elevation: 500.7 ft.
Hammer Drop: 30 in.
Rock Core Diameter: --
Foreman: A. Rogers
Date Started: 5/28/2013
Pipe Size: 2 in. O.D.
Boring Method: HSA
Engineer: M. Casto
Date Completed: 5/28/2013

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted: None
At Completion: Dry, Caved @ 11.0 ft.
After: --
Backfilled: Immed.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc. **BORING #:** 5

PROJECT: Geotechnical Services, 36" Licking River Crossing **PROJECT #:** 120976E

Wilder-Covington, Kentucky **PAGE #:** 1 of 2

LOCATION OF BORING: Station 23+20, Offset 4' Right. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
493.4	Ground Surface	0.0	0						
491.4	Mixed brown moist very stiff FILL, silty clay, trace coarse gravel with limestone fragments, trace roots.	2.0		I	1	DS	11-8-5	10	56
490.7	TOPSOIL	2.7							
	Brown moist stiff SILTY CLAY, trace iron oxide stains (alluvium) (CL).			I	2A 2B	DS	4-6-7	18	100
486.4		7.0	5	I	3	DS	5-6-8	16	89
483.6	Brown, trace gray moist very stiff SILTY CLAY, trace roots (alluvium).	9.8		U	4	PT		24	100
481.4	Brown, trace light brown moist stiff SILTY CLAY, trace iron oxide stains (alluvium).	12.0	10	I	5	DS	5-5-7	18	100
476.4	Brown, trace light brown moist medium stiff SILTY CLAY, trace fine sand, trace iron oxide stains (alluvium).	17.0		I	6	DS	4-6-7	18	100
473.9	Brown, trace light brown, trace gray moist medium stiff to stiff SILTY CLAY, trace roots and iron oxide stains (alluvium).	19.5	15	I	7	DS	4-5-4	18	100
471.4	Brown moist medium stiff SILTY CLAY, trace fine sand (alluvium).	22.0		I	8	DS	4-5-6	18	100
466.4	Brown moist soft very SILTY CLAY with clayey sand layers, trace iron oxide stains (alluvium).	27.0	20	I	9	DS	3-4-5	18	100
465.7	Brown moist medium stiff SILTY CLAY, trace iron oxide stains (alluvium).	27.7		I	10	DS	3-4-4	18	100
463.6	Brown moist stiff SILTY CLAY, trace sand and iron oxide stains with clayey sand seams (alluvium).	29.8	25	I	11	DS	2-2-3	18	100
				U	12	PT		23	96
			30						

Datum: Mean Sea Level | Hammer Weight: 140 lb. | Hole Diameter: 5 in. | Drill Rig: CME 45C

Surface Elevation: 493.4 ft. | Hammer Drop: 30 in. | Rock Core Diameter: -- | Foreman: A. Rogers

Date Started: 5/28/2013 | Pipe Size: 2 in. O.D. | Boring Method: HSA | Engineer: M. Casto

Date Completed: 5/28/2013

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted 15.0 ft.
At Completion Dry
After --
Backfilled Immed.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc.
BORING #: 5
PROJECT: Geotechnical Services, 36" Licking River Crossing
PROJECT #: 120976E
Wilder-Covington, Kentucky
PAGE #: 2 of 2
LOCATION OF BORING: Station 23+20, Offset 4' Right. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
460.9	Brown moist soft very SILTY CLAY with clayey sand layers, trace iron oxide stains (alluvium).	32.5	30	I	13	DS	3-4-4	18	100
455.9	Olive brown, trace gray and trace brown moist very soft very SILTY CLAY with silty sand layers (alluvium) (CL-ML).	37.5	35	I	14	DS	1-2-2	18	100
450.9	Gray moist medium stiff SILTY CLAY with very soft clayey sand and silty sand layers (alluvium).	42.5	40	I	15	DS	2-1-2	18	100
445.9	Mottled brown, trace black moist dense clayey SAND and GRAVEL, trace cobbles (alluvium) (SM).	47.5	45	I	16	DS	6-27-21	12	67
441.4	Mottled brown, trace gray moist medium stiff SILTY CLAY, little clayey sand and gravel with shale fragments (alluvium).	52.0	50	I	17	DS	11-11-17	13	72
436.4	Interbedded gray moist very weak unweathered SHALE and gray medium strong to very strong unweathered LIMESTONE (bedrock). Limestone is 13 percent of this interval. (Point Pleasant Formation)	57.0	55	I	18	RC	0%	8	13
435.7	Interbedded gray moist very weak unweathered SHALE and gray medium strong to very strong unweathered LIMESTONE. (Point Pleasant Formation)	57.7	60	I	19	DS	27-50/2"	6	75
	Auger refusal at 52 feet. Split spoon refusal and bottom of test boring at 57.7 feet.								

Datum: Mean Sea Level
Hammer Weight: 140 lb.
Hole Diameter: 5 in.
Drill Rig: CME 45C
Surface Elevation: 493.4 ft.
Hammer Drop: 30 in.
Rock Core Diameter: --
Foreman: A. Rogers
Date Started: 5/28/2013
Pipe Size: 2 in. O.D.
Boring Method: HSA
Engineer: M. Casto
Date Completed: 5/28/2013

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted 15.0 ft.
At Completion Dry
After --
Backfilled Immed.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc. **BORING #:** 6

PROJECT: Geotechnical Services, 36" Licking River Crossing **PROJECT #:** 120976E

Wilder-Covington, Kentucky **PAGE #:** 1 of 2

LOCATION OF BORING: Station 19+84, Offset 10.5' Right. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
469.7	Ground Surface	0.0	0						
467.7	Dark brown, trace dark gray moist medium stiff SILTY CLAY, trace organics and roots (alluvium).	2.0		I	1	DS	2-2-3	11	61
	Medium brown moist stiff SILTY CLAY, trace hairlike roots (alluvium).			I	2	DS	2-3-3	13	72
			5	I	3	DS	2-2-3	10	56
462.7		7.0							
	Dark gray, trace brown moist medium stiff SILTY CLAY, trace organics (alluvium).			U	4	PT		19	79
459.9		9.8	10						
	Dark gray moist soft SILTY CLAY, trace organics (alluvium).			I	5	DS	1-2-2	18	100
				I	6	DS	1-1-2	18	100
			15	I	7	DS	1-2-2	18	100
452.7		17.0							
	Dark gray moist medium stiff SILTY CLAY, trace hairlike roots (alluvium).			I	8	DS	2-2-2	18	100
450.2		19.5							
	Dark brownish gray moist medium stiff SILTY CLAY, trace organics (alluvium).		20	I	9	DS	2-3-2	18	100
				I	10	DS	2-3-4	18	100
			25	I	11	DS	3-3-4	18	100
442.5		27.2							
441.4	Dark gray, trace brown moist stiff SILTY CLAY (alluvium).	28.3							
	Dark gray moist medium stiff SILTY CLAY, little organics (alluvium).			U	12	PT		21	88
439.7		30.0	30						

Datum: Mean Sea Level | Hammer Weight: 140 lb. | Hole Diameter: 8 in. | Drill Rig: CME 45C

Surface Elevation: 469.7 ft. | Hammer Drop: 30 in. | Rock Core Diameter: 1.875 in. | Foreman: V. Jones

Date Started: 5/28/2013 | Pipe Size: 2 in. O.D. | Boring Method: HSA-3.25 | Engineer: M. Casto

Date Completed: 5/28/2013

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted 30.0 FT.
At Completion 24 ft., Caved @ 33.0 ft.
After --
Backfilled Immed.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc. **BORING #:** 6

PROJECT: Geotechnical Services, 36" Licking River Crossing **PROJECT #:** 120976E

Wilder-Covington, Kentucky **PAGE #:** 2 of 2

LOCATION OF BORING: Station 19+84, Offset 10.5' Right. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
436.2	Gray moist medium stiff SILTY CLAY, little sand and gravel with limestone fragments and floaters (alluvium).	33.5	30	I	13	DS	16-10-14	12	67
434.2	Brown and gray moist medium stiff SILTY CLAY with limestone floaters and fragments (alluvium).	35.5	35	I	14	DS	50/3"		
429.2	Interbedded gray moist weak unweathered SHALE and gray medium strong to very strong fine-grained unweathered LIMESTONE (bedrock). Limestone is 27 percent of this interval and in beds ranging from 1/4 to 4-1/4 inches thick. (Point Pleasant Formation)	40.5	40	I	15	RC	23%	50	83
424.2	Interbedded gray moist weak unweathered SHALE and gray medium strong to very strong fine-grained unweathered LIMESTONE (bedrock). Limestone is 30 percent of this interval and in beds ranging from 2 to 6 inches thick. (Point Pleasant Formation)	45.5	45	I	16	RC	45%	60	100
419.2	Interbedded gray moist weak unweathered SHALE and gray medium strong to very strong fine-grained unweathered LIMESTONE (bedrock). Limestone is 28 percent of this interval and in beds ranging from 1/8 to 8 inches thick. (Point Pleasant Formation)	50.5	50	I	17	RC	88%	60	100
	Split spoon refusal at 35.3 feet and bottom of test boring at 50.5 feet.		55						
			60						

Datum: Mean Sea Level | Hammer Weight: 140 lb. | Hole Diameter: 8 in. | Drill Rig: CME 45C

Surface Elevation: 469.7 ft. | Hammer Drop: 30 in. | Rock Core Diameter: 1.875 in. | Foreman: V. Jones

Date Started: 5/28/2013 | Pipe Size: 2 in. O.D. | Boring Method: HSA-3.25 | Engineer: M. Casto

Date Completed: 5/28/2013

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted 30.0 FT.
At Completion 24 ft., Caved @ 33.0 ft.
After --
Backfilled Immed.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc.
BORING #: 7
PROJECT: Geotechnical Services, 36" Licking River Crossing
PROJECT #: 120976E
Wilder-Covington, Kentucky
PAGE #: 1 of 2
LOCATION OF BORING: Station 17+98, Offset 3.5' Left. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
458.8	Ground Surface	0.0	0						
	BARGE								
455.5		3.3							
	WATER		5						
			10						
			15						
438.3		20.5	20						
	COBBLES and BOULDERS								
436.5		22.3							
	Interbedded gray moist very weak unweathered SHALE and gray medium strong to very strong unweathered LIMESTONE (bedrock).								
434.8		24.0							
433.8	Interbedded gray moist very weak unweathered SHALE and gray medium strong to very strong fine-grained unweathered LIMESTONE (bedrock). Limestone is 69 percent of this interval and in beds ranging from 1-7/8 to 4-1/2 inches thick. (Point Pleasant Formation)	25.0	25	L I	1 2	DS RC	70/1" 44%	0 9	0 83
	Interbedded moist weak unweathered SHALE and gray medium strong to very strong fine-grained microcrystalline unweathered LIMESTONE (bedrock). Limestone is 25 percent of this interval and in beds ranging from 1/4 to 4-3/8 inches thick. (Point Pleasant Formation)			I	3	RC	30%	56	93
428.8		30.0	30						

Datum: Mean Sea Level
Hammer Weight: 140 lb.
Hole Diameter: 8 in.
Drill Rig: CME-45C TD-1
Surface Elevation: 458.8 ft.
Hammer Drop: 30 in.
Rock Core Diameter: 1.875 in.
Foreman: V. Jones
Date Started: 5/28/2013
Pipe Size: 2 in. O.D.
Boring Method: HSA-3.25
Engineer: M. Casto
Date Completed: 5/28/2013

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted 3.3 ft.
At Completion 3.3 ft.
After --
Backfilled Immed.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc.
BORING #: 7
PROJECT: Geotechnical Services, 36" Licking River Crossing
PROJECT #: 120976E
Wilder-Covington, Kentucky
PAGE #: 2 of 2
LOCATION OF BORING: Station 17+98, Offset 3.5' Left. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
			30						
	Interbedded gray moist weak unweathered SHALE and gray medium strong to very strong fine-grained unweathered LIMESTONE (bedrock). Limestone is 30 percent of this interval and in beds ranging from 1/4 to 6 inches thick. (Point Pleasant Formation)			I	4	RC	30%	60	100
423.8		35.0	35						
	Split spoon refusal at 24.1 feet and bottom of test boring at 35.0 feet.		40						
			45						
			50						
			55						
			60						

Datum: Mean Sea Level
Surface Elevation: 458.8 ft.
Date Started: 5/28/2013
Date Completed: 5/28/2013
Hammer Weight: 140 lb.
Hammer Drop: 30 in.
Pipe Size: 2 in. O.D.
Hole Diameter: 8 in.
Rock Core Diameter: 1.875 in.
Boring Method: HSA-3.25
Drill Rig: CME-45C TD-1
Foreman: V. Jones
Engineer: M. Casto

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted 3.3 ft.
At Completion 3.3 ft.
After --
Backfilled Immed.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc. **BORING #:** 8

PROJECT: Geotechnical Services, 36" Licking River Crossing **PROJECT #:** 120976E

Wilder-Covington, Kentucky **PAGE #:** 1 of 1

LOCATION OF BORING: Station 16+23, Offset 34' Right. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
475.8	Ground Surface	0.0	0						
473.8	TOPSOIL	2.0		I	1	DS	1-1-2	8	44
471.3	Mottled brown, trace gray moist stiff SILTY CLAY, trace shale fragments (colluvium).	4.5		I	2	DS	2-2-3	12	67
468.8	Olive brown, trace gray miost very stiff SILTY CLAY with bedding planes with limestone fragments (residual) (CL).	7.0	5	I	3	DS	2-4-6	12	67
466.3	Interbedded brown, trace gray moist extremely weak highly weathered SHALE and gray medium strong to very strong unweathered LIMESTONE (bedrock).	9.5		I	4	DS	8-50/4"	4	40
463.8	Interbedded olive brown, trace brown moist very weak weathered SHALE and gray medium strong to very strong unweathered LIMESTONE (bedrock).	12.0	10	I	5	DS	18-22-30	18	100
461.3	Interbedded olive brown, trace brown, trace gray moist very weak weathered SHALE and gray medium strong to very strong unweathered LIMESTONE (bedrock).	14.5		I	6	DS	11-11-14	15	83
458.3	Interbedded gray moist very weak unweathered SHALE and gray medium strong to very strong unweathered LIMESTONE (bedrock).	17.5	15	I	7	DS	17-34-50/2"	12	86
	Split spoon refusal at 16.1 feet and bottom of test boring at 17.5 feet.			L	8	DS	50/0"	0	
			20						
			25						
			30						

Datum: Mean Sea Level | Hammer Weight: 140 lb. | Hole Diameter: 7 in. | Drill Rig: CME-45C TD-1

Surface Elevation: 475.8 ft. | Hammer Drop: 30 in. | Rock Core Diameter: -- | Foreman: V. Jones

Date Started: 5/29/2013 | Pipe Size: 2 in. O.D. | Boring Method: HSA-3.25 | Engineer: M. Casto

Date Completed: 5/29/2013

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted: None
At Completion: Dry
After: Dry
Backfilled: 24 hrs.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc. **BORING #:** 9

PROJECT: Geotechnical Services, 36" Licking River Crossing **PROJECT #:** 120976E

Wilder-Covington, Kentucky **PAGE #:** 1 of 1

LOCATION OF BORING: Station 15+10, Offset 28' Right. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
497.1	Ground Surface	0.0	0						
495.1	Mixed brown and dark brown moist medium stiff to stiff FILL, silty clay, some topsoil.	2.0		I	1	DS	1-2-3	15	83
493.4	Mixed dark brown moist medium stiff FILL, silty clay, some topsoil, organics, trace grass.	3.7							
492.1	Brown, trace gray moist stiff to very stiff SILTY CLAY, trace iron oxide stains (terrace deposits).	5.0		U	2	PT		17	71
	Brown, trace gray moist very stiff SILTY CLAY (terrace deposits).		5	I	3	DS	3-5-7	15	83
487.6		9.5		I	4	DS	4-5-7	18	100
485.7	Brown, trace gray moist medium stiff SILTY CLAY, trace sand, trace clayey sand seams (terrace deposits).	11.4	10	U	5	PT		24	100
485.1	Brown, trace gray moist stiff SILTY CLAY, trace sand, trace clayey sand seams (terrace deposits).	12.0		I	6	DS	3-4-6	18	100
482.6	Brown, trace light brown moist very stiff SILTY CLAY (terrace deposits).	14.5							
480.1	Brown, trace gray moist very stiff SILTY CLAY, trace silt seams (terrace deposits).	17.0	15	I	7	DS	3-4-5	18	100
477.6	Olive brown, trace gray moist very stiff SILTY CLAY with bedding planes and limestone fragments (residual).	19.5		I	8	DS	4-6-12	12	67
475.1	Interbedded gray, trace brown moist very weak weathered SHALE and gray medium strong to very strong unweathered LIMESTONE (bedrock).	22.0	20	I	9	DS	24-20-50/6"	18	100
	Interbedded gray moist weak unweathered SHALE and gray medium strong to very strong unweathered LIMESTONE (bedrock).			I	10	DS	32-50/6"	12	100
471.5		25.6	25	I	11	DS	46-50/1"	6	86
	Split spoon refusal at 23.0 feet and bottom of test boring at 25.6 feet.		30						

Datum: Mean Sea Level | Hammer Weight: 140 lb. | Hole Diameter: 7 in. | Drill Rig: CME-45C TD-1

Surface Elevation: 497.1 ft. | Hammer Drop: 30 in. | Rock Core Diameter: -- | Foreman: V. Jones

Date Started: 5/29/2013 | Pipe Size: 2 in. O.D. | Boring Method: HSA-3.25 | Engineer: M. Casto

Date Completed: 5/29/2013

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted: None
At Completion: Dry
After: 13.1 ft.
Backfilled: 24 hrs.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc.
BORING #: 10
PROJECT: Geotechnical Services, 36" Licking River Crossing
PROJECT #: 120976E
Wilder-Covington, Kentucky
PAGE #: 1 of 3
LOCATION OF BORING: Station 13+97, Offset 23' Rightr. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
529.6	Ground Surface	0.0	0						
527.6	Mixed brown and dark brown moist stiff FILL, silty clay, little topsoil, trace brick fragments.	2.0		I	1	DS	2-5-4	10	56
525.1	Mixed brown and gray moist stiff FILL, silty clay, trace roots and silt seams.	4.5		I	2	DS	4-3-4	15	83
522.6	Brown, trace gray moist stiff SILTY CLAY with silt seams, trace layering (terrace deposits) (CL).	7.0	5	U	3	PT		23	96
520.1	Brown moist stiff SILTY CLAY with layering (terrace deposits).	9.5		I	4	DS	4-2-10	12	67
517.6	Brown, trace gray moist very stiff SILTY CLAY, trace silt seams with layering (terrace deposits).	12.0	10	I	5	DS	5-6-10	18	100
515.1	Brown, trace gray moist stiff SILTY CLAY, trace silt seams, trace hairlike roots and iron oxide stains with layering (terrace deposits).	14.5		I	6	DS	4-3-4	15	83
512.6	Brown moist stiff SILTY CLAY with silt seams and layering (terrace deposits).	17.0	15	I	7	DS	2-3-5	18	100
	Mottled brown, trace gray moist stiff SILTY CLAY with silt layers, trace iron oxide stains (terrace deposits).			I	8	DS	2-4-5	18	100
			20	I	9	DS	3-4-6	18	100
505.1		24.5		I	10	DS	3-3-4	18	100
	Chocolate brown to brownish gray moist stiff SILTY CLAY, some silt layers with layering (terrace deposits).		25	I	11	DS	3-4-5	18	100
501.6		28.0							
	Gray, trace chocolate brown moist stiff SILTY CLAY with layering (terrace deposits).		30						

Datum: Mean Sea Level
Hammer Weight: 140 lb.
Hole Diameter: 8 in.
Drill Rig: CME-45C TD-1
Surface Elevation: 529.6 ft.
Hammer Drop: 30 in.
Rock Core Diameter: 1.875 in.
Foreman: V. Jones
Date Started: 5/29/2013
Pipe Size: 2 in. O.D.
Boring Method: HSA-3.25
Engineer: M. Casto
Date Completed: 5/29/2013

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted 40. ft.
At Completion Dry, 20.0 ft. after Cave
After Dry
Backfilled 24 hrs.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc. **BORING #:** 10

PROJECT: Geotechnical Services, 36" Licking River Crossing **PROJECT #:** 120976E

Wilder-Covington, Kentucky **PAGE #:** 2 of 3

LOCATION OF BORING: Station 13+97, Offset 23' Righrt. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
			30						
496.6	Gray, trace chocolate brown moist stiff SILTY CLAY with layering (terrace deposits).	33.0		I	12	DS	3-2-3	15	83
	Gray moist medium stiff SILTY CLAY, trace iron oxide stains and silt seams with layering (terrace deposits).		35	I	13	DS	1-2-5	18	100
			40	I	14	DS	3-4-10		
486.6		43.0							
	Olive brown and gray moist very stiff SILTY CLAY, trace shale fragments (residual).		45	I	15	DS	7-10-14		
481.6		48.0							
	Interbedded gray moist very weak unweathered SHALE and gray medium strong to very strong unweathered LIMESTONE (bedrock).		50	I	16	DS	19-50/6"		
478.6		51.0							
	Interbedded gray moist very weak unweathered SHALE and gray medium strong to very strong fine-grained unweathered LIMESTONE (bedrock). Limestone is 7 percent of this interval and in beds ranging from 1/4 to 1-3/4 inches thick. (Kope Formation)			I	17	RC	8%	51	99
474.3		55.3	55						
	Interbedded gray moist very weak unweathered SHALE and gray medium strong to very strong fine-grained unweathered LIMESTONE (bedrock). Limestone is 9 percent of this interval and in beds ranging from 1/4 to 4 inches thick. (Kope Formation)			I	18	RC	45%	60	100
			60						

Datum: Mean Sea Level | Hammer Weight: 140 lb. | Hole Diameter: 8 in. | Drill Rig: CME-45C TD-1

Surface Elevation: 529.6 ft. | Hammer Drop: 30 in. | Rock Core Diameter: 1.875 in. | Foreman: V. Jones

Date Started: 5/29/2013 | Pipe Size: 2 in. O.D. | Boring Method: HSA-3.25 | Engineer: M. Casto

Date Completed: 5/29/2013

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted 40. ft.
At Completion Dry, 20.0 ft. after Cave
After Dry
Backfilled 24 hrs.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc.
BORING #: 10
PROJECT: Geotechnical Services, 36" Licking River Crossing
PROJECT #: 120976E
Wilder-Covington, Kentucky
PAGE #: 3 of 3
LOCATION OF BORING: Station 13+97, Offset 23' Rightr. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
469.3	Interbedded gray moist very weak unweathered SHALE and gray medium strong to very strong fine-grained unweathered LIMESTONE (bedrock). Limestone is 9 percent of this interval and in beds ranging from 1/4 to 4 inches thick. (Kope Formation)	60.3	60	I	19	RC	53%	60	100
464.3	Interbedded gray moist weak unweathered SHALE and gray medium strong to very strong fine-grained unweathered LIMESTONE (bedrock). Limestone is 8 percent of this interval and in one, 4-7/8-inch thick bed. (Kope Formation)	65.3	65						
	Split spoon refusal at 51.1 feet and bottom of test boring at 65.3 feet.		70						
			75						
			80						
			85						
			90						

Datum: Mean Sea Level
Surface Elevation: 529.6 ft.
Date Started: 5/29/2013
Date Completed: 5/29/2013
Hammer Weight: 140 lb.
Hammer Drop: 30 in.
Pipe Size: 2 in. O.D.
Hole Diameter: 8 in.
Rock Core Diameter: 1.875 in.
Boring Method: HSA-3.25
Drill Rig: CME-45C TD-1
Foreman: V. Jones
Engineer: M. Casto

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted 40. ft.
At Completion Dry, 20.0 ft. after Cave
After Dry
Backfilled 24 hrs.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc.
BORING #: 11
PROJECT: Geotechnical Services, 36" Licking River Crossing
PROJECT #: 120976E
Wilder-Covington, Kentucky
PAGE #: 1 of 2
LOCATION OF BORING: Station 10+57, Offset 2' Right. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
523.9	Ground Surface	0.0	0						
521.9	Mixed brown and red moist medium stiff FILL, silty clay, trace topsoil and roots with brick fragments.	2.0		I	1	DS	4-8-5	6	33
519.4	Brown, trace gray moist stiff SILTY CLAY, trace iron oxide stains with layering (terrace deposits).	4.5		I	2	DS	5-5-6	6	33
516.9	Mottled brown, trace gray moist medium stiff SILTY CLAY, trace iron oxide stains with silt seams (terrace deposits).	7.0	5	I	3	DS	4-2-3	15	83
514.4	Mottled brown moist medium stiff to stiff SILTY CLAY with shale fragments and silt layers (terrace deposits).	9.5		I	4	DS	4-4-4	18	100
511.9	Mottled brown, trace gray moist stiff SILTY CLAY, trace layering with clayey silt seams (terrace deposits).	12.0	10	I	5	DS	4-4-4	18	100
509.4	Brown moist stiff SILTY CLAY with silt seams and layering (terrace deposits).	14.5		I	6	DS	2-2-4	18	100
506.9	Mottled brown, trace gray moist stiff SILTY CLAY, trace iron oxide stains with limestone floaters, trace bedding planes (residual)..	17.0	15	I	7	DS	10-8-7	6	33
	Olive brown moist very stiff SILTY CLAY with limestone fragments, trace bedding planes (residual).			I	8	DS	10-12-13	18	100
501.9		22.0	20	I	9	DS	5-9-12	18	100
	Interbedded olive brown and gray moist very weak weathered SHALE and gray medium strong to very strong unweathered LIMESTONE (bedrock).			I	10	DS	8-10-24	18	100
			25						

Datum: Mean Sea Level
Hammer Weight: 140 lb.
Hole Diameter: 7 in.
Drill Rig: CME-45C TD-1
Surface Elevation: 523.9 ft.
Hammer Drop: 30 in.
Rock Core Diameter: --
Foreman: V. Jones
Date Started: 5/29/2013
Pipe Size: 2 in. O.D.
Boring Method: HSA-3.25
Engineer: M. Casto
Date Completed: 5/29/2013

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted: Trace @ 12.5 ft., 26.5 ft.
At Completion: 23.3 ft.
After: 5.9 ft.
Backfilled: 24 hrs.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

LOG OF TEST BORING

CLIENT: HDR Engineering, Inc.
BORING #: 11
PROJECT: Geotechnical Services, 36" Licking River Crossing
PROJECT #: 120976E
Wilder-Covington, Kentucky
PAGE #: 2 of 2
LOCATION OF BORING: Station 10+57, Offset 2' Right. As shown on Boring Plan, Sheet No. 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
			25						
495.9	Interbedded olive brown and gray moist very weak weathered SHALE and gray medium strong to very strong unweathered LIMESTONE (bedrock).	28.0		I	11	DS	22-50/6"	12	100
493.5	Interbedded gray moist very weak unweathered SHALE and gray medium strong to very strong unweathered LIMESTONE (bedrock).	30.4	30	I	12	DS	50/5"	5	100
	Split spoon refusal and bottom of test boring at 30.4 feet.		35						
			40						
			45						
			50						

Datum: Mean Sea Level
Hammer Weight: 140 lb.
Hole Diameter: 7 in.
Drill Rig: CME-45C TD-1
Surface Elevation: 523.9 ft.
Hammer Drop: 30 in.
Rock Core Diameter: --
Foreman: V. Jones
Date Started: 5/29/2013
Pipe Size: 2 in. O.D.
Boring Method: HSA-3.25
Engineer: M. Casto
Date Completed: 5/29/2013

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
SS = Split-Spoon Sample
ST = Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted: Trace @ 12.5 ft., 26.5 ft.
At Completion: 23.3 ft.
After: 5.9 ft.
Backfilled: 24 hrs.

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GEOTECHNOLOGY INC
FROM THE GROUND UP

SOIL CLASSIFICATION SHEET

NON COHESIVE SOILS
(Silt, Sand, Gravel and Combinations)

Density

Very Loose	- 4 blows/ft. or less
Loose	- 5 to 10 blows/ft.
Medium Dense	- 11 to 30 blows/ft.
Dense	- 31 to 50 blows/ft.
Very Dense	- 51 blows/ft. or more

Relative Properties

Descriptive Term	Percent
Trace	1 – 10
Little	11 – 20
Some	21 – 35
And	36 – 50

Particle Size Identification

Boulders	- 8 inch diameter or more	
Cobbles	- 3 to 8 inch diameter	
Gravel	- Coarse	- 3/4 to 3 inches
	- Fine	- 3/16 to 3/4 inches
Sand	- Coarse	- 2mm to 5mm (dia. of pencil lead)
	- Medium	- 0.45mm to 2mm (dia. of broom straw)
	- Fine	- 0.075mm to 0.45mm (dia. of human hair)
Silt		- 0.005mm to 0.075mm (Cannot see particles)

COHESIVE SOILS
(Clay, Silt and Combinations)

Consistency	Field Identification	Unconfined Compressive Strength (tons/sq. ft.)
Very Soft	Easily penetrated several inches by fist	Less than 0.25
Soft	Easily penetrated several inches by thumb	0.25 – 0.5
Medium Stiff	Can be penetrated several inches by thumb with moderate effort	0.5 – 1.0
Stiff	Readily indented by thumb but penetrated only with great effort	1.0 – 2.0
Very Stiff	Readily indented by thumbnail	2.0 – 4.0
Hard	Indented with difficulty by thumbnail	Over 4.0

Classification on logs are made by visual inspection.

Standard Penetration Test – Driving a 2.0" O.D., 1 3/8" I.D., sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30 inches. It is customary to drive the spoon 6 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the tests are recorded for each 6 inches of penetration on the drill log (Example – 6/8/9). The standard penetration test results can be obtained by adding the last two figures (i.e. 8+9=17 blows/ft.). Refusal is defined as greater than 50 blows for 6 inches or less penetration.

Strata Changes – In the column "Soil Descriptions" on the drill log, the horizontal lines represent strata changes. A solid line (————) represents an actually observed change; a dashed line (— — — —) represents an estimated change.

Groundwater observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc., may cause changes in the water levels indicated on the logs.

GEOTECHNOLOGY INC
FROM THE GROUND UP

ROCK CLASSIFICATION SHEET

ROCK WEATHERING

Descriptions	Field Identification
Unweathered	No visible sign of rock material weathering, perhaps slight discoloration on major discontinuity surfaces.
Weathered	Discoloration indicates weathering of rock material and discontinuity surfaces. All the rock material may be discolored by weathering and may be somewhat weaker externally than it its fresh condition.
Highly Weathered	Less than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones.
Residual Soil	All rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact with bedding planes visible, and the soil has not been significantly transported.

ROCK STRENGTH

Descriptions	Field Identification	Uniaxial Compressive Strength (psi)
Extremely Weak	Indented by thumbnail	40-150
Very Weak	Crumbles under firm blows with point of geological hammer, can be peeled by a pocket knife.	150-700
Weak	Can be peeled by a pocket knife with difficulty, shallow indentations made by firm blow with point of geological hammer.	700-4,000
Medium Strong	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with a single blow of a geological hammer.	4,000-7,000
Strong	Specimen requires more than one blow of a geological hammer to fracture.	7,000-15,000
Very Strong	Specimen requires many blows with a geological hammer to fracture.	15,000-36,000
Extremely Strong	Specimen can only be chipped with geological hammer.	>36,000

BEDDING

Descriptive Term	Bed Thickness
Massive	> 4 ft.
Thick	2 to 4 ft.
Medium	2 in. to 2 ft.
Thin	< 2 in.

APPENDIX D – ARCHIVAL BORINGS

Archival Boring Logs, Thelen Associates, Inc. Project No. 030799E

As shown on Boring Plan, Sheet No. 1
Station 21+28, Offset 126' Right

THELEN ASSOCIATES, INC.
Geotechnical • Testing Engineers
1398 Cox Avenue / Erlanger, Kentucky 41018-1002 / 859-746-9400 / Fax 859-746-9408
2140 Waycross Road / Cincinnati, Ohio 45240-2719 / 513-825-4350 / Fax 513-825-4756
www.thelenassoc.com

LOG OF TEST BORING

CLIENT: University of Cincinnati — BORING # 101 (1 of 2)
PROJECT: Geotechnical Exploration, New Varsity Boathouse, Wilder, Kentucky — JOB # 030799E
LOCATION OF BORING: As shown on Boring Plan, Drawing 030799E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. Inches
488.4	SURFACE	0.0						
486.4	Brown with dark brown moist medium stiff to stiff SILTY CLAY with roots (topsoil).	2.0		I	2/3/3	1	DS	18
	Brown to dark brown moist stiff SILTY CLAY.		5	I	4/5/6	2	DS	18
				I	4/7/8	3	DS	18
478.9		9.5		I	5/6/9	4	DS	1
476.4	Brown moist medium stiff SILTY CLAY.	12.0	10	I	4/7/8	5	DS	18
473.9	Brown moist low-end stiff SILTY CLAY with trace fine sand.	14.5		I	3/6/7	6	DS	18
471.4	Brown moist soft to medium stiff SILTY CLAY with trace fine sand.	17.0	15	I	2/3/3	7	DS	18
468.9	Brown very moist soft sandy CLAY with silty clay layers.	19.5		I	2/1/1	8	DS	18
	Brown very moist medium stiff SILTY CLAY with fine sand lenses.		20	I	2/1/1	9	DS	18
			25	I	4/4/5	10	DS	18
460.4		28.0						

Datum MSL — Hammer Wt. 140 lbs. — Hole Diameter 7 in. — Foreman SW
Surf. Elev. 488.4 ft. — Hammer Drop 30 in. — Rock Core Dia. ____ in. — Engineer JSN
Date Started 8/1/03 — Pipe Size O.D. 2 in. — Boring Method 3 1/4 HSA — Date Completed 8/1/03

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 18.0 ft.
AT COMPLETION 21.0 ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA– HOLLOW STEM AUGERS
CFA– CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

As shown on Boring Plan, Sheet No. 1

Station 21+28, Offset 126' Right

THELEN ASSOCIATES, INC.
Geotechnical • Testing Engineers
☑ 1398 Cox Avenue / Erlanger, Kentucky 41018-1002 / 859-746-9400 / Fax 859-746-9408
○ 2140 Waycross Road / Cincinnati, Ohio 45240-2719 / 513-825-4350 / Fax 513-825-4756
www.thelenassoc.com

LOG OF TEST BORING

CLIENT: University of Cincinnati — BORING # 101 (2 of 2)

PROJECT: Geotechnical Exploration, New Varsity Boathouse, Wilder, Kentucky — JOB # 030799E

PROJECT LOCATION: As shown on Boring Plan, Drawing 030799E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. Inches
	CONT. FROM PG. 1		30					
454.9	Brownish gray and gray very moist soft SILTY CLAY.	33.5	35	I	1/2/4	11	DS	18
449.9	Gray very moist soft varved SILTY CLAY with organic odors.	38.5	40	I	2/2/4	12	DS	18
445.4	Gray very moist soft to medium stiff SILTY CLAY with organic odors and some fine sand.	43.0	45	I	2/2/3	13	DS	18
442.4	Gray very moist medium stiff layered SILTY CLAY with organic odors and some fine sand.	46.0		D	5/7/14	14A 14B	DS	18
437.9	Gray very moist to wet soft sandy CLAY with shale and limestone fragments and organic odors.	50.5	50	I	45/9/7	15A 15B	DS	12
432.9	Gray very moist to wet soft layered SILTY CLAY with a little fine sand and organic odors.	55.5	55	D/I	7/100/6"	16	DS	10
429.9	Gray wet soft CLAY with coarse gravel.	58.5						
427.9	Gray moist soft SHALE and thinly bedded LIMESTONE (bedrock).	60.5	60	I	110/6"	17	DS	3
	Split spoon refusal and bottom of test boring at 60.5 feet.		65 70 75 80 85					

Datum MSL — Hammer Wt. 140 lbs. — Hole Diameter 7 in. — Foreman SW

Surf. Elev. 488.4 ft. — Hammer Drop 30 in. — Rock Core Dia. ____ in. — Engineer JSN

Date Started 8/1/03 — Pipe Size 2 O.D. in. — Boring Method 3 1/4 HSA — Date Completed 8/1/03

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 18.0 ft.
AT COMPLETION 21.0 ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA – HOLLOW STEM AUGERS
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

As shown on Boring Plan, Sheet No. 1
Station 22+51, Offset 69' Right

THELEN ASSOCIATES, INC.
Geotechnical • Testing Engineers
1398 Cox Avenue / Erlanger, Kentucky 41018-1002 / 859-746-9400 / Fax 859-746-9408
2140 Waycross Road / Cincinnati, Ohio 45240-2719 / 513-825-4350 / Fax 513-825-4756
www.thelenassoc.com

LOG OF TEST BORING

CLIENT: University of Cincinnati BORING # 102
PROJECT: Geotechnical Exploration, New Varsity Boathouse, Wilder, Kentucky JOB # 030799E
LOCATION OF BORING: As shown on Boring Plan, Drawing 030799E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. inches
488.5	SURFACE	0.5						
488.0	Brown to dark brown moist medium stiff to stiff SILTY CLAY with roots (topsoil).	2.0		I	2/3/5	1	DS	18
486.5	Medium brown medium stiff SILTY CLAY with trace roots.	4.5		I	5/6/8	2	DS	18
484.0	Medium brown moist stiff to very stiff SILTY CLAY, trace roots and organics.		5	I	6/6/9	3	DS	18
479.5	Brown moist stiff to very stiff SILTY CLAY.	9.0		I	4/7/8	4	DS	18
476.5	Brown, trace gray moist stiff SILTY CLAY.	12.0	10	I	4/6/8	5	DS	18
474.5	Brown, trace gray moist medium stiff stiff SILTY CLAY (CL).	14.5		I	4/5/7	6	DS	18
469.0	Brown, trace gray moist medium stiff SILTY CLAY with trace fine sand.	19.5	15	I	3/3/4	7	DS	18
				U		8	PT	24/24
	Bottom of test boring at 19.5 feet.		20					
			25					

Datum MSL Hammer Wt. 140 lbs. Hole Diameter 5 in. Foreman SW
Surf. Elev. 488.5 ft. Hammer Drop 30 in. Rock Core Dia. in. Engineer JSN
Date Started 8/6/03 Pipe Size O.D. 2 in. Boring Method 2 1/4 HSA Date Completed 8/6/03

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 15.0 ft.
AT COMPLETION 16.0 ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA – HOLLOW STEM AUGERS
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

As shown on Boring Plan, Sheet No. 1
Station 23+73, Offset 98' Right

THELEN ASSOCIATES, INC.
Geotechnical • Testing Engineers
1398 Cox Avenue / Erlanger, Kentucky 41018-1002 / 859-746-9400 / Fax 859-746-9408
2140 Waycross Road / Cincinnati, Ohio 45240-2719 / 513-825-4350 / Fax 513-825-4756
www.thelenassoc.com

LOG OF TEST BORING

CLIENT: University of Cincinnati BORING # 103 (1of2)
PROJECT: Geotechnical Exploration, New Varsity Boathouse, Wilder, Kentucky JOB # 030799E
LOCATION OF BORING: As shown on Boring Plan, Drawing 030799E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. Inches
485.4	SURFACE	0.0						
883.4	Dark brown moist medium stiff to stiff SILTY CLAY with roots (topsoil).	2.0		I	2/5/7	1	DS	10
	Brown moist very stiff SILTY CLAY.		5	I	9/9/12	2	DS	18
				I	6/12/14	3	DS	18
475.9		9.5		I	6/7/10	4	DS	18
473.4	Brown to gray moist stiff to very stiff SILTY CLAY.	12.0	10	I	4/7/12	5	DS	18
	Brown moist stiff SILTY CLAY.			I	4/6/8	6	DS	18
			15	I	4/5/7	7	DS	18
				I	3/6/9	8	DS	18
			20	L	3/6/8	9	DS	0
462.4		23.0						
	Gray moist soft SILTY CLAY.		25	I	3/6/7	10	DS	18
455.9		29.5						

Datum MSL Hammer Wt. 140 lbs. Hole Diameter 7 in. Foreman SW
Surf. Elev. 485.4 ft. Hammer Drop 30 in. Rock Core Dia. in. Engineer JSN
Date Started 8/5/03 Pipe Size O.D. 2 in. Boring Method 3 1/4 HSA Date Completed 8/5/03

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 33.0 ft.
AT COMPLETION 15.0 ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA– HOLLOW STEM AUGERS
CFA– CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

As shown on Boring Plan, Sheet No. 1

Station 23+73, Offset 98' Right

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LOG OF TEST BORING

CLIENT: University of Cincinnati BORING # 103 (2of2)

PROJECT: Geotechnical Exploration, New Varsity Boathouse, Wilder, Kentucky JOB # 030799E

PROJECT LOCATION: As shown on Boring Plan, Drawing 030799E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. Inches
455.4	CONT. FROM PG. 1		30					
	Gray moist medium stiff SILTY CLAY with brown soft silty clay layers and calcium concretions.	33.0		I	6/9/8	11	DS	15
452.4			35	D	2/3/3	12	DS	18
	Brown wet very loose silty fine to medium SAND and GRAVEL.	38.0						
447.4			40	D	18/26/50	13	DS	18
	Brown with trace gray wet very dense fine to coarse GRAVEL and fine to coarse SAND with some silty clay.	44.0						
441.4			45	I	80/6"	14	DS	6
	Gray moist stiff to very stiff SILTY CLAY with shale fragments.	49.0						
436.4		51.0	50	I	8/80/6"	15	DS	10
	Gray moist soft CLAY with limestone floaters.	53.5		I	85/6"	16	DS	5
434.4			55					
	Gray moist soft SHALE and thinly bedded LIMESTONE (bedrock).		60					
432.4			65					
	Split spoon refusal and bottom of test boring at 53.5 feet.		70					
			75					
			80					
			85					

Datum MSL Hammer Wt. 140 lbs. Hole Diameter 7 in. Foreman SW

Surf. Elev. 485.4 ft. Hammer Drop 30 in. Rock Core Dia. in. Engineer JSN

Date Started 8/4/03 Pipe Size 2 O.D. in. Boring Method 3 1/4 HSA Date Completed 8/5/03

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 33.0 ft.
AT COMPLETION 15.0 ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA – HOLLOW STEM AUGERS
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

As shown on Boring Plan, Sheet No. 1
Station 22+97, Offset 164' Right

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LOG OF TEST BORING

CLIENT: University of Cincinnati BORING # 104

PROJECT: Geotechnical Exploration, New Varsity Boathouse, Wilder, Kentucky JOB # 030799E

LOCATION OF BORING: As shown on Boring Plan, Drawing 030799E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. inches
477.0	SURFACE	0.0						
475.0	Brown moist stiff SILTY CLAY.	2.0		I	2/2/4	1	DS	18
472.5	Brown moist medium stiff to stiff SILTY CLAY.	4.5		I	2/4/6	2	DS	18
470.0	Brown moist medium stiff SILTY CLAY.	7.0	5	I	3/3/5	3	DS	18
468.0	Brown moist stiff SILTY CLAY.	9.0		I	4/6/8	4	DS	18
	Bottom of test boring at 9.0 feet.		10 15 20 25					

Datum MSL Hammer Wt. 140 lbs. Hole Diameter 5 in. Foreman SW

Surf. Elev. 477.0 ft. Hammer Drop 30 in. Rock Core Dia. in. Engineer JSN

Date Started 8/6/03 Pipe Size O.D. 2 in. Boring Method CFA Date Completed 8/6/03

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED Dry ft.
AT COMPLETION Dry ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA– HOLLOW STEM AUGERS
CFA– CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

As shown on Boring Plan, Sheet No. 1
Station 21+83, Offset 169' Right

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LOG OF TEST BORING

CLIENT: University of Cincinnati BORING # 105

PROJECT: Geotechnical Exploration, New Varsity Boathouse, Wilder, Kentucky JOB # 030799E

LOCATION OF BORING: As shown on Boring Plan, Drawing 030799E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. inches
477.8	SURFACE	0.0						
475.8	Brown to grayish brown moist medium stiff to stiff SILTY CLAY.	2.0		I	3/5/7	1	DS	18
473.3	Brown moist medium stiff to stiff SILTY CLAY with trace roots.	4.5		I	6/6/8	2	DS	18
	Brown, trace gray moist medium stiff SILTY CLAY with trace roots.		5	I	4/6/8	3	DS	18
468.8		9.0		I	4/5/7	4	DS	18
	Bottom of test boring at 9.0 feet.		10					
			15					
			20					
			25					

Datum MSL Hammer Wt. 140 lbs. Hole Diameter 5 in. Foreman SW

Surf. Elev. 477.8 ft. Hammer Drop 30 in. Rock Core Dia. in. Engineer JSN

Date Started 8/6/03 Pipe Size O.D. 2 in. Boring Method CFA Date Completed 8/6/03

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED Dry ft.
AT COMPLETION Dry ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA – HOLLOW STEM AUGERS
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

As shown on Boring Plan, Sheet No. 1
Station 20+32, Offset 153' Right

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LOG OF TEST BORING

CLIENT: University of Cincinnati BORING # 106 (1of2)

PROJECT: Geotechnical Exploration, New Varsity Boathouse, Wilder, Kentucky JOB # 030799E

LOCATION OF BORING: As shown on Boring Plan, Drawing 030799E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. inches
477.9	SURFACE	0.0						
475.9	Brownish gray moist medium stiff SILTY CLAY with trace fine sand.	2.0		I	1/2/4	1	DS	10
473.4	Brown moist medium stiff to stiff SILTY CLAY with trace roots.	4.5	5	I	3/3/5	2	DS	18
470.9	Brown moist stiff SILTY CLAY with trace organics.	7.0		I	3/4/6	3	DS	18
468.4	Brown moist medium stiff SILTY CLAY.	9.5		I	2/2/3	4	DS	18
465.4	Brown very moist soft to medium stiff very SILTY CLAY.	12.5	10	I	1/1/2	5	DS	18
458.4	Gray very moist soft to medium stiff SILTY CLAY with organic odors.	19.5	15	I	1/1/2	6A 6B	DS	18
				I	2/2/2	7	DS	18
				I	2/3/3	8	DS	18
449.9	Gray moist medium stiff SILTY CLAY with organic odors and sand lenses.	28.0	20	U		9	PT	24/24
				I	2/2/4	10	DS	18
			25	I	2/3/5	11	DS	18
	Brown with some gray moist stiff SILTY CLAY with a little fine gravel.							

Datum MSL Hammer Wt. 140 lbs. Hole Diameter 7 in. Foreman SW

Surf. Elev. 477.9 ft. Hammer Drop 30 in. Rock Core Dia. in. Engineer JSN

Date Started 8/5/03 Pipe Size O.D. 2 in. Boring Method 3 1/4 HSA Date Completed 8/5/03

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 10.0 ft.
AT COMPLETION 10.0 ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA– HOLLOW STEM AUGERS
CFA– CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

As shown on Boring Plan, Sheet No. 1
Station 20+32, Offset 153' Right

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LOG OF TEST BORING

CLIENT: University of Cincinnati BORING # 106 (2of2)

PROJECT: Geotechnical Exploration, New Varsity Boathouse, Wilder, Kentucky JOB # 030799E

PROJECT LOCATION: As shown on Boring Plan, Drawing 030799E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. Inches
447.9	CONT. FROM PG. 1		30					
445.4	Brown with some gray moist stiff SILTY CLAY with a little fine gravel.	32.5	35	I	3/4/12	12	DS	18
438.9	Gray moist very soft weathered SHALE and thinly bedded LIMESTONE (bedrock).	39.0	40	I	5/12/41	13	DS	8
437.4	Gray moist soft SHALE and thinly bedded LIMESTONE (bedrock).	40.5	45	I	75/6"	14	DS	6
	Split spoon refusal and bottom of test boring at 40.5 feet.		50					
			55					
			60					
			65					
			70					
			75					
			80					
			85					

Datum MSL Hammer Wt. 140 lbs. Hole Diameter 7 in. Foreman GB

Surf. Elev. 477.9 ft. Hammer Drop 30 in. Rock Core Dia. in. Engineer JSN

Date Started 8/5/03 Pipe Size 2 O.D. in. Boring Method 3 1/4 HSA Date Completed 8/5/03

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED -- ft.
AT COMPLETION -- ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA– HOLLOW STEM AUGERS
CFA– CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

As shown on Boring Plan, Sheet No. 1
Station 20+00, Offset 283' Right

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LOG OF TEST BORING

CLIENT: University of Cincinnati BORING # 107
PROJECT: Geotechnical Exploration, New Varsity Boathouse, Wilder, Kentucky JOB # 030799E
LOCATION OF BORING: As shown on Boring Plan, Drawing 030799E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. Inches
469.0	SURFACE	0.0						
467.0	Grayish brown moist medium stiff to stiff SILTY CLAY.	2.0		I	1/1/2	1	DS	9
462.0	Brown moist stiff SILTY CLAY with trace roots.	7.0	5	I	2/2/4	2	DS	9
459.5	Brown moist medium stiff to stiff SILTY CLAY.	9.5		I	3/4/6	3	DS	12
457.0	Brown very moist soft to medium stiff SILTY CLAY.	12.0	10	I	2/3/4	4	DS	9
454.5	Bluish gray and gray very moist medium stiff SILTY CLAY with organic odors (CL).	14.5		I	3/2/3	5	DS	10
452.0	Bluish gray and gray very moist stiff to medium stiff very SILTY CLAY with organic odors.	17.0	15	I	2/1/2	6	DS	11
447.5	Gray very moist medium stiff CLAY and SILT with organic odors and black organic matter.	21.5		I	1/3/4	7	DS	10
				I	2/2/3	8	DS	14
			20	I	2/3/5	9	DS	14
	Bottom of test boring at 21.5 feet.		25					

Datum MSL Hammer Wt. 140 lbs. Hole Diameter 6 in. Foreman GB
Surf. Elev. 469.0 ft. Hammer Drop 30 in. Rock Core Dia. in. Engineer JSN
Date Started 8/5/03 Pipe Size O.D. 2 in. Boring Method 2 1/4 HSA Date Completed 8/5/03

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED None ft.
AT COMPLETION Dry ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA – HOLLOW STEM AUGERS
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

As shown on Boring Plan, Sheet No. 1
Station 20+94, Offset 358' Right

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LOG OF TEST BORING

CLIENT: University of Cincinnati BORING # 108
PROJECT: Geotechnical Exploration, New Varsity Boathouse, Wilder, Kentucky JOB # 030799E
LOCATION OF BORING: As shown on Boring Plan, Drawing 030799E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. inches
464.5	SURFACE	0.0						
	Brown moist stiff SILTY CLAY with organic specks and slight organic odors.			I	1/1/2	1	DS	7
				I	3/3/5	2	DS	7
462.0		4.5	5					
	Brown very moist medium stiff SILTY CLAY with slight organic odors.			U		3	PT	12/24
				I	3/4/4	4	DS	8
455.0		9.5	10					
	Brown and gray very moist soft to medium stiff SILTY CLAY with organic odors (CL).			U		5	PT	15/24
				I	3/3/2	6	DS	13
			15					
447.5		17.0		I	1/2/3	7	DS	13
	Gray very moist medium stiff very SILTY CLAY with organic odors.			I	3/3/3	8	DS	18
			20					
				I	3/2/4	9	DS	14
441.5		23.0			Note: Scale Change			
	Gray moist stiff SILTY CLAY with organic odors, trace organic (root) matter, and trace fine sand.		25	I	4/5/5	10	DS	14
437.0		27.5						
434.1	Gray moist soft SHALE and thinly bedded LIMESTONE (bedrock).	30.3	30	I	50/4"	11	DS	2
	Split spoon refusal and bottom of test boring at 30.3 feet.							

Datum MSL Hammer Wt. 140 lbs. Hole Diameter 7 in. Foreman GB
Surf. Elev. 464.5 ft. Hammer Drop 30 in. Rock Core Dia. in. Engineer JSN
Date Started 8/5/03 Pipe Size O.D. 2 in. Boring Method 3 1/4 HSA Date Completed 8/5/03

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 9.0 ft.
AT COMPLETION 6.5 ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA– HOLLOW STEM AUGERS
CFA– CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

As shown on Boring Plan, Sheet No. 1
Station 22+59, Offset 275' Right

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LOG OF TEST BORING

CLIENT: University of Cincinnati BORING # 109

PROJECT: Geotechnical Exploration, New Varsity Boathouse, Wilder, Kentucky JOB # 030799E

LOCATION OF BORING: As shown on Boring Plan, Drawing 030799E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. inches
475.0	SURFACE	0.3						
474.7	Brown to dark brown moist medium stiff to stiff SILTY CLAY with roots.			I	1/3/5	1A 1B	DS	18
470.5	Brown moist stiff SILTY CLAY.	4.5		I	5/6/8	2	DS	18
	Brown moist medium stiff SILTY CLAY with hairlike roots.		5	I	3/5/5	3	DS	18
465.5		9.5		I	3/4/5	4	DS	18
	Gray moist medium stiff SILTY CLAY with organic odors.		10	I	3/5/6	5	DS	18
460.5		14.5		I	3/4/5	6	DS	18
458.0	Gray moist stiff SILTY CLAY with organic odors.	17.0	15	I	3/5/5	7	DS	18
	Grayish brown to gray very moist stiff SILTY CLAY with organic odors.			I	3/3/3	8	DS	18
445.5			20	I	3/3/4	9	DS	18
	Brown very moist stiff SILTY CLAY with iron oxide stains and a little fine to coarse sand and fine gravel.	29.5	25	I	5/5/6	10	DS	18
440.5			30	I	5/12/17	11	DS	18
439.5	Gray moist soft SHALE and thinly bedded LIMESTONE (bedrock).	34.5						
		35.5	35	I	50/6"	12	DS	3
	Split spoon refusal and bottom of test boring at 35.5 feet.							

Datum MSL Hammer Wt. 140 lbs. Hole Diameter 5 in. Foreman BR

Surf. Elev. 475.0 ft. Hammer Drop 30 in. Rock Core Dia. ____ in. Engineer JSN

Date Started 8/1/03 Pipe Size O.D. 2 in. Boring Method CFA Date Completed 8/1/03

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 17.0 ft.
AT COMPLETION 15.8 ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA– HOLLOW STEM AUGERS
CFA– CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

As shown on Boring Plan, Sheet No. 1
Station 25+69, Offset 137.5' Right

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LOG OF TEST BORING

CLIENT: University of Cincinnati BORING # 110

PROJECT: Geotechnical Exploration, New Varsity Boathouse, Wilder, Kentucky JOB # 030799E

LOCATION OF BORING: As shown on Boring Plan, Drawing 030799E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. inches
490.0	SURFACE	0.0						
488.0	Mottled brown moist medium stiff SILTY CLAY (possible fill).	2.0		I	2/2/4	1	DS	18
485.5	Brown and grayish brown moist stiff SILTY CLAY.	4.5	5	I	5/8/8	2	DS	18
483.0	Brown moist very stiff SILTY CLAY with hairlike roots.	7.0		I	7/7/12	3	DS	18
481.0	Brown moist stiff to very stiff SILTY CLAY.	9.0	10	I	7/9/9	4	DS	18
	Bottom of test boring at 9.0 feet.		15 20 25					

Datum MSL Hammer Wt. 140 lbs. Hole Diameter 5 in. Foreman BR

Surf. Elev. Est. 490.0 ft. Hammer Drop 30 in. Rock Core Dia. in. Engineer JSN

Date Started 8/7/03 Pipe Size O.D. 2 in. Boring Method CFA Date Completed 8/7/03

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED None ft.
AT COMPLETION Dry ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA– HOLLOW STEM AUGERS
CFA– CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

As shown on Boring Plan, Sheet No. 1
Station 27+00, Offset 10' Right

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LOG OF TEST BORING

CLIENT: University of Cincinnati BORING # 111
PROJECT: Geotechnical Exploration, New Varsity Boathouse, Wilder, Kentucky JOB # 030799E
LOCATION OF BORING: As shown on Boring Plan, Drawing 030799E-1

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. inches
497.1	SURFACE	0.0						
495.1	Mixed brown moist very stiff FILL, silty clay with wood and brick, hairlike roots.	2.0		I	11/8/8	1	DS	18
492.5	Brown moist stiff SILTY CLAY.	4.5		I	4/5/7	2	DS	18
490.1	Brown and gray very moist medium stiff SILTY CLAY with wood, slight organic odors.	7.0	5	I	4/4/4	3	DS	18
487.6	Light brown moist stiff SILTY CLAY with iron oxide stains, trace fine to medium sand.	9.5		I	7/9/9	4	DS	18
483.1	Reddish brown and gray moist stiff to very stiff SILTY CLAY.	14.0	10	I	6/9/13	5	DS	18
	Bottom of test boring at 14.0 feet.			I	7/7/13	6	DS	
			15					
			20					
			25					

Datum MSL Hammer Wt. 140 lbs. Hole Diameter 5 in. Foreman BR
Surf. Elev. 497.1 ft. Hammer Drop 30 in. Rock Core Dia. in. Engineer JSN
Date Started 8/7/03 Pipe Size O.D. 2 in. Boring Method CFA Date Completed 8/7/03

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED None ft.
AT COMPLETION Dry ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA– HOLLOW STEM AUGERS
CFA– CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

APPENDIX E – LABORATORY TEST DATA

Tabulation of Laboratory Tests

Particle-Size Analysis Test Forms

Unconfined Compressive Strength of Cohesive Soil Test Forms

Unconfined Compressive Strength of Intact Rock Core Test Forms

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TABULATION OF LABORATORY TESTS

Boring Number	Sample Number	Depth, ft.		Moisture Content, %	Atterberg Limits, %			Gradation Analysis, %				Natural Dry Density, pcf	Unconfined Compressive Strength, psf	USCS Classification
		From	To		LL	PL	PI	Gravel	Sand	Silt	Clay			
1	2	2.4	4.0	15.4										
	3	5.0	6.5	9.6	41	28	13							ML
	4	7.5	9.0	12.2										
	5	10.0	11.5	17.1										
	6	12.5	14.0	11.6										
	7A	14.5	16.3	26.0										
2	2	3.5	5.0	16.6										
	3	6.0	7.5	15.6										
	4	8.5	10.0	15.4										
3	2	3.5	5.0	21.6	43	24	19							CL
	3A	6.0	6.5	16.1										
	3B	6.5	7.5	15.9										
	4	8.5	10.0	28.3										
	5	10.5	12.0	26.2										
4	2	3.5	5.0	25.4	45	24	21							CL
	3	6.0	7.5	22.5										
	4	8.5	10.0	23.6										
	5	11.0	12.5	25.7										
5	2A	2.5	2.7	21.3										
	2B	2.7	4.0	23.9										
	3	5.0	6.5	20.3	40	25	15							CL
	PT-4	8.3	8.8	20.1								110.4	5740	

GEOTECHNOLOGY, INC.
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ERLANGER, KENTUCKY 41018

TABULATION OF LABORATORY TESTS

Boring Number	Sample Number	Depth, ft.		Moisture Content, %	Atterberg Limits, %			Gradation Analysis, %				Natural Dry Density, pcf	Unconfined Compressive Strength, psf	USCS Classification
		From	To		LL	PL	PI	Gravel	Sand	Silt	Clay			
5	5	10.0	11.5	21.9										
	6	12.5	14.0	22.4										
	7	15.0	16.5	24.6										
	8	17.5	19.0	24.1										
	9	20.0	21.5	22.9										
	10	22.5	24.0	28.4	28	22	6	0.0	23.1	47.2	29.7			CL-ML
	11	25.0	26.5	24.7										
	PT-12	28.0	28.5	24.5	28	20	8	0.0	25.1	45.3	29.6	105.5	3250	CL
	13	30.0	31.5	26.7										
	14	33.5	35.0	26.1	28	21	7							CL-ML
	15	38.5	40.0	25.5										
	16	43.5	45.0					36.0	37.1	13.9	13.0			SM
	17	48.5	50.0	23.5										
6	PT-4	8.3	8.8	34.1								88.7	1310	
	6	12.5	14.0	37.6										
	9	20.0	21.5	33.8										
	PT-12	28.4	28.9	40.9										
	RC-16A	41.9	42.4	0.2								168.1	2,280,000	
	RC-16B	43.3	43.8	2.4								154.3	250,000	
	RC-17	49.7	50.1	0.8								16.7	974,000	
7	RC-2	24.0	24.4	0.4								168.1	1,410,000	
	RC-4	32.8	33.5	1.1								164.7	931,000	
8	3	5.0	6.5	21.8	44	25	19							CL

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TABULATION OF LABORATORY TESTS

Boring Number	Sample Number	Depth, ft.		Moisture Content, %	Atterberg Limits, %			Gradation Analysis, %				Natural Dry Density, pcf	Unconfined Compressive Strength, psf	USCS Classification
		From	To		LL	PL	PI	Gravel	Sand	Silt	Clay			
8	5	10.0	11.5	14.4										
	6	12.5	14.0	14.6										
	7	15.0	16.1	6.7										
9	PT-2	3.1	3.6	41.9								78.7	1230	
	PT-5A	10.2	10.7	23.2								105.7	1870	
	PT-5B	11.4	11.9	24.3								105.4	2180	
10	PT-3	5.3	5.8	18.3	27	18	9	0.2	13.4	44.3	42.1	111.1	2710	CL
	RC-18	56.7	57.1	5.0								150.3	66,800	
11	1	0.0	1.5	17.6										
	2	2.5	4.0	25.7										
	3	5.0	6.5	25.2	27	21	6							CL-ML
	4	7.5	9.0	25.4										
	5	10.0	11.5	23.8										
	6	12.5	14.0	26.3	34	23	11	0.0	3.3	38.5	58.2			CL
	7	15.0	16.5	25.5										
	8	17.5	19.0	17.5	44	26	18							CL
	9	20.0	21.5	16.9										
	10	22.5	24.0	11.8										
	11	25.0	26.0	18.1										
	12	30.0	30.4	14.6										

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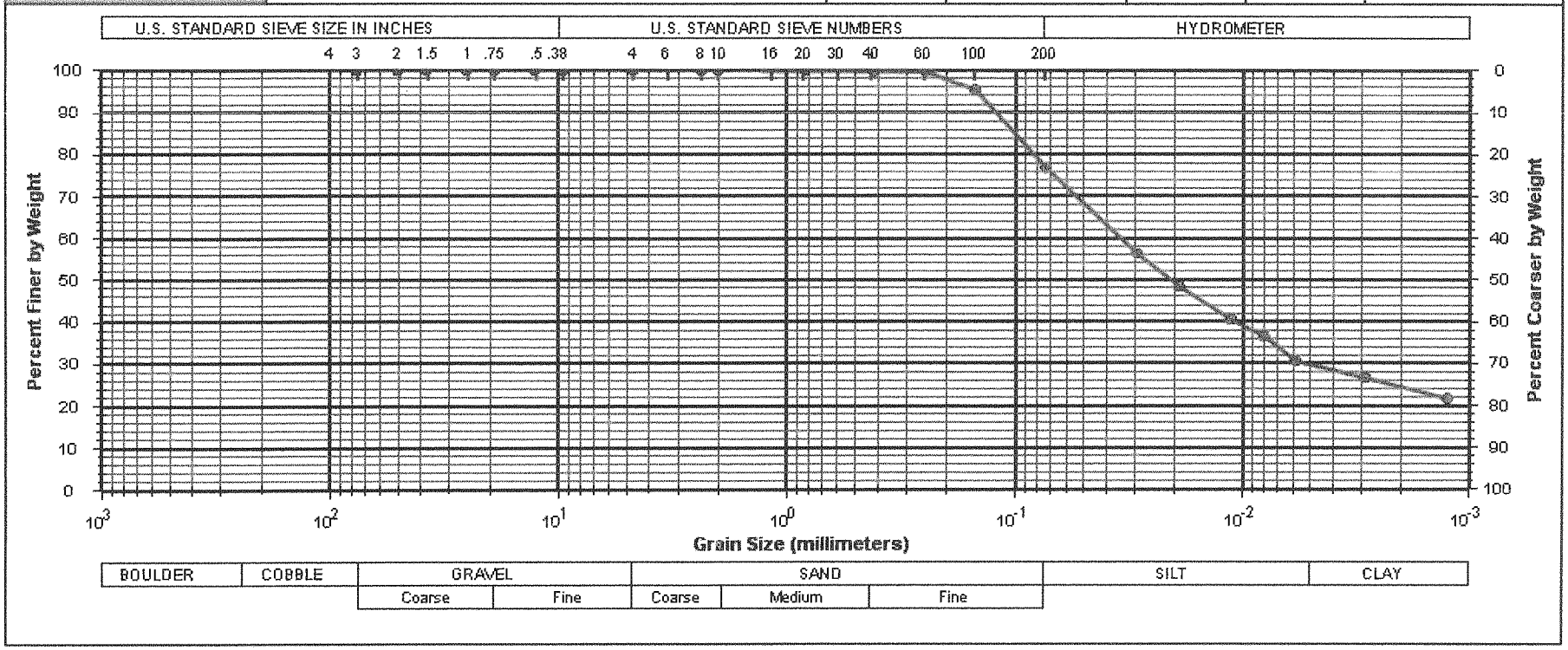
PARTICLE-SIZE ANALYSIS OF SOILS ASTM D-422

Client:	HDR Engineering, Inc.								Project No.:	120976
Project:	Geotechnical Services, 36" Licking River Crossing, Wilder-Covington, KY								Date:	07/08/2013
Boring No.:	5	Sample No.:	10	Depth (ft.):	22.5-24.0	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	USCS
Sample Description:	Brown moist soft very SILTY CLAY with clayey sand layers, trace iron oxide stains					0.0	23.1	47.2	29.7	CL-ML
						LL	PL	PI	Group Index	WC (%)
						28	22	6		28.4



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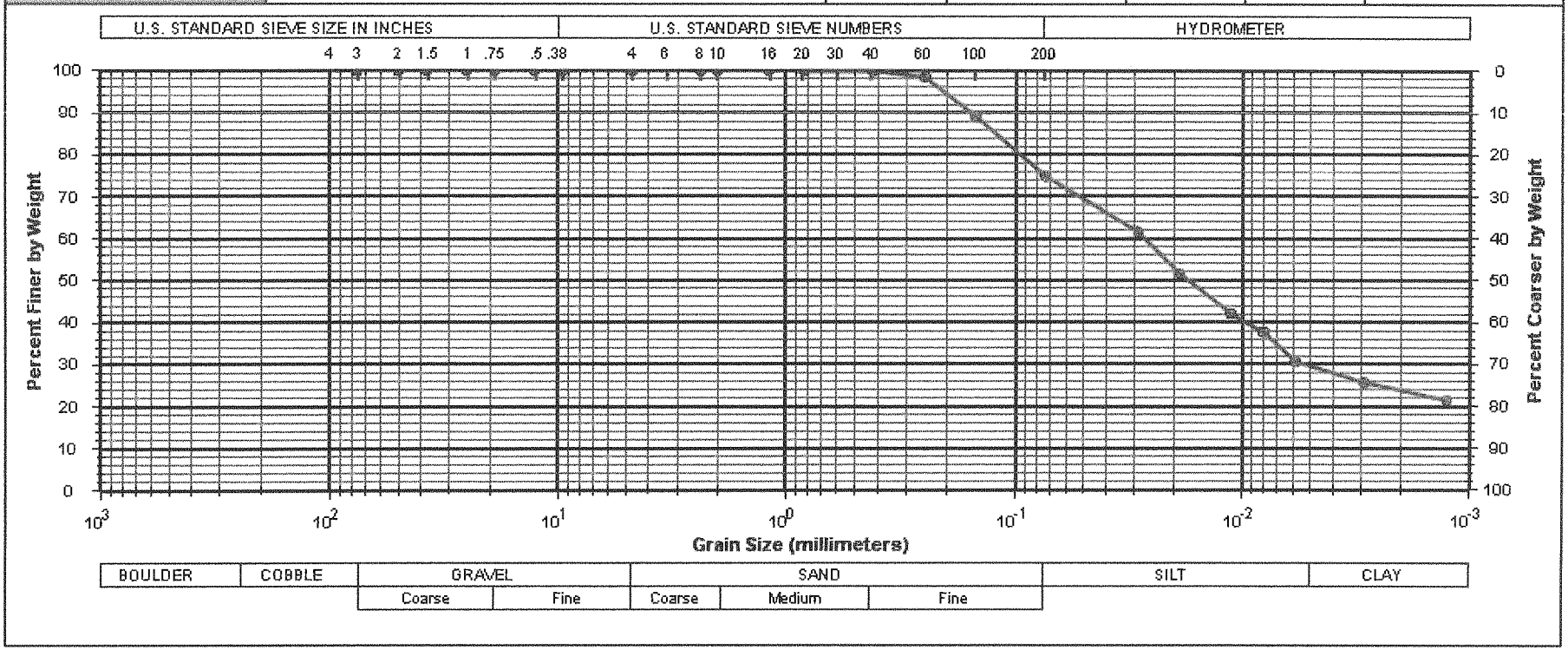
Client:	HDR Engineering, Inc.							Project No.:	120976
Project:	Geotechnical Exploration, 36" Licking River Crossing, Wilder-Covington, KY							Date:	07/08/2013
Boring No.:	5	Sample No.:	PT-12	Depth (ft.):	28.0-28.5	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	USCS
Sample Description:	Brown moist stiff SILTY CLAY, trace sand and iron oxide stains with clayey sand seams					0.0	25.1	45.3	29.6	CL
						LL	PL	PI	Group Index	WC (%)
						28	20	8		24.5



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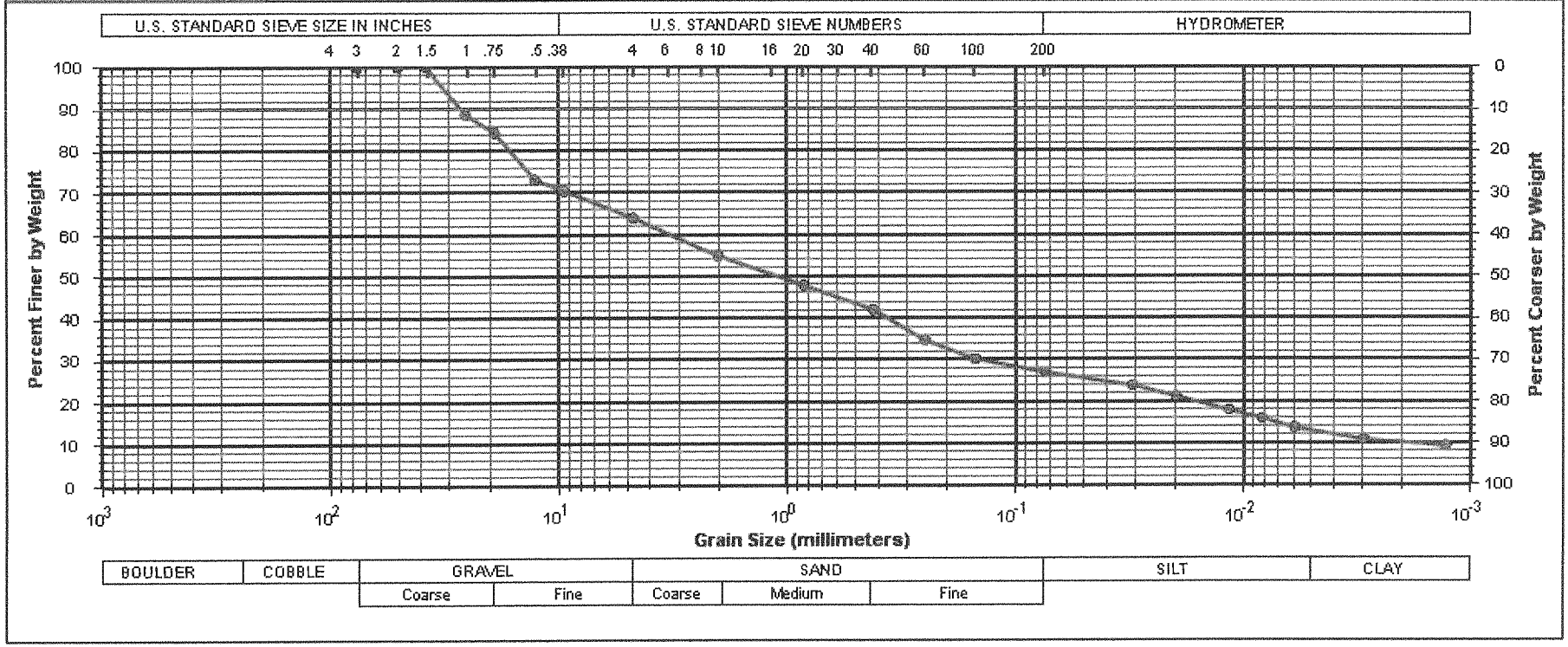
Client:	HDR Engineering, Inc.								Project No.:	120976
Project:	Geotechnical Service, 36" Licking River Crossing, Wilder-Covington, KY								Date:	07/08/2013
Boring No.:	5	Sample No.:	16	Depth (ft.):	43.5-45.0	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	USCS
Sample Description:	Mottled brown, trace black moist dense clayey SAND and GRAVEL, trace cobbles and coal fragments					36.0	37.1	13.9	13.0	SM
						LL	PL	PI	Group Index	WC (%)



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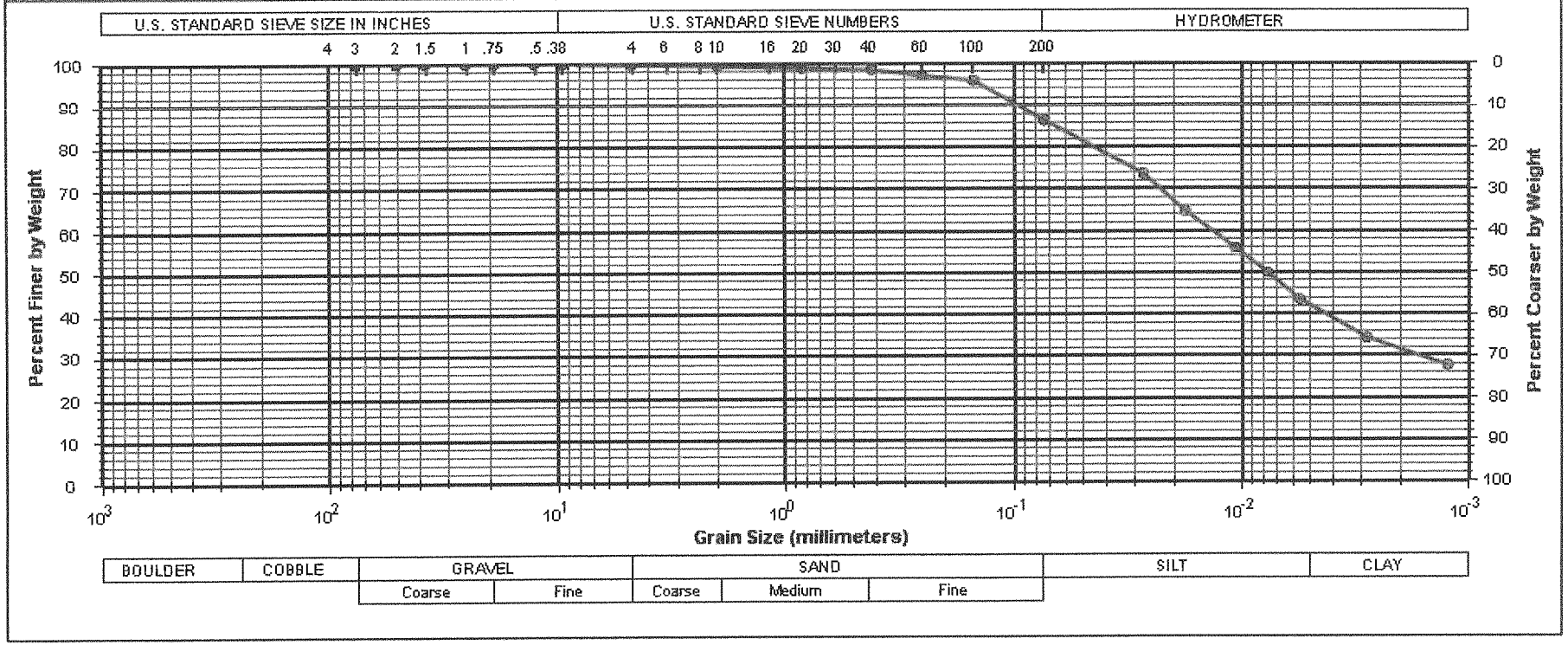
PARTICLE-SIZE ANALYSIS OF SOILS ASTM D-422

Client:	HDR Engineering, Inc.								Project No.:	120976
Project:	Geotechnical Service, 36" Licking River Crossing, Wilder-Covington, KY								Date:	07/08/2013
Boring No.:	10	Sample No.:	PT-3	Depth (ft.):	5.3-5.8	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	USCS
Sample Description:	Brown, trace gray moist stiff SILTY CLAY with silt seams, trace layering					0.2	13.4	44.4	42.0	CL
						LL	PL	PI	Group Index	WC (%)
						27	18	9		18.3



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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
ASTM D2166

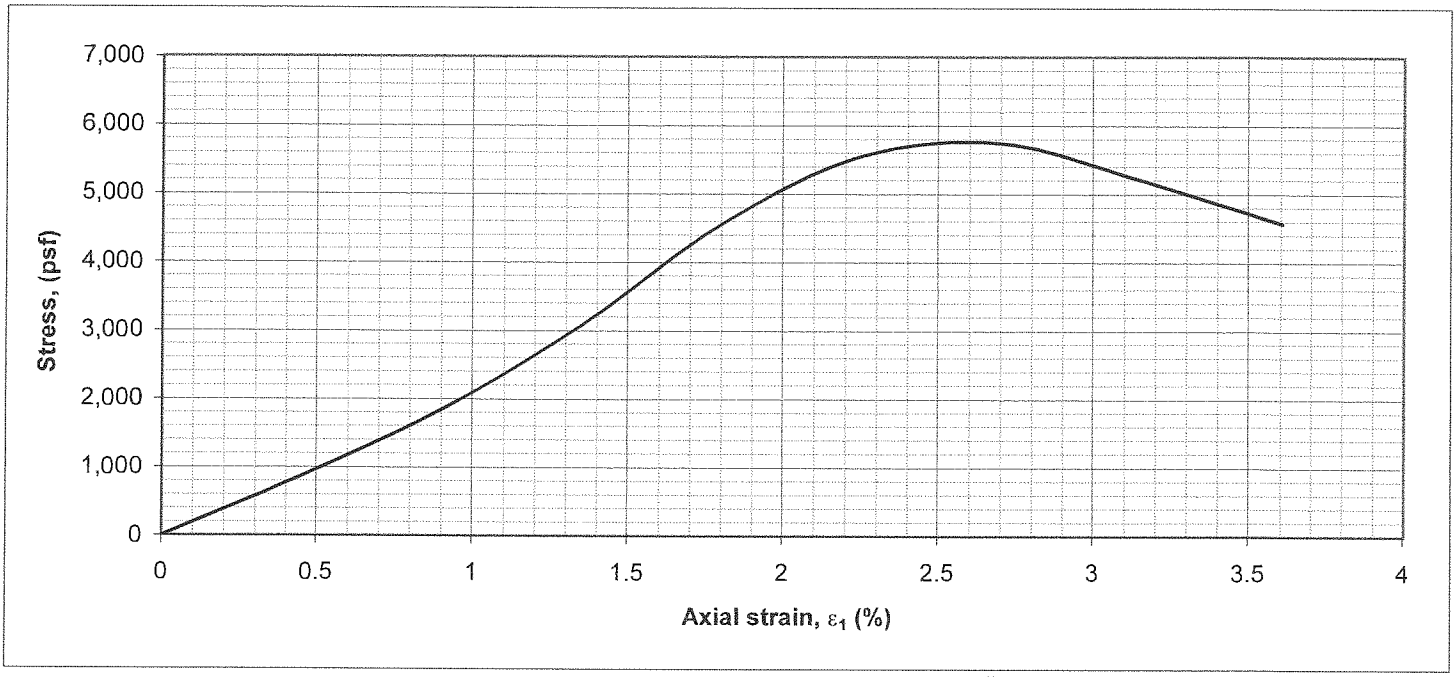
CLIENT : HDR Engineering, Inc.
PROJECT NO.: 120976E
DATE: 7/3/2013
PROJECT: Geotechnical Services, 36" Licking River Crossing
LOCATION: Wilder-Covington, KY

BORING NO.: 5 SAMPLE NO.: PT-4 DEPTH (ft.): 8.3-8.8
SAMPLE OBTAINED BY: Shelby Tube CONDITION: Undisturbed
SAMPLE DESCRIPTION: Brown, trace gray moist very stiff SILTY CLAY, trace roots

LIQUID LIMIT (%):	PLASTIC LIMIT (%):	PLASTICITY INDEX (%):	USCS:
GRAVEL (%):	SAND (%):	SILT (%):	CLAY (%):
SPECIFIC GRAVITY OF SOLIDS: 2.75 (Assumed)			LOAD CELL NO.: 1059

SAMPLE DATA	
DIAMETER (in.):	2.81
HEIGHT (in.):	5.55
HEIGHT TO DIAMETER RATIO:	1.97
DRY UNIT WEIGHT (pcf):	110.4
VOID RATIO:	0.55
MOISTURE CONTENT (%)*:	20.1
DEGREE OF SATURATION (%):	100

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.9**
AXIAL STRAIN AT FAILURE (%):	**2.7**
TIME TO FAILURE (min.):	**2.4**
UNCONFINED COMPRESSIVE STRENGTH, q_u (psf):	**5,740**
UNDRAINED SHEAR STRENGTH, s_u (psf):	**2,870**
SENSITIVITY, S_t:	-



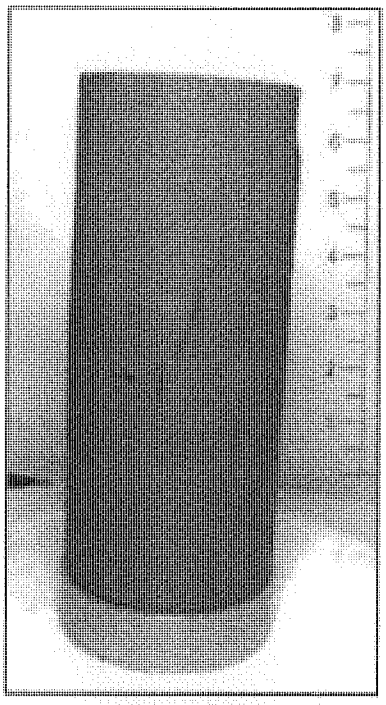
REMARKS :

*Moisture content determined after shear from entire sample.

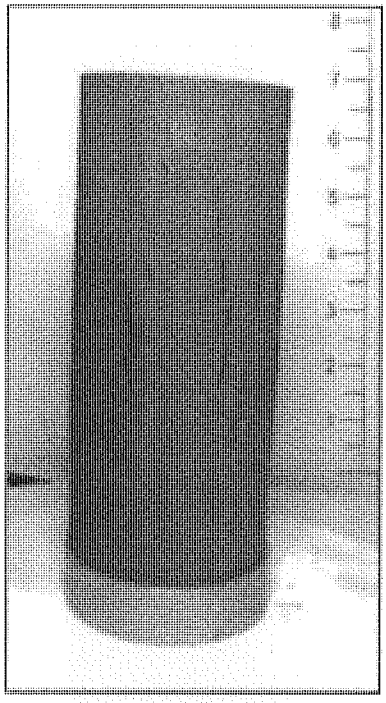
UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
ASTM D2166

BORING NO.: 5
SAMPLE NO.: PT-4
DEPTH (ft.): 8.3-8.8

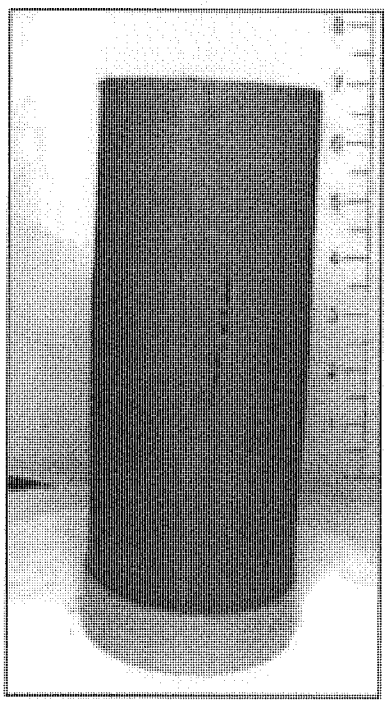
FAILURE SHAPE



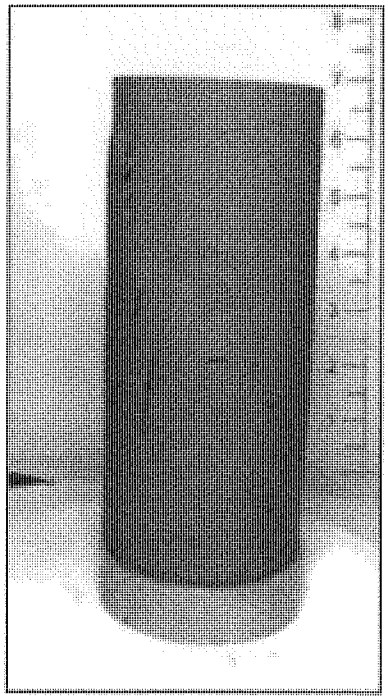
FRONT VIEW



RIGHT SIDE VIEW



LEFT SIDE VIEW



BACK VIEW

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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
ASTM D2166

DATE: 7/3/2013

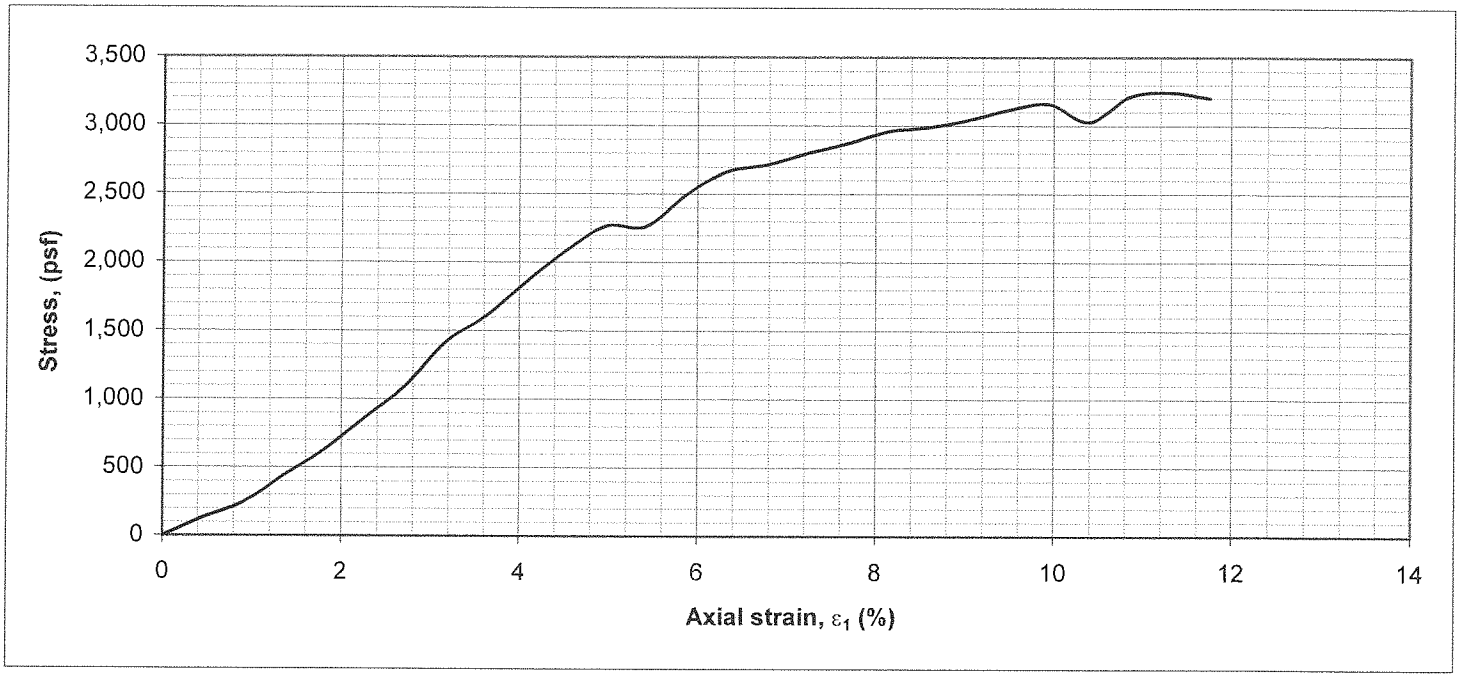
CLIENT : HDR Engineering, Inc.
PROJECT NO.: 120976E
PROJECT: Geotechnical Services, 36" Licking River Crossing
LOCATION: Wilder-Covington, KY

BORING NO.: 5 SAMPLE NO.: PT-12 DEPTH (ft.): 28.0-28.5
SAMPLE OBTAINED BY: Shelby Tube CONDITION: Undisturbed
SAMPLE DESCRIPTION: Brown moist stiff SILTY CLAY, trace sand and iron oxide stains with clayey sand seams

LIQUID LIMIT (%): 28 PLASTIC LIMIT (%): 20 PLASTICITY INDEX (%): 8 USCS: CL
GRAVEL (%): 0.0 SAND (%): 25.1 SILT (%): 45.3 CLAY (%): 29.6
SPECIFIC GRAVITY OF SOLIDS: 2.75 (Assumed) LOAD CELL NO.: 1059

SAMPLE DATA	
DIAMETER (in.):	2.80
HEIGHT (in.):	5.53
HEIGHT TO DIAMETER RATIO:	1.97
DRY UNIT WEIGHT (pcf):	105.5
VOID RATIO:	0.63
MOISTURE CONTENT (%)*:	24.5
DEGREE OF SATURATION (%):	100

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.9**
AXIAL STRAIN AT FAILURE (%):	**11.3**
TIME TO FAILURE (min.):	**10.5**
UNCONFINED COMPRESSIVE STRENGTH, q_u (psf):	**3,250**
UNDRAINED SHEAR STRENGTH, s_u (psf):	**1,625**
SENSITIVITY, S_t:	-



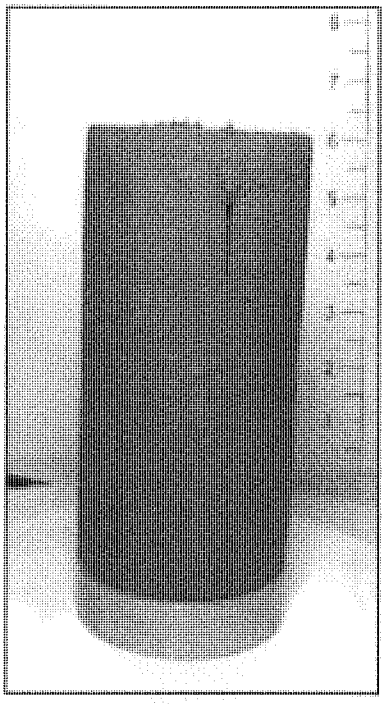
REMARKS :

*Moisture content determined after shear from entire sample.

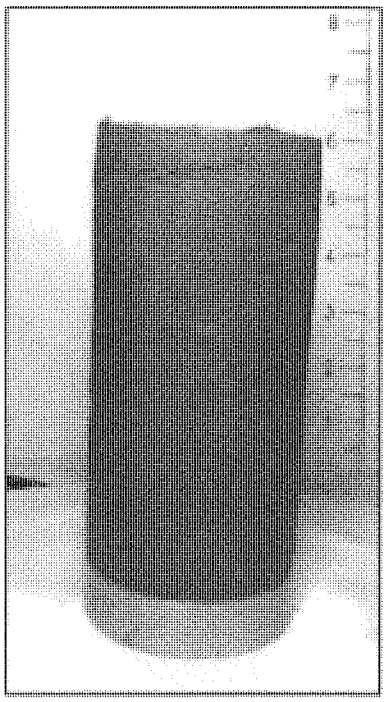
UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
ASTM D2166

BORING NO.: 5
SAMPLE NO.: PT-12
DEPTH (ft.): 28.0-28.5

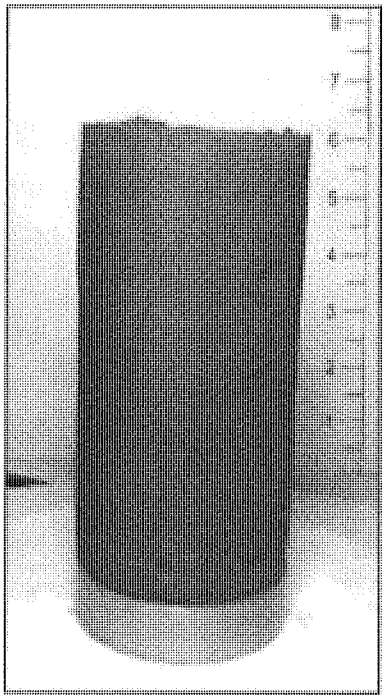
FAILURE SHAPE



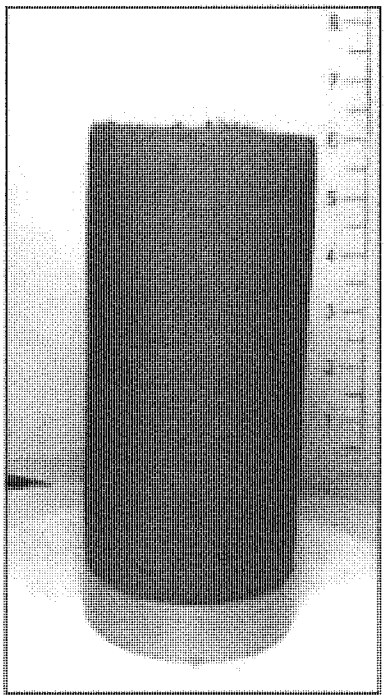
FRONT VIEW



RIGHT SIDE VIEW



LEFT SIDE VIEW



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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
ASTM D2166

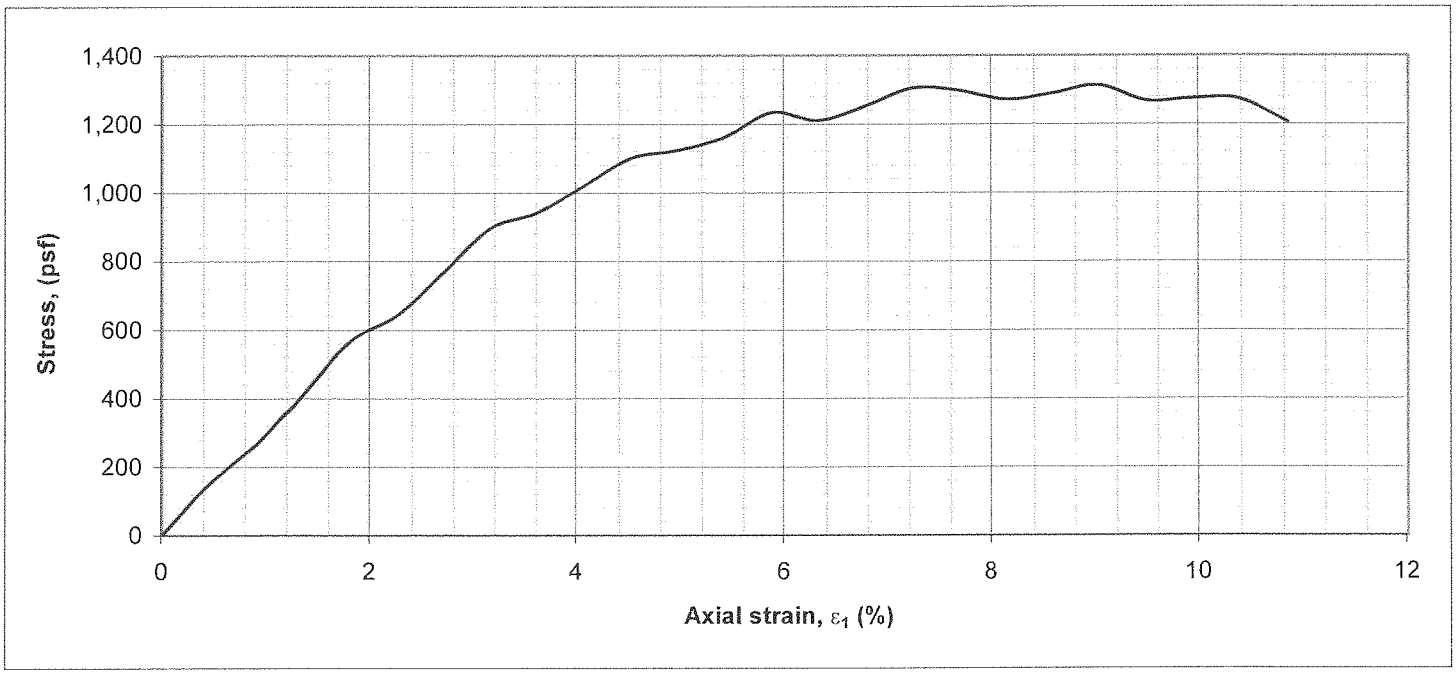
CLIENT : HDR Engineering, Inc.
PROJECT NO.: 120976E
DATE: 7/3/2013
PROJECT: Geotechnical Services, 36" Licking River Crossing
LOCATION: Wilder-Covington, KY

BORING NO.: 6 SAMPLE NO.: PT-4 DEPTH (ft.): 8.3-8.8
SAMPLE OBTAINED BY: Shelby Tube CONDITION: Undisturbed
SAMPLE DESCRIPTION: Dark gray, trace brown moist medium stiff SILTY CLAY, trace organics

LIQUID LIMIT (%): PLASTIC LIMIT (%): PLASTICITY INDEX (%): USCS:
GRAVEL (%): SAND (%): SILT (%): CLAY (%):
SPECIFIC GRAVITY OF SOLIDS: 2.75 (Assumed) LOAD CELL NO.: 1059

SAMPLE DATA	
DIAMETER (in.):	2.80
HEIGHT (in.):	5.53
HEIGHT TO DIAMETER RATIO:	1.97
DRY UNIT WEIGHT (pcf):	88.7
VOID RATIO:	0.93
MOISTURE CONTENT (%)*:	34.1
DEGREE OF SATURATION (%):	100

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.9**
AXIAL STRAIN AT FAILURE (%):	**9.0**
TIME TO FAILURE (min.):	**8.4**
UNCONFINED COMPRESSIVE STRENGTH, q_u (psf):	**1,310**
UNDRAINED SHEAR STRENGTH, s_u (psf):	**655**
SENSITIVITY, S_t:	-



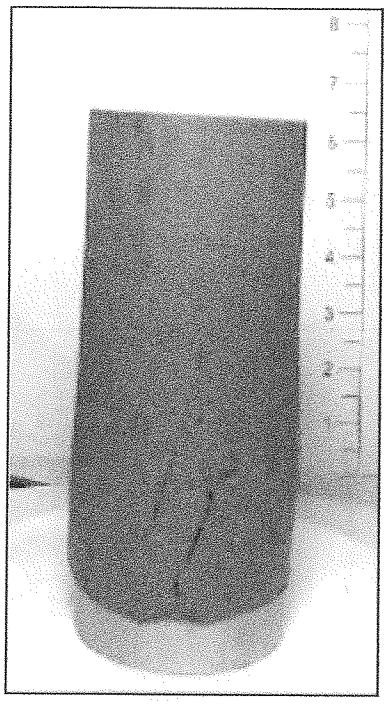
REMARKS :

*Moisture content determined after shear from entire sample.

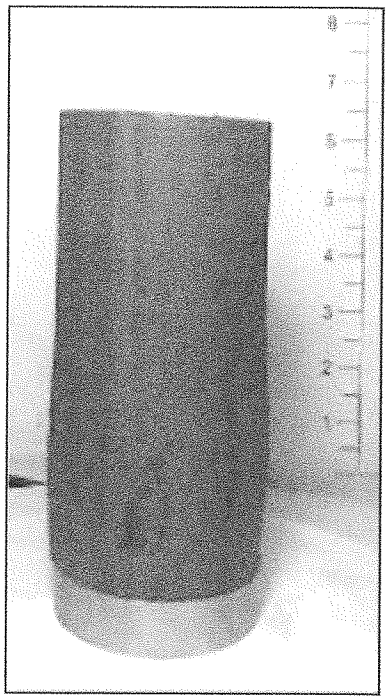
UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
ASTM D2166

BORING NO.: 6
SAMPLE NO.: PT-4
DEPTH (ft.): 8.3-8.8

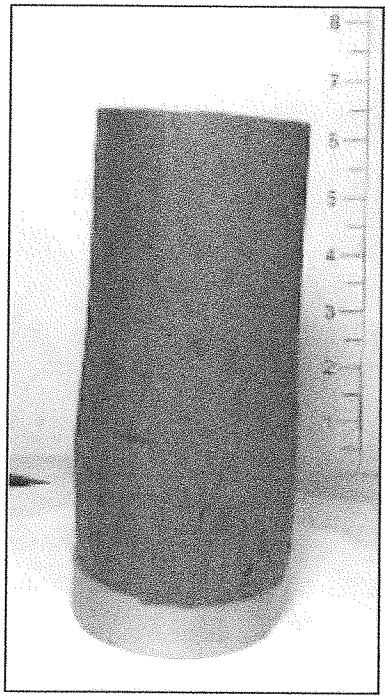
FAILURE SHAPE



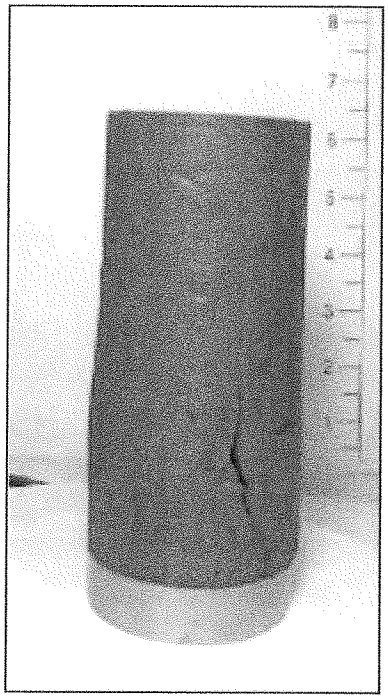
FRONT VIEW



RIGHT SIDE VIEW



LEFT SIDE VIEW



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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
ASTM D2166

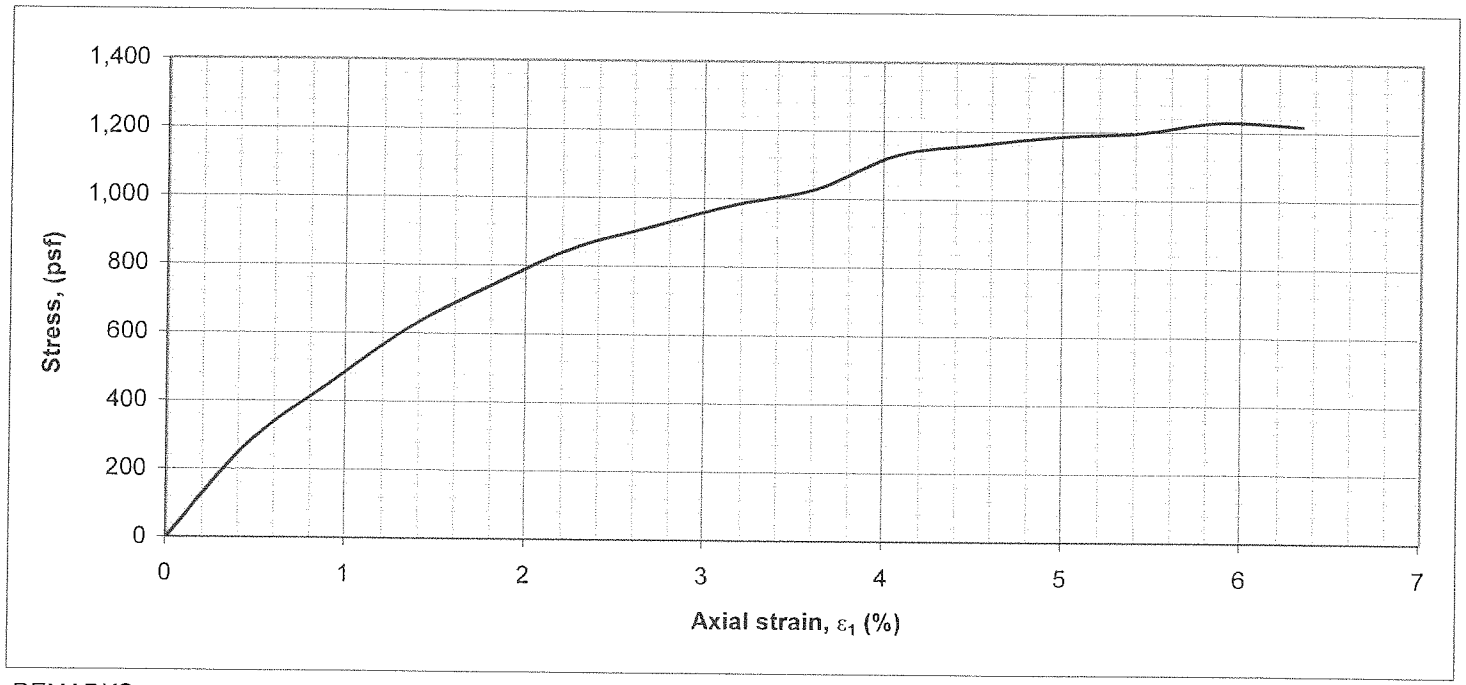
CLIENT : HDR Engineering, Inc.
PROJECT NO.: 120976E
DATE: 7/3/2013
PROJECT: Geotechnical Services, 36" Licking River Crossing
LOCATION: Wilder-Covington, KY

BORING NO.: 9 SAMPLE NO.: PT-2 DEPTH (ft.): 3.1-3.6
SAMPLE OBTAINED BY: Shelby Tube CONDITION: Undisturbed
SAMPLE DESCRIPTION: Mixed dark brown moist medium stiff FILL, silty clay, some topsoil, organics, trace grass

LIQUID LIMIT (%): PLASTIC LIMIT (%): PLASTICITY INDEX (%): USCS:
GRAVEL (%): SAND (%): SILT (%): CLAY (%):
SPECIFIC GRAVITY OF SOLIDS: 2.75 (Assumed) LOAD CELL NO.: 1059

SAMPLE DATA	
DIAMETER (in.):	2.80
HEIGHT (in.):	5.53
HEIGHT TO DIAMETER RATIO:	1.97
DRY UNIT WEIGHT (pcf):	78.7
VOID RATIO:	1.18
MOISTURE CONTENT (%)*:	41.9
DEGREE OF SATURATION (%):	98

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.9**
AXIAL STRAIN AT FAILURE (%):	**5.9**
TIME TO FAILURE (min.):	**5.5**
UNCONFINED COMPRESSIVE STRENGTH, q_u (psf):	**1,230**
UNDRAINED SHEAR STRENGTH, s_u (psf):	**615**
SENSITIVITY, S_t:	-



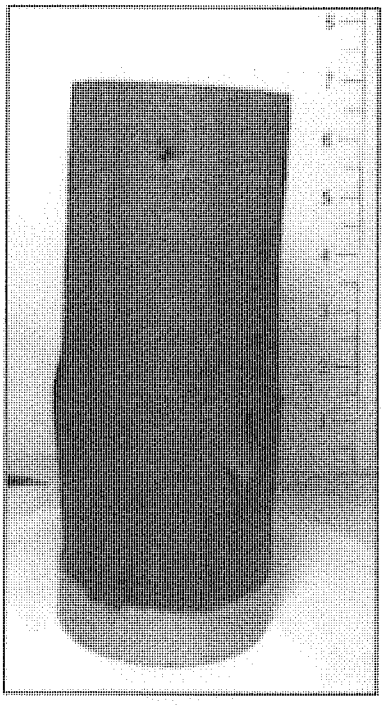
REMARKS :

*Moisture content determined after shear from entire sample.

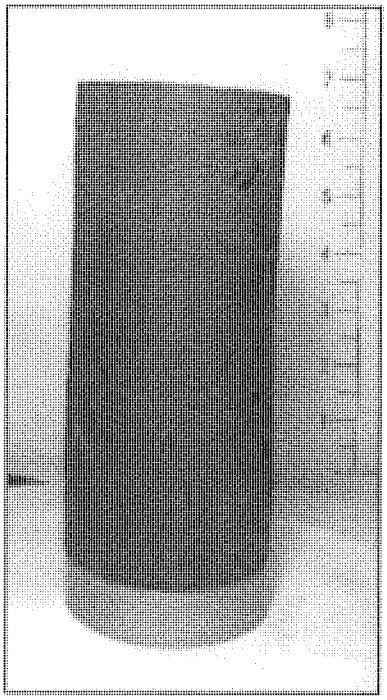
UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
ASTM D2166

BORING NO.: 9
SAMPLE NO.: PT-2
DEPTH (ft.): 3.1-3.6

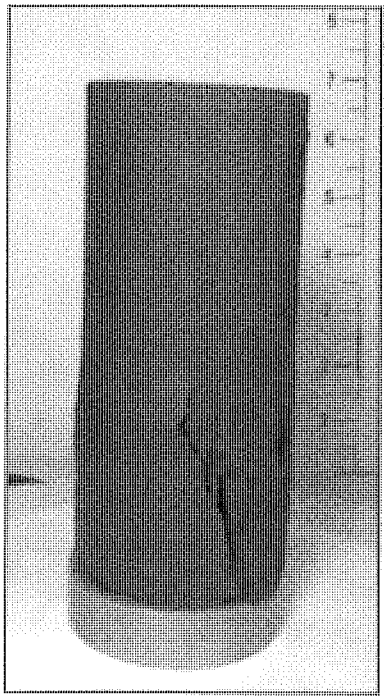
FAILURE SHAPE



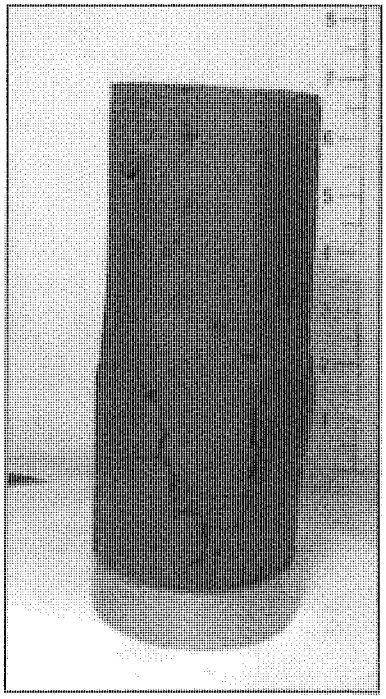
FRONT VIEW



RIGHT SIDE VIEW



LEFT SIDE VIEW



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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
ASTM D2166

DATE: 7/3/2013

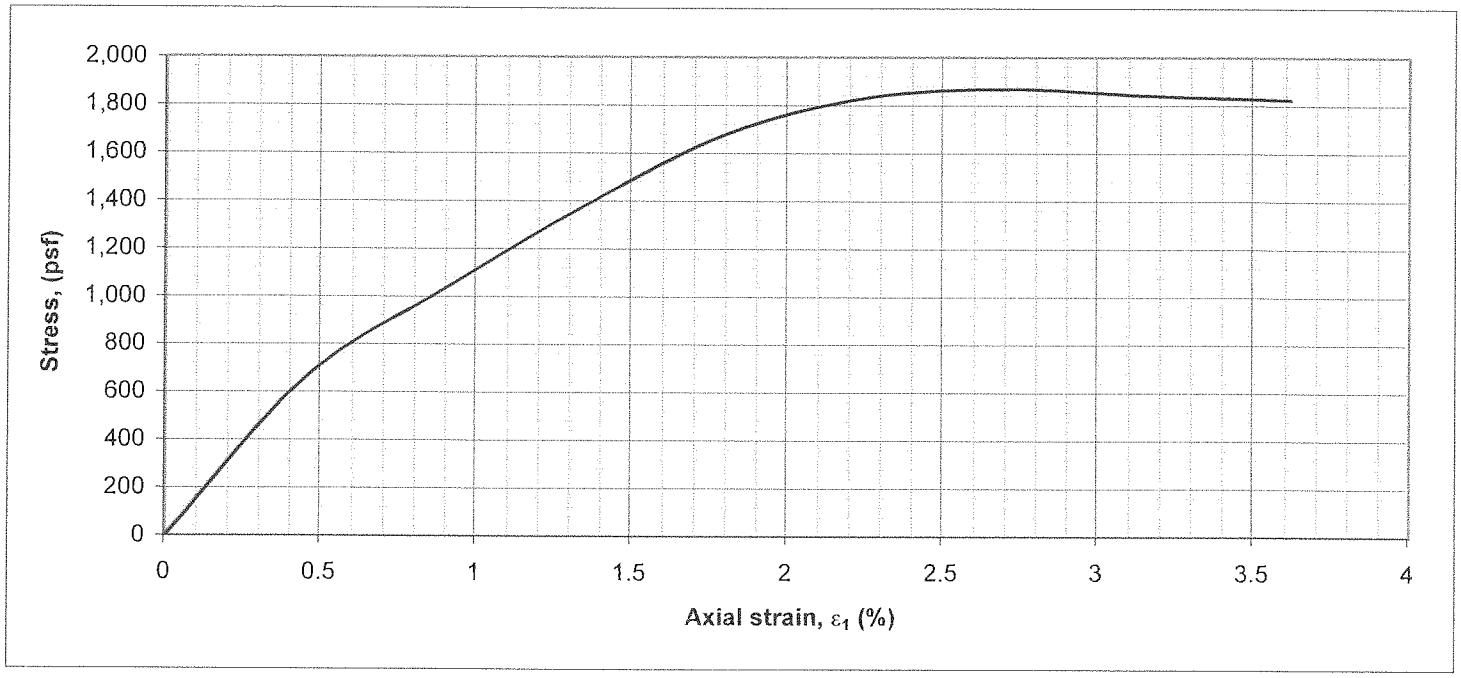
CLIENT : HDR Engineering, Inc.
PROJECT NO.: 120976E
PROJECT: Geotechnical Services, 36" Licking River Crossing
LOCATION: Wilder-Covington, KY

BORING NO.: 9 SAMPLE NO.: PT-5A DEPTH (ft.): 10.2-10.7
SAMPLE OBTAINED BY: Shelby Tube CONDITION: Undisturbed
SAMPLE DESCRIPTION: Brown, trace gray moist medium stiff SILTY CLAY, trace sand, trace clayey sand seams

LIQUID LIMIT (%): PLASTIC LIMIT (%): PLASTICITY INDEX (%): USCS:
GRAVEL (%): SAND (%): SILT (%): CLAY (%):
SPECIFIC GRAVITY OF SOLIDS: 2.75 (Assumed) LOAD CELL NO.: 1059

SAMPLE DATA	
DIAMETER (in.):	2.82
HEIGHT (in.):	5.53
HEIGHT TO DIAMETER RATIO:	1.96
DRY UNIT WEIGHT (pcf):	105.7
VOID RATIO:	0.62
MOISTURE CONTENT (%)*:	23.2
DEGREE OF SATURATION (%):	100

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.9**
AXIAL STRAIN AT FAILURE (%):	**2.7**
TIME TO FAILURE (min.):	**2.5**
UNCONFINED COMPRESSIVE STRENGTH, q_u (psf):	**1,870**
UNDRAINED SHEAR STRENGTH, s_u (psf):	**935**
SENSITIVITY, S_t:	-



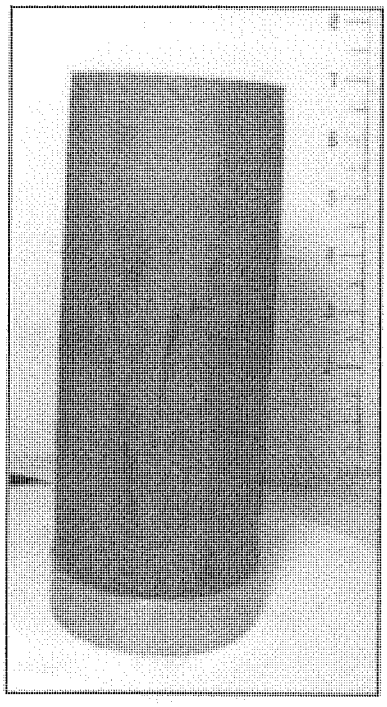
REMARKS :

*Moisture content determined after shear from entire sample.

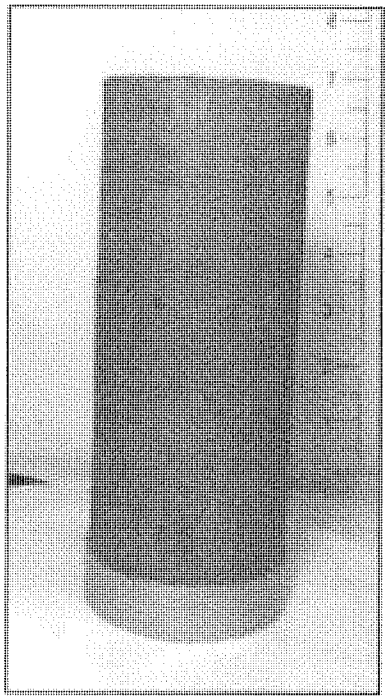
UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
ASTM D2166

BORING NO.: 9
SAMPLE NO.: PT-5A
DEPTH (ft.): 10.2-10.7

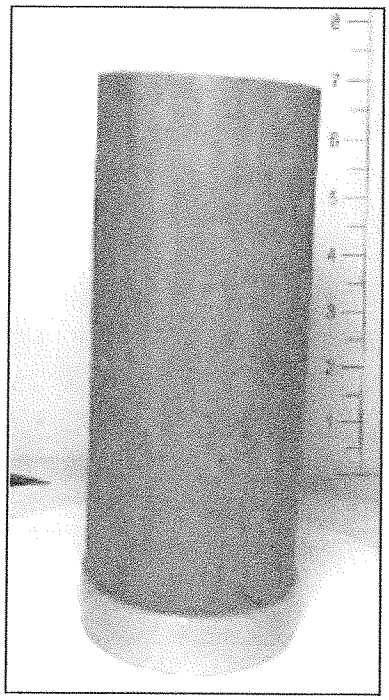
FAILURE SHAPE



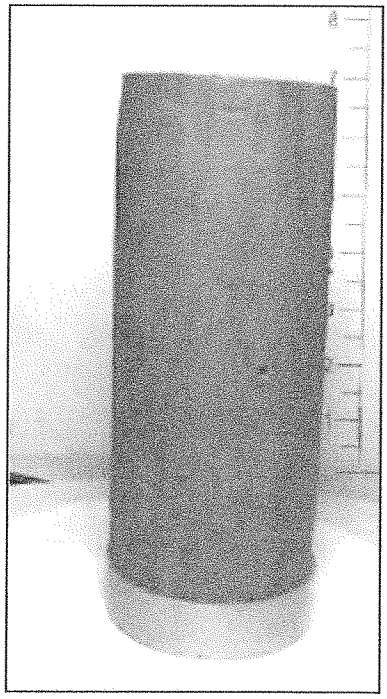
FRONT VIEW



RIGHT SIDE VIEW



LEFT SIDE VIEW



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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
ASTM D2166

DATE: 7/3/2013

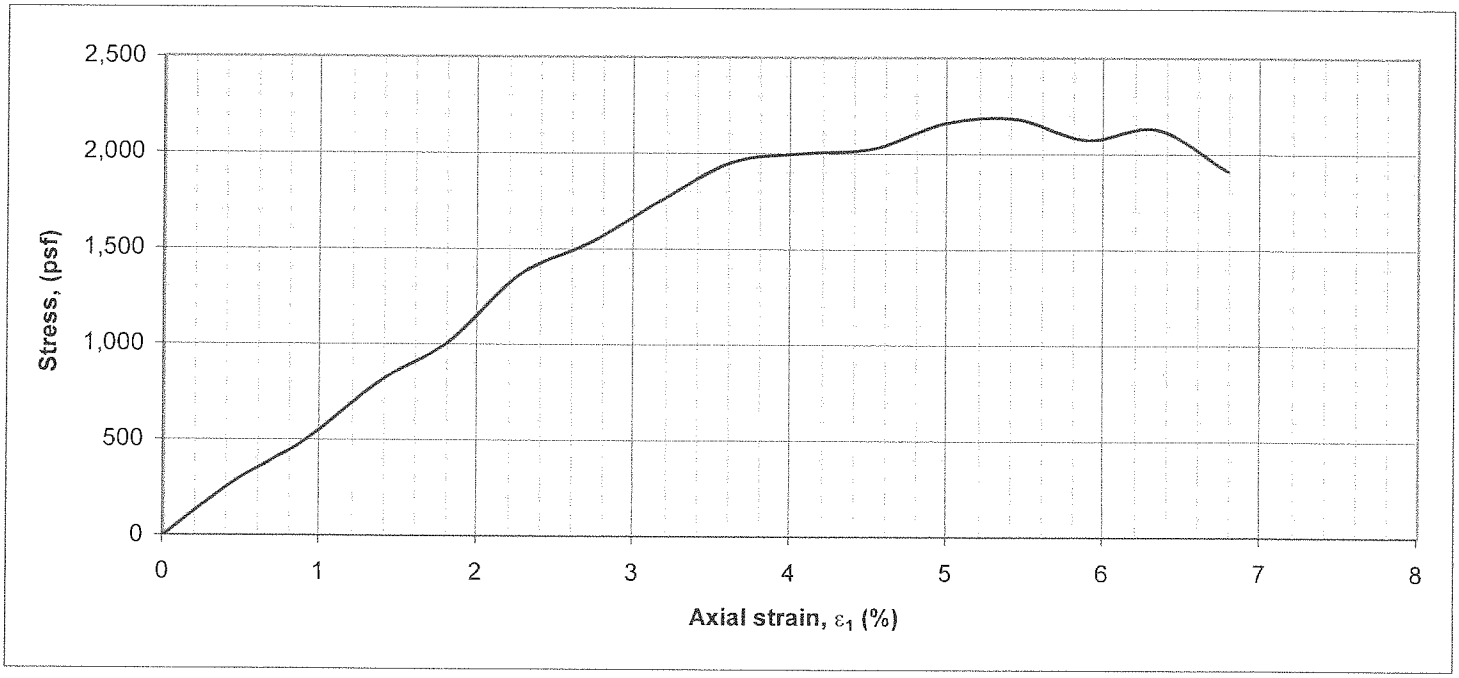
CLIENT : HDR Engineering, Inc.
PROJECT NO.: 120976E
PROJECT: Geotechnical Services, 36" Licking River Crossing
LOCATION: Wilder-Covington, KY

BORING NO.: 9 SAMPLE NO.: PT-5B DEPTH (ft.): 11.4-11.9
SAMPLE OBTAINED BY: Shelby Tube CONDITION: Undisturbed
SAMPLE DESCRIPTION: Brown, trace gray moist stiff SILTY CLAY, trace sand, trace clayey sand seams

LIQUID LIMIT (%):	PLASTIC LIMIT (%):	PLASTICITY INDEX (%):	USCS:
GRAVEL (%):	SAND (%):	SILT (%):	CLAY (%):
SPECIFIC GRAVITY OF SOLIDS: 2.75 (Assumed)			LOAD CELL NO.: 1059

SAMPLE DATA	
DIAMETER (in.):	2.82
HEIGHT (in.):	5.52
HEIGHT TO DIAMETER RATIO:	1.96
DRY UNIT WEIGHT (pcf):	105.4
VOID RATIO:	0.63
MOISTURE CONTENT (%)*:	24.3
DEGREE OF SATURATION (%):	100

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.9**
AXIAL STRAIN AT FAILURE (%):	**5.4**
TIME TO FAILURE (min.):	**5.1**
UNCONFINED COMPRESSIVE STRENGTH, q_u (psf):	**2,180**
UNDRAINED SHEAR STRENGTH, s_u (psf):	**1,090**
SENSITIVITY, S_t:	-



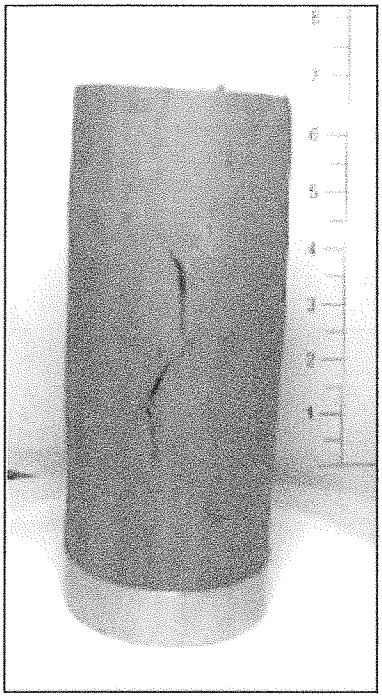
REMARKS :

*Moisture content determined after shear from entire sample.

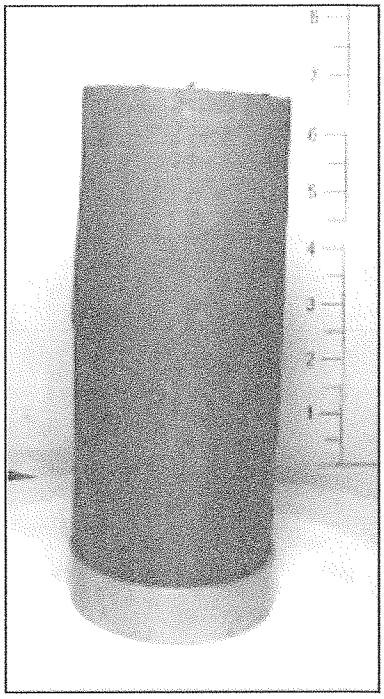
UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
ASTM D2166

BORING NO.: 9
SAMPLE NO.: PT-5B
DEPTH (ft.): 11.4-11.9

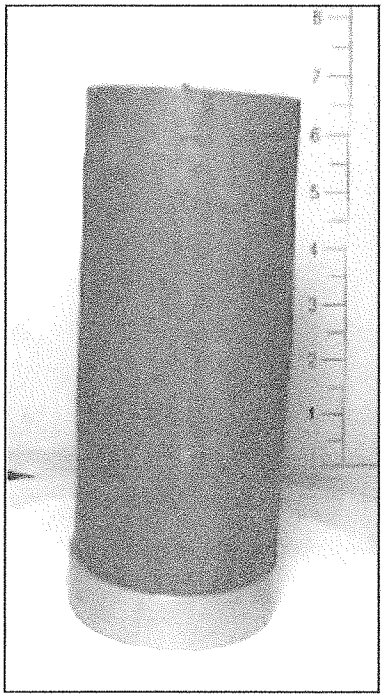
FAILURE SHAPE



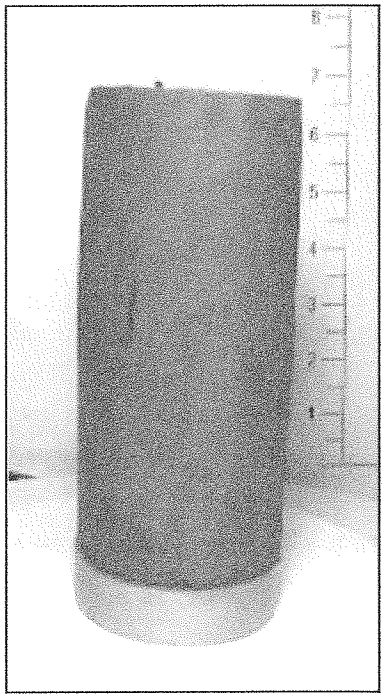
FRONT VIEW



RIGHT SIDE VIEW



LEFT SIDE VIEW



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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
ASTM D2166

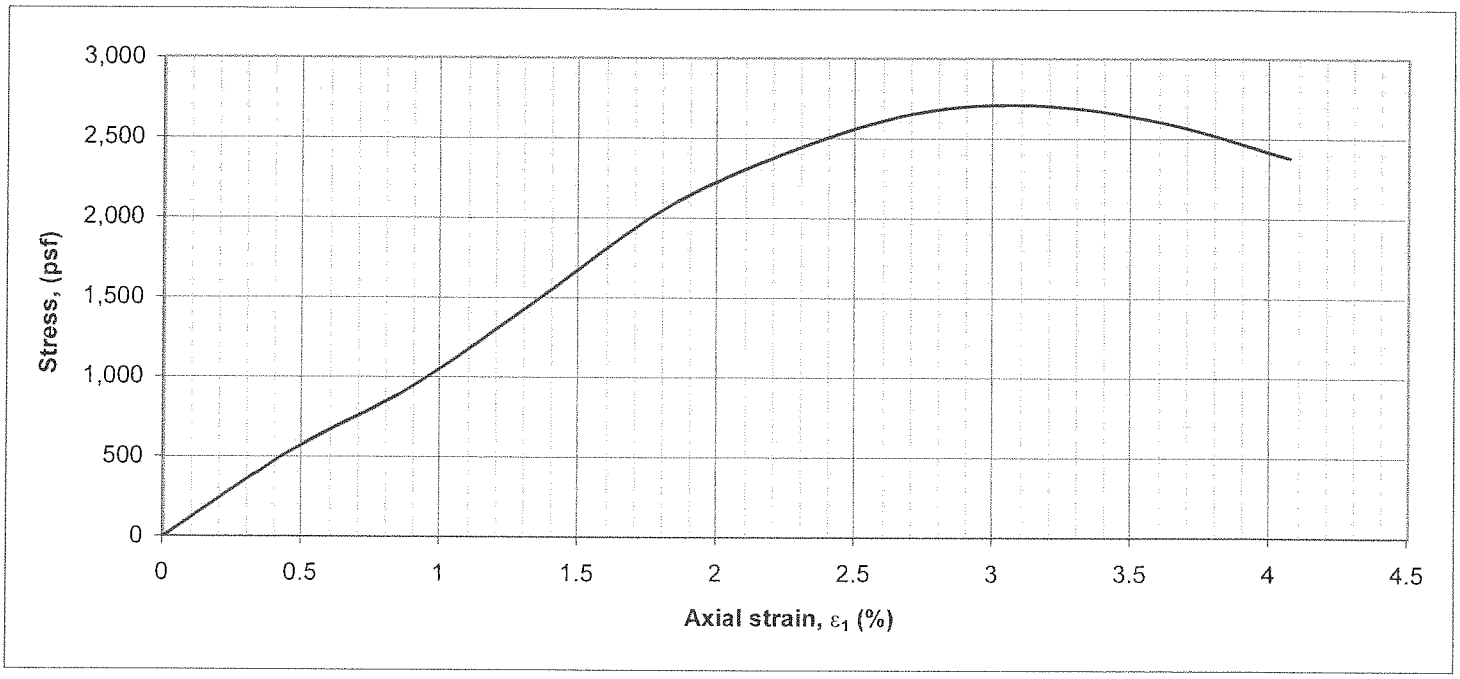
CLIENT : HDR Engineering, Inc.
PROJECT NO.: 120976E
DATE: 7/3/2013
PROJECT: Geotechnical Services, 36" Licking River Crossing
LOCATION: Wilder-Covington, KY

BORING NO.: 10 SAMPLE NO.: PT-3 DEPTH (ft.): 5.3-5.8
SAMPLE OBTAINED BY: Shelby Tube CONDITION: Undisturbed
SAMPLE DESCRIPTION: Brown, trace gray moist stiff SILTY CLAY with silt seams, trace layering

LIQUID LIMIT (%): 27 PLASTIC LIMIT (%): 18 PLASTICITY INDEX (%): 9 USCS: CL
GRAVEL (%): 0.2 SAND (%): 13.4 SILT (%): 44.3 CLAY (%): 42.1
SPECIFIC GRAVITY OF SOLIDS: 2.75 (Assumed) LOAD CELL NO.: 1059

SAMPLE DATA	
DIAMETER (in.):	2.83
HEIGHT (in.):	5.56
HEIGHT TO DIAMETER RATIO:	1.97
DRY UNIT WEIGHT (pcf):	111.1
VOID RATIO:	0.54
MOISTURE CONTENT (%)*:	18.3
DEGREE OF SATURATION (%):	92

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.9**
AXIAL STRAIN AT FAILURE (%):	**3.1**
TIME TO FAILURE (min.):	**2.9**
UNCONFINED COMPRESSIVE STRENGTH, q_u (psf):	**2,710**
UNDRAINED SHEAR STRENGTH, s_u (psf):	**1,355**
SENSITIVITY, S_t:	-



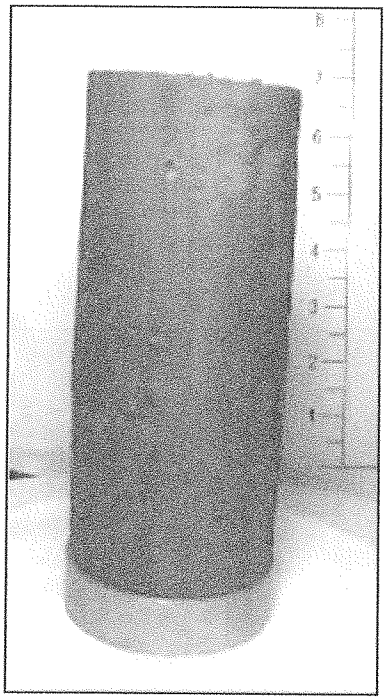
REMARKS :

*Moisture content determined after shear from entire sample.

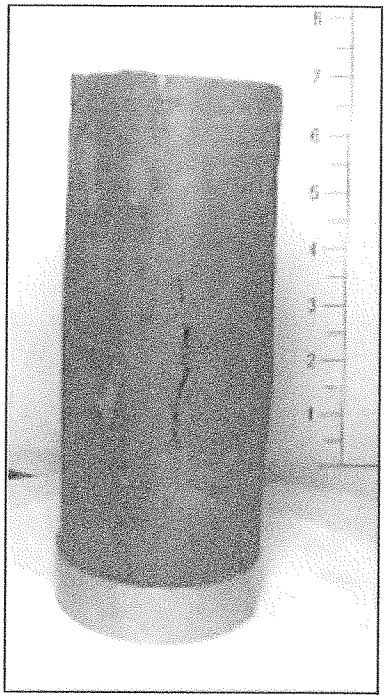
UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
ASTM D2166

BORING NO.: 10
SAMPLE NO.: PT-3
DEPTH (ft.): 5.3-5.8

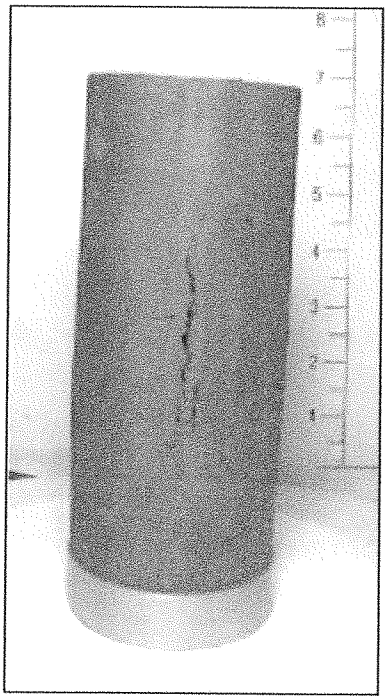
FAILURE SHAPE



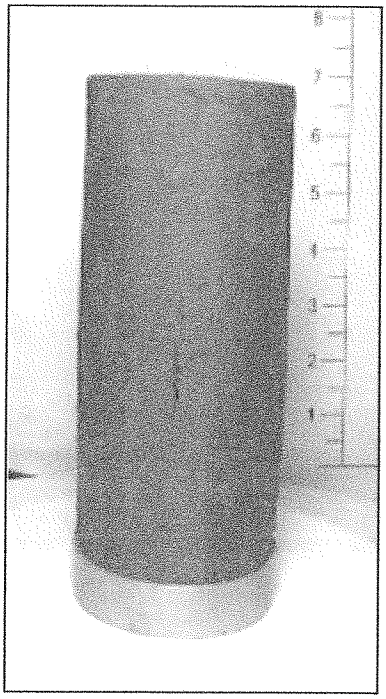
FRONT VIEW



RIGHT SIDE VIEW



LEFT SIDE VIEW



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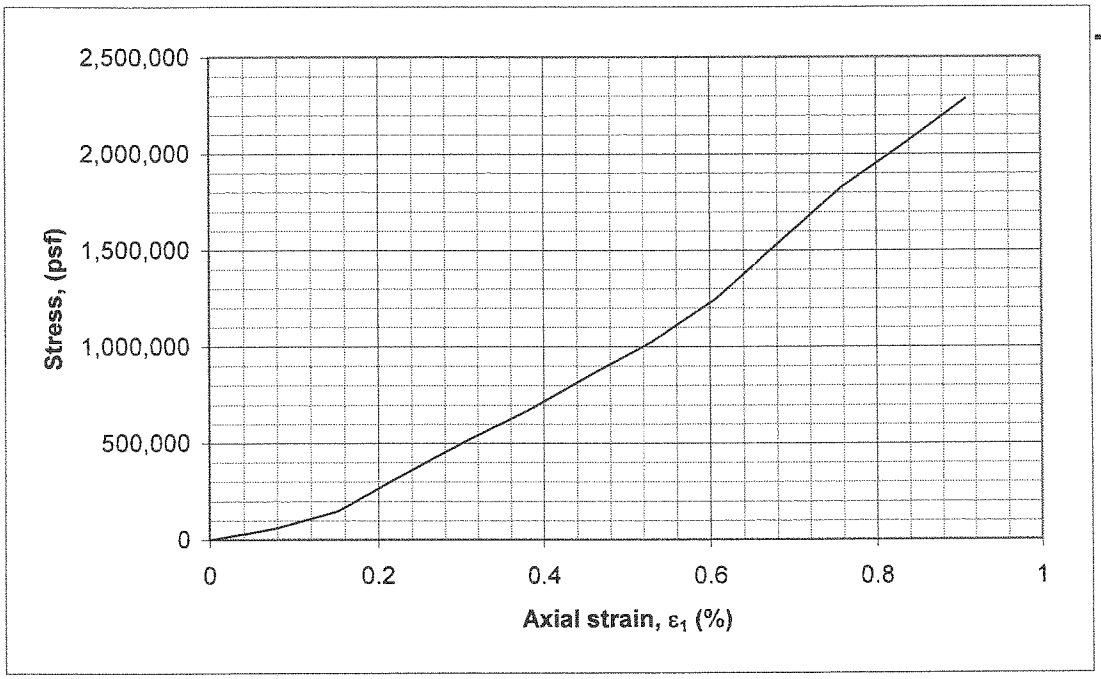
UNIAXIAL COMPRESSIVE STRENGTH OF INTACT ROCK CORE
ASTM D7012 - METHOD C

CLIENT : HDR Engineering, Inc.
DATE: 8/5/2015
PROJECT NO.: 120976E
PROJECT: Geotechnical Services, 36" Licking River Crossing
LOCATION: Wilder-Covington, Kentucky

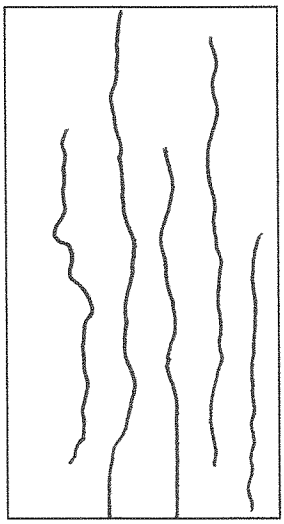
BORING NO.: 6
SAMPLE NO.: RC-16A
DEPTH (ft.): 41.9-42.4
SAMPLE DESCRIPTION: Gray very strong fine-grained unweathered LIMESTONE (bedrock)
BEDROCK FORMATION: Point Pleasant Formation
LOAD DIRECTION: 90° to Lithology
TEST TEMPERATURE (°F): 70
COMPRESSION APPARATUS.: Forney QC-200-08

SAMPLE DATA	
DIAMETER (in.):	1.98
HEIGHT (in.):	3.96
HEIGHT TO DIAMETER RATIO:	2.0
DRY UNIT WEIGHT (pcf):	168.1
MOISTURE CONTENT (%):	0.2

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.2**
TIME TO FAILURE (min.):	**5.3**
AXIAL STRAIN AT FAILURE (%):	**0.9**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (ksf):	**2,280.0**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (psi):	**15,900.0**



FAILURE SHAPE



REMARKS :

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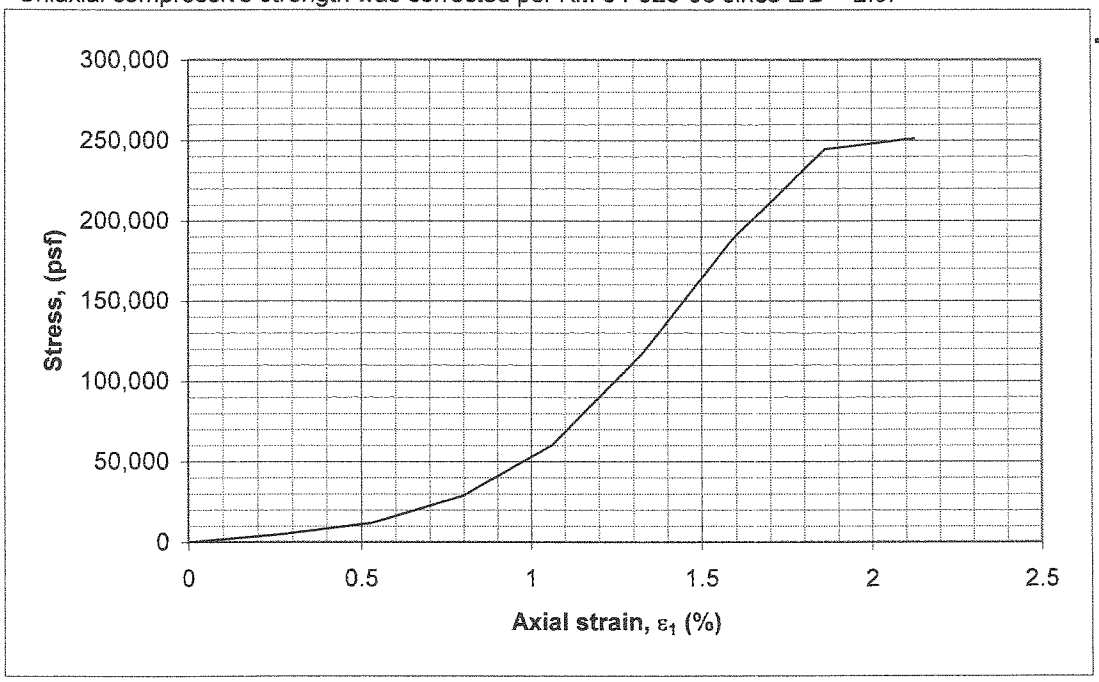
UNIAXIAL COMPRESSIVE STRENGTH OF INTACT ROCK CORE
ASTM D7012 - METHOD C

CLIENT : HDR Engineering, Inc. DATE: 8/5/2013
PROJECT NO.: 120976E
PROJECT: Geotechnical Services, 36" Licking River Crossing
LOCATION: Wilder-Covington, Kentucky

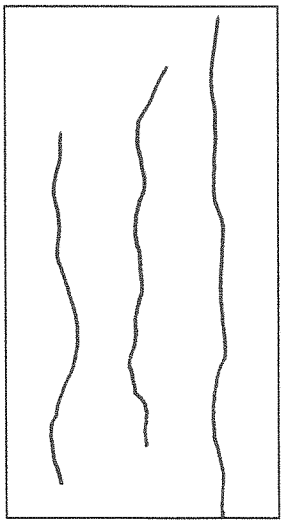
BORING NO.: 6 SAMPLE NO.: RC-16B DEPTH (ft.): 43.3-43.8
SAMPLE DESCRIPTION: Gray moist weak unweathered SHALE (bedrock)
BEDROCK FORMATION: Point Pleasant Formation
LOAD DIRECTION: 90° to Lithology TEST TEMPERATURE (°F): 70
COMPRESSION APPARATUS.: Forney QC-200-08

SAMPLE DATA		FAILURE DATA	
DIAMETER (in.):	1.96	AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.4**
HEIGHT (in.):	3.76	TIME TO FAILURE (min.):	**6.0**
HEIGHT TO DIAMETER RATIO*:	1.9	AXIAL STRAIN AT FAILURE (%):	**2.1**
DRY UNIT WEIGHT (pcf):	154.3	UNIAXIAL COMPRESSIVE STRENGTH, q_u (ksf):	**250.0**
MOISTURE CONTENT (%):	2.4	UNIAXIAL COMPRESSIVE STRENGTH, q_u (psi):	**1,730.0**

*Uniaxial compressive strength was corrected per KM 64-523-08 since L/D < 2.0.



FAILURE SHAPE



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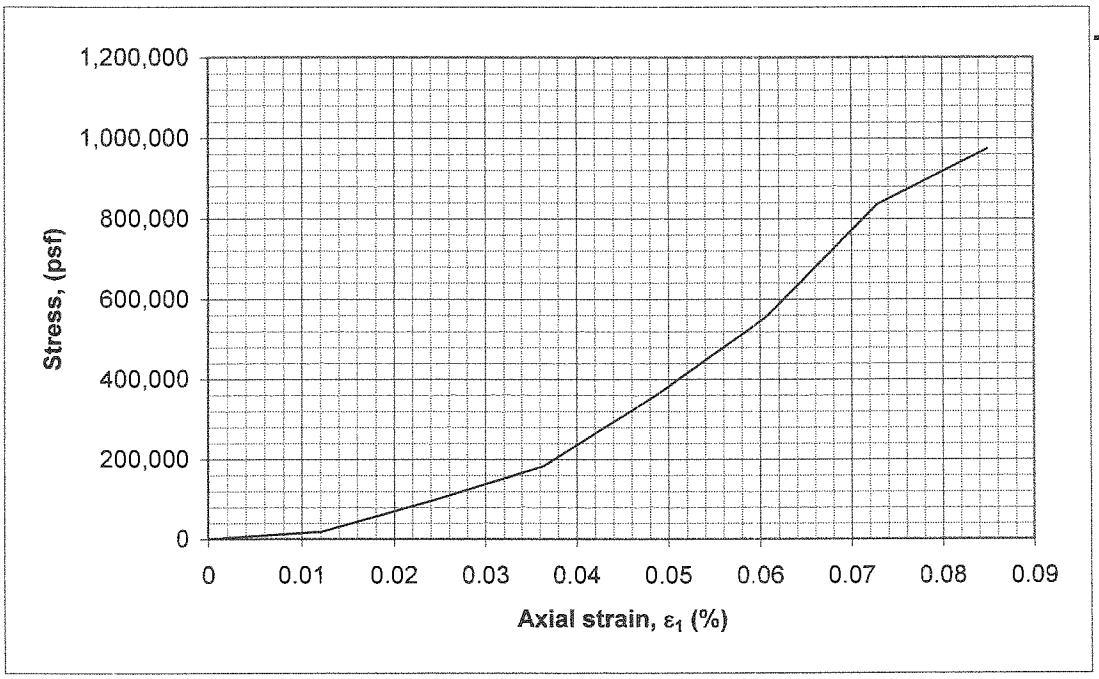
UNIAXIAL COMPRESSIVE STRENGTH OF INTACT ROCK CORE
ASTM D7012 - METHOD C

CLIENT : HDR Engineering, Inc. DATE: 8/5/2013
PROJECT NO.: 120976E
PROJECT: Geotechnical Services, 36" Licking River Crossing
LOCATION: Wilder-Covington, Kentucky

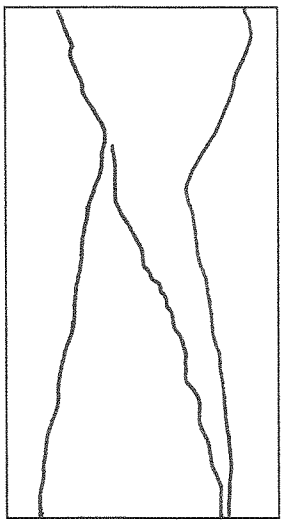
BORING NO.: 6 SAMPLE NO.: RC-17 DEPTH (ft.): 49.7-50.1
SAMPLE DESCRIPTION: Gray medium strong fine-grained unweathered LIMESTONE (bedrock)
BEDROCK FORMATION: Point Pleasant Formation
LOAD DIRECTION: 90° to Lithology TEST TEMPERATURE (°F): 70
COMPRESSION APPARATUS.: Forney QC-200-08

SAMPLE DATA	
DIAMETER (in.):	1.98
HEIGHT (in.):	4.19
HEIGHT TO DIAMETER RATIO:	2.1
DRY UNIT WEIGHT (pcf):	164.1
MOISTURE CONTENT (%):	0.8

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.0**
TIME TO FAILURE (min.):	**3.5**
AXIAL STRAIN AT FAILURE (%):	**0.1**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (ksf):	**974.0**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (psi):	**6,760.0**



FAILURE SHAPE



REMARKS :

THELEN ASSOCIATES, INC.
Geotechnical • Testing Engineers
• 1398 Cox Avenue, Erlanger, Kentucky 41018-1002 / 859-746-9400 / Fax 859-746-9408
www.thelenassoc.com
Offices
Erlanger, Kentucky
Lexington, Kentucky
Cincinnati, Ohio
Dayton, Ohio

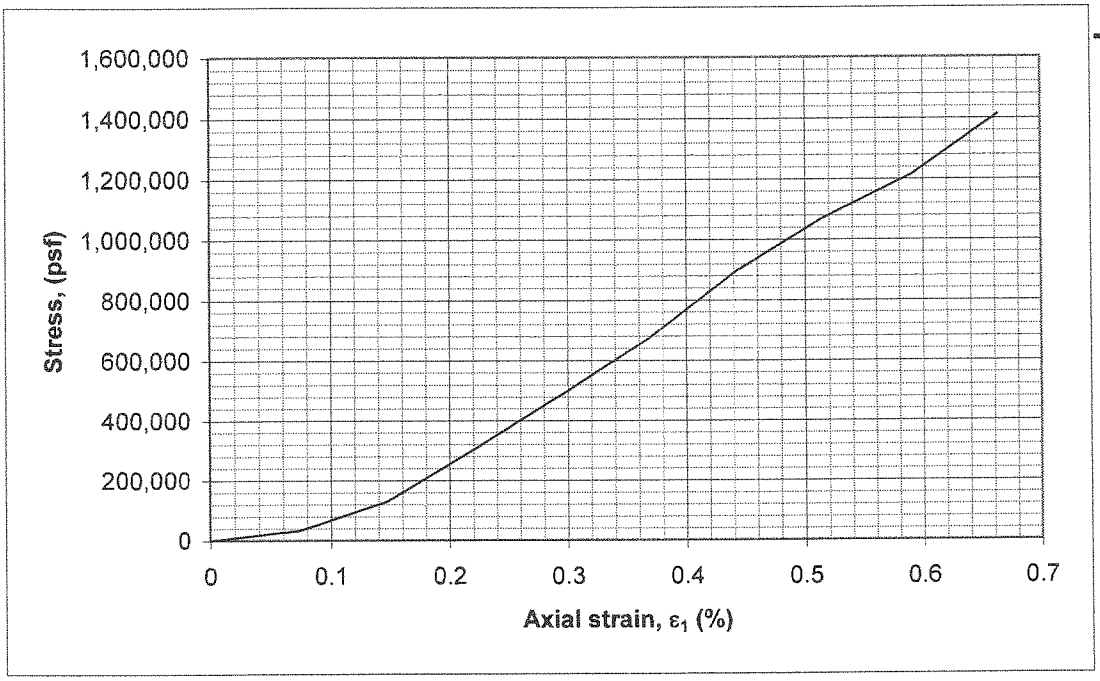
UNIAXIAL COMPRESSIVE STRENGTH OF INTACT ROCK CORE
ASTM D7012 - METHOD C

CLIENT : HDR Engineering, Inc.
DATE: 8/5/2013
PROJECT NO.: 120976E
PROJECT: Geotechnical Services, 36" Licking River Crossing
LOCATION: Wilder-Covington, Kentucky

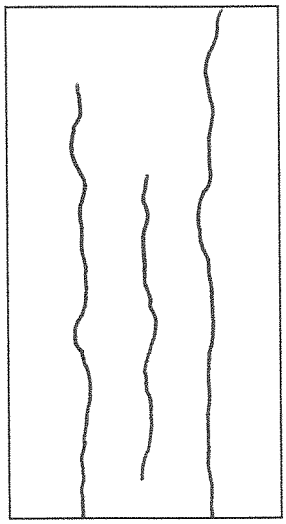
BORING NO.: 7
SAMPLE NO.: RC-2
DEPTH (ft.): 24.0-24.4
SAMPLE DESCRIPTION: Gray strong fine-grained unweathered LIMESTONE (bedrock)
BEDROCK FORMATION: Point Pleasant Formation
LOAD DIRECTION: 90° to Lithology
TEST TEMPERATURE (°F): 70
COMPRESSION APPARATUS.: Forney QC-200-08

SAMPLE DATA	
DIAMETER (in.):	1.76
HEIGHT (in.):	4.07
HEIGHT TO DIAMETER RATIO:	2.3
DRY UNIT WEIGHT (pcf):	168.1
MOISTURE CONTENT (%):	0.4

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.2**
TIME TO FAILURE (min.):	**4.0**
AXIAL STRAIN AT FAILURE (%):	**0.7**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (ksf):	**1,410.0**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (psi):	**9,810.0**



FAILURE SHAPE



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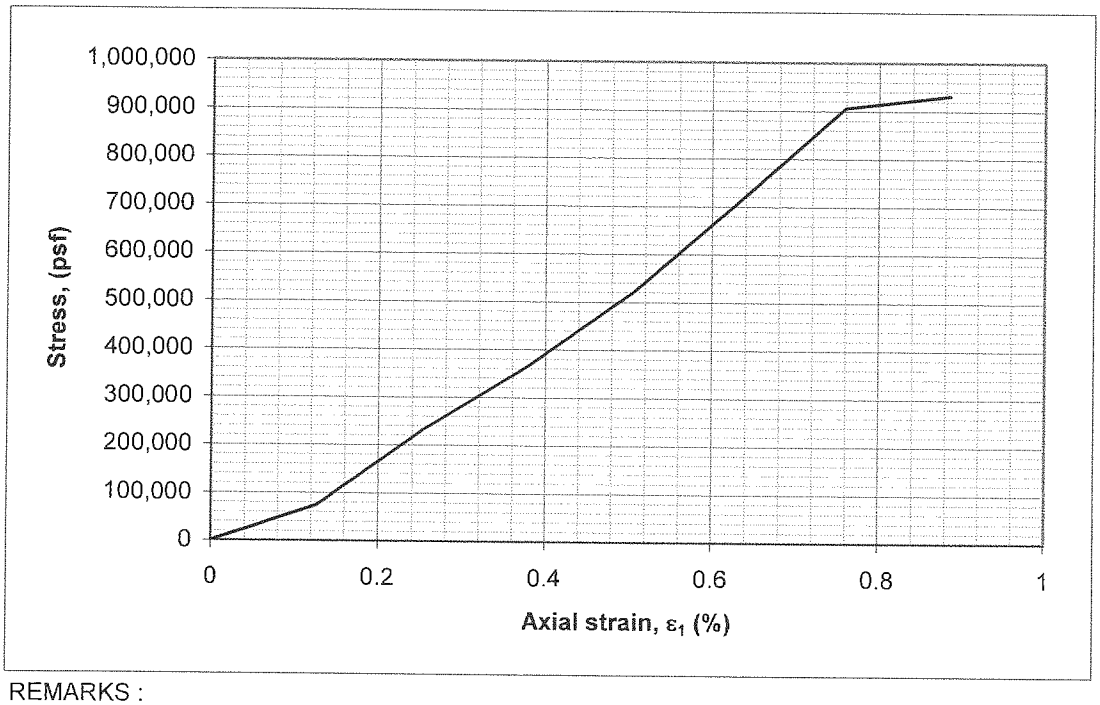
UNIAXIAL COMPRESSIVE STRENGTH OF INTACT ROCK CORE
ASTM D7012 - METHOD C

CLIENT : HDR Engineering, Inc.
DATE: 8/5/2013
PROJECT NO.: 120976E
PROJECT: Geotechnical Services, 36" Licking River Crossing
LOCATION: Wilder-Covington, Kentucky

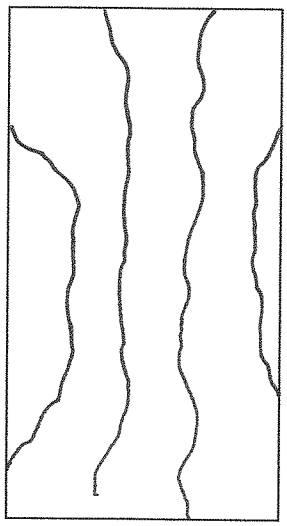
BORING NO.: 7 SAMPLE NO.: RC-4 DEPTH (ft.): 32.8-33.5
SAMPLE DESCRIPTION: Gray medium strong fine-grained unweathered LIMESTONE (bedrock)
BEDROCK FORMATION: Point Pleasant Formation
LOAD DIRECTION: 90° to Lithology TEST TEMPERATURE (°F): 70
COMPRESSION APPARATUS.: Forney QC-200-08

SAMPLE DATA	
DIAMETER (in.):	1.86
HEIGHT (in.):	3.95
HEIGHT TO DIAMETER RATIO:	2.1
DRY UNIT WEIGHT (pcf):	164.7
MOISTURE CONTENT (%):	1.1

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.2**
TIME TO FAILURE (min.):	**4.2**
AXIAL STRAIN AT FAILURE (%):	**0.9**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (ksf):	**931.0**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (psi):	**6,470.0**



FAILURE SHAPE



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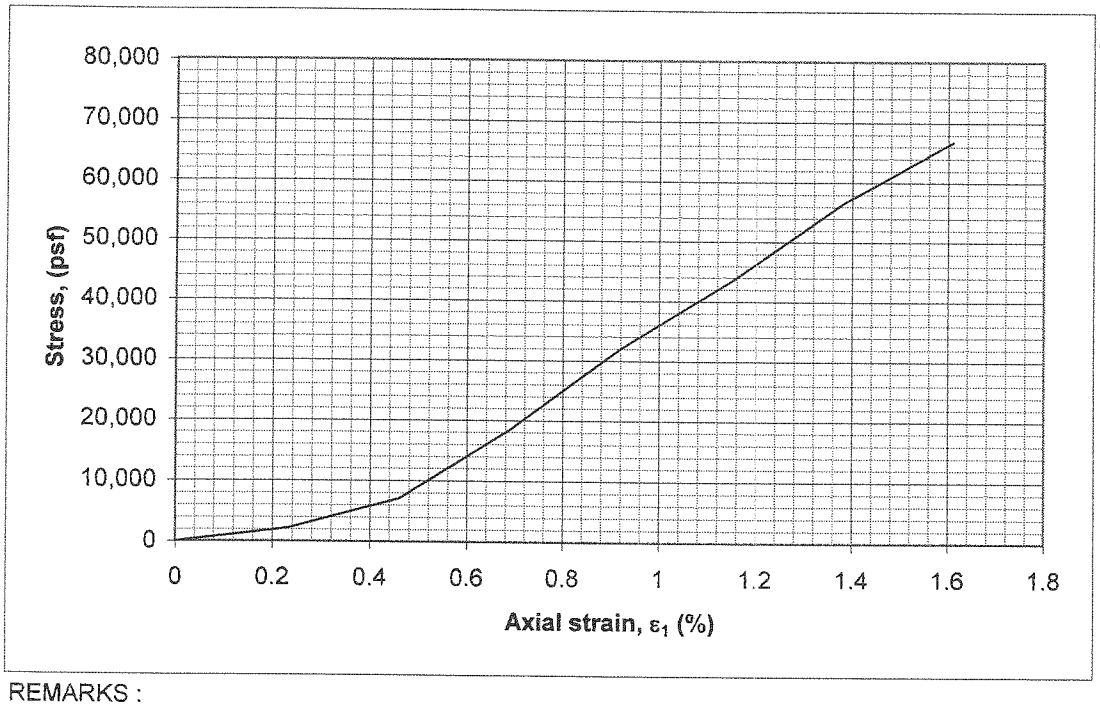
UNIAXIAL COMPRESSIVE STRENGTH OF INTACT ROCK CORE
ASTM D7012 - METHOD C

CLIENT : HDR Engineering, Inc.
DATE: 8/5/2013
PROJECT NO.: 120976E
PROJECT: Geotechnical Services, 36" Licking River Crossing
LOCATION: Wilder-Covington, Kentucky

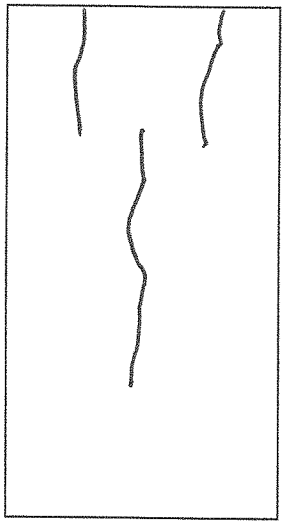
BORING NO.: 10
SAMPLE NO.: RC-8
DEPTH (ft.): 56.7-57.1
SAMPLE DESCRIPTION: Gray moist very weak unweathered SHALE (bedrock)
BEDROCK FORMATION: Kope Formation
LOAD DIRECTION: 90° to Lithology
TEST TEMPERATURE (°F): 70
COMPRESSION APPARATUS.: Forney QC-200-08

SAMPLE DATA	
DIAMETER (in.):	1.84
HEIGHT (in.):	4.35
HEIGHT TO DIAMETER RATIO:	2.4
DRY UNIT WEIGHT (pcf):	150.3
MOISTURE CONTENT (%):	5.0

FAILURE DATA	
AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	**0.3**
TIME TO FAILURE (min.):	**6.0**
AXIAL STRAIN AT FAILURE (%):	**1.6**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (ksf):	**66.8**
UNIAXIAL COMPRESSIVE STRENGTH, q_u (psi):	**464.0**



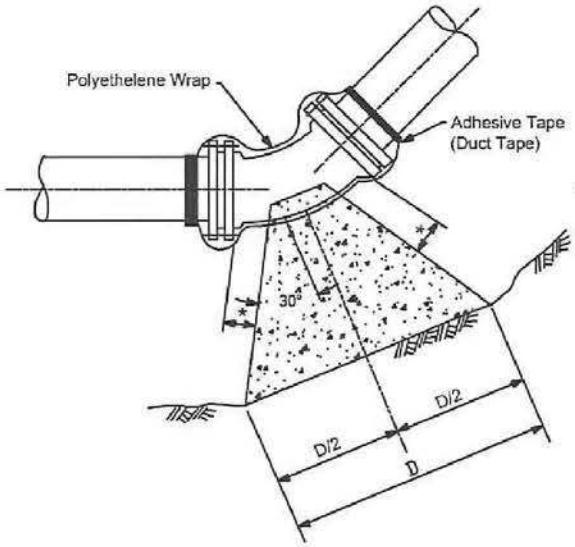
FAILURE SHAPE



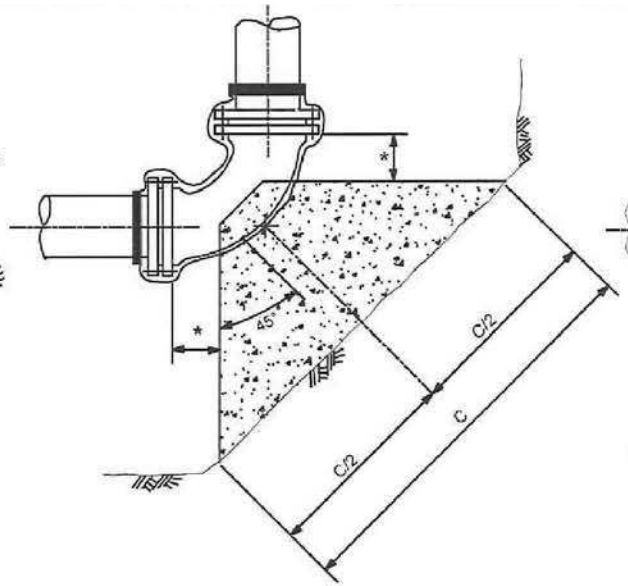
REMARKS :

APPENDIX F – THRUST BLOCK DETAILS

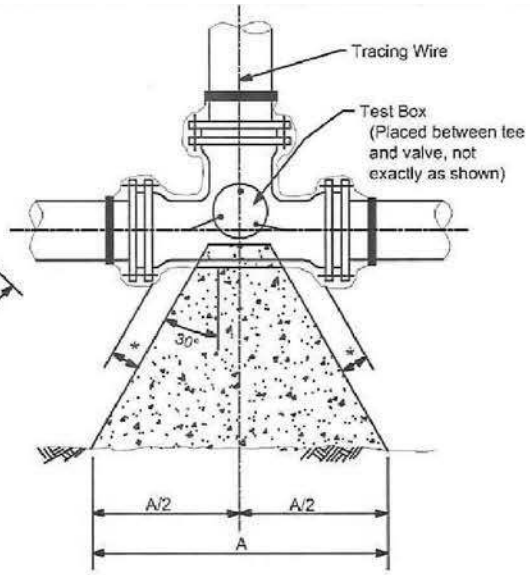
Figures 1 and 2



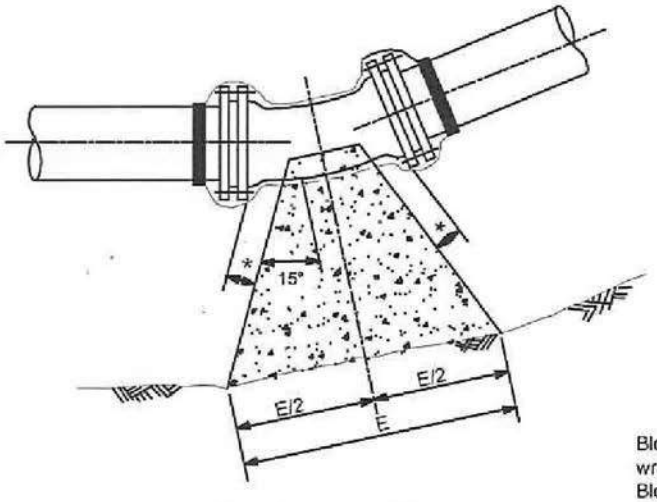
45° BEND



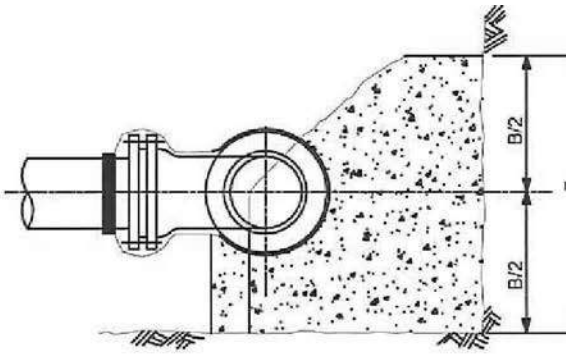
90° BEND



TEE (DEAD END OR FIRE HYDRANT SIMILAP



11 1/4° & 22 1/2° BEND



ELEVATION

Blocking shall be poured after blue polyethelene wrap is in place.
Blocking shall be inspected by the District prior to backfilling.

PIPE SIZE	A	B	C	D	E
36"	8'-0"	5'-0 "	N/A	6'-0"	3'-0"

* Distance to be 1/2" longer than entire length of the bolt used.

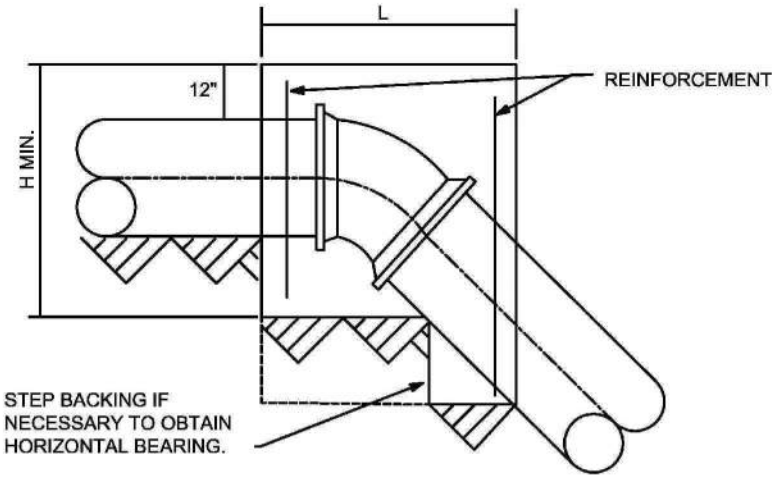
NOTES

1 DIP Fittings shall be per specifications.
2 Concrete to be 3500 psi.
3 All fittings to be Mechanical Joint.
4 Thrust blocks to be placed against undisturbed earth - use additional concrete as required for over excavation.
5 Blocking to be placed in a manner so that bolts can be removed without disturbing the block.
6 Thrust block bearing surface must be suitable for a design bearing pressure of 2,500 psf.

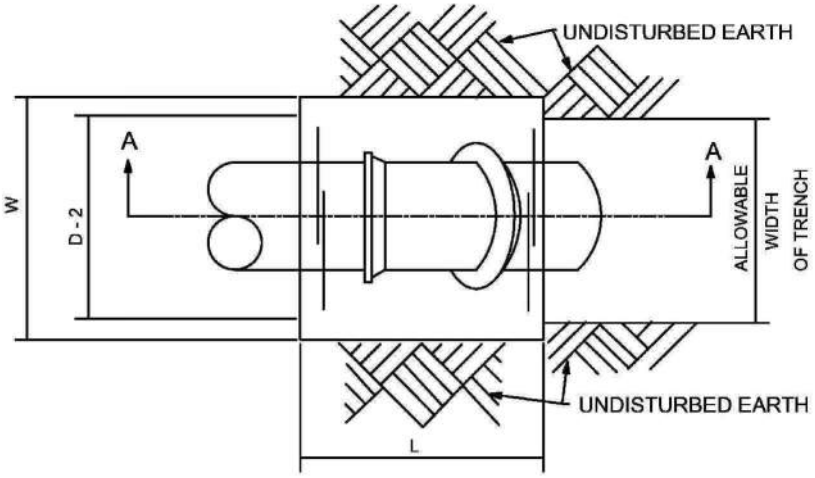
FIGURE 1 - CONCRETE THRUST BLOCK DETAILS FOR RESTRAINED JOINT PIPE

SIZE OF PIPE	DEGREE OF BEND			
	11.25			
	L"	W"	H"	VOL.
36"	134	77	63	376.2

NOTE: VOLUMES GIVEN IN CUBIC FEET



SECTION A-A



PLAN

CONCRETE BACKING FOR VERTICAL BENDS

1. BACKING DESIGNED FOR 3000 POUNDS PER SQUARE FOOT SOIL BEARING AND 150 POUNDS PER SQUARE INCH INTERNAL PRESSURE.
2. PROVIDE MINIMUM CONCRETE REINFORCEMENT OF 2 PAIR OF TWO 5" "U" BARS @ 12" C.
3. CENTER BACKING ON BEND.

BLOCKING FOR SIZES NOT SHOWN SHALL USE THE NEXT LARGER SIZE.

FIGURE 2 - CONCRETE BACKING FOR VERTICAL BENDS FOR RESTRAINED JOINT PIPE

Appendix B

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, LOUISVILLE DISTRICT
600 DR. MARTIN LUTHER KING JR PL
LOUISVILLE, KY 40202

March 28, 2022

Regulatory Division
North Branch
ID No. LRL-2022-88-cat

Mr. Steve Broering
Northern Kentucky Water District
3835 Crescent Spring Road
Erlanger, Kentucky 41018
sbroering@nkywater.org

Dear Mr. Broering:

This is in response to your request for authorization to install a 36-inch water main under the Licking River via directional drilling/boring in Campbell and Kenton Counties, Kentucky (Lat. 39.051304, Long. -84.494537). The information supplied by you was reviewed to determine whether a Department of the Army (DA) permit will be required under the provisions of Section 10 of the Rivers and Harbors Act.

Your project includes structures or work in navigable waters for crossings of those waters associated with the construction, maintenance, repair, and removal of utility lines for water and other substances. The project is authorized under the provisions of 33 CFR 330 Nationwide Permit (NWP) No. 58, Utility Line Activities for Water and Other Substances, as published in the Federal Register January 13, 2021. Under the provisions of this authorization, you must comply with the enclosed Terms and General Conditions for NWP No. 58.

This verification is valid until the NWP is modified, reissued, or revoked. NWP No. 58 will be modified, reissued, or revoked on March 14, 2026. It is incumbent upon the Northern Kentucky Water District to remain informed of changes to the NWPs. If the Northern Kentucky Water District commence or are under contract to commence this activity before the date that the relevant NWP is modified or revoked, you will have 12 months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP. The enclosed Compliance Certification must be submitted to the District Engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later. Please note that we also perform periodic inspections to ensure compliance with our permit conditions and applicable Federal laws.

If you have any questions, please contact us by writing to the District Regulatory Office at the above address, ATTN: CELRL-RDN, or contact me directly at 502-315-6690 or Cody.a.Thayer@usace.army.mil. Any correspondence on this matter should refer to our ID Number LRL-2022-88-cat.

Sincerely,

Cody Thayer
Project Manager, North Branch
Regulatory Division

Enclosures

Compliance Certification:

Permit Number: LRL-2022-88-cat

Name of Permittee: Northern Kentucky Water District: Mr. Steve Broering

Date of Issuance: March 28, 2022

Upon completion of the activity authorized by this permit and any mitigation required by this permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers
CELRL-RDN
P.O. Box 59
Louisville, Kentucky 40201

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____ _____

Signature of Permittee Date

2021 Nationwide Permit Summary

US Army Corps of Engineers
Louisville District ®

Issued: **March 15, 2021**
Expires: **March 14, 2026**

No. 58. Utility Line Activities for Water and Other Substances

(NWP Final Rule, 86 FR 2744)

Activities required for the construction, maintenance, repair, and removal of utility lines for water and other substances, excluding oil, natural gas, products derived from oil or natural gas, and electricity. Oil or natural gas pipeline activities or electric utility line and telecommunications activities may be authorized by NWPs 12 or 57, respectively. This NWP also authorizes associated utility line facilities in waters of the United States, provided the activity does not result in the loss of greater than 1/2-acre of waters of the United States for each single and complete project.

Utility lines: This NWP authorizes discharges of dredged or fill material into waters of the United States and structures or work in navigable waters for crossings of those waters associated with the construction, maintenance, or repair of utility lines for water and other substances, including outfall and intake structures. There must be no change in pre-construction contours of waters of the United States. A "utility line" is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose that is not oil, natural gas, or petrochemicals. Examples of activities authorized by this NWP include utility lines that convey water, sewage, stormwater, wastewater, brine, irrigation water, and industrial products that are not petrochemicals. The term "utility line" does not include activities that drain a water of the United States, such as drainage tile or french drains, but it does apply to pipes conveying drainage from another area.

Material resulting from trench excavation may be temporarily sidecast into waters of the United States for no more than three months, provided the material is not placed in such a manner that it is dispersed by currents or other forces. The district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain waters of the United States (e.g., backfilling with extensive gravel layers, creating a french drain effect). Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

Utility line substations: This NWP authorizes the construction, maintenance, or expansion of substation facilities associated with a utility line in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not result in the loss of greater than 1/2-acre of waters of the United States. This NWP does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters of the United States to construct, maintain, or expand substation facilities.

Foundations for above-ground utility lines: This NWP authorizes the construction or maintenance of foundations for above-ground utility lines in all waters of the United States, provided the foundations are the minimum size necessary.

Access roads: This NWP authorizes the construction of access roads for the construction and maintenance of utility lines, including utility line substations, in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters for access roads. Access roads must be the minimum width necessary (see Note 2, below). Access roads must be constructed so that the length of the road minimizes any adverse effects on waters of the United States and must be as near as possible to pre-construction contours and elevations (e.g., at grade corduroy roads or geotextile/gravel roads). Access roads constructed above pre-construction contours and elevations in waters of the United States must be properly bridged or culverted to maintain surface flows.

This NWP may authorize utility lines in or affecting navigable waters of the United States even if there is no associated discharge of dredged or fill material (see 33 CFR part 322). Overhead utility lines constructed over section 10 waters and utility lines that are routed in or under section 10 waters without a discharge of dredged or fill material require a section 10 permit.

This NWP authorizes, to the extent that Department of the Army authorization is required, temporary structures, fills, and work necessary for the remediation of inadvertent returns of drilling fluids to waters of the United States through sub-soil fissures or fractures that might occur during horizontal directional drilling activities conducted for the purpose of installing or replacing utility lines. These remediation activities must be done as soon as practicable, to restore the affected waterbody. District engineers may add special conditions to this NWP to require a remediation plan for addressing inadvertent returns of drilling fluids to waters of the United States during horizontal directional drilling activities conducted for the purpose of installing or replacing utility lines.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the utility line activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. After construction, temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) a section 10 permit is required; or (2) the discharge will result in the loss of greater than 1/10-acre of waters of the United States. (See general condition 32.) (Authorities: Sections 10 and 404)

Note 1: Where the utility line is constructed, installed, or maintained in navigable waters of the United States (i.e., section 10 waters) within the coastal United States, the Great Lakes, and United States territories, a copy of the NWP verification will be sent by the Corps to the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), for charting the utility line to protect navigation.

Note 2: For utility line activities crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Utility line activities must comply with 33 CFR 330.6(d).

Note 3: Access roads used for both construction and maintenance may be authorized, provided they meet the terms and conditions of this NWP. Access roads used solely for construction of the utility line must be removed upon completion of the work, in accordance with the requirements for temporary fills.

Note 4: Pipes or pipelines used to transport gaseous, liquid, liquescent, or slurry substances over navigable waters of the United States are considered to be bridges, not utility lines, and may require a permit from the U.S. Coast Guard pursuant to the General Bridge Act of 1946. However, any discharges of dredged or fill material into waters of the United States associated with such pipelines will require a section 404 permit (see NWP 15).

Note 5: This NWP authorizes utility line maintenance and repair activities that do not qualify for the Clean Water Act section 404(f) exemption for maintenance of currently serviceable fills or fill structures.

Note 6: For activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b)(4) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, "District Engineer's Decision." The district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed

and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed

for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are

necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine

monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be

sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of

a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____
(Transferee)

_____
(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) *Timing*. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the

information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification*: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize

the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification*: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination*: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

2021 District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they

individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

2021 Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

2021 Nationwide Permit Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the

purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: 1) held in trust by the United States for the benefit of any Indian tribe or individual; or 2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a "water of the United States." If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).

2021 KENTUCKY REGIONAL GENERAL CONDITIONS

These regional conditions are in addition to, but do not supersede, the requirements in the Federal Register (See volume 86, date January 13, 2021, pp 2867-2874 for the text of Section C, General Conditions).

Notifications for all Nationwide Permits (NWPs) shall be in accordance with General Condition No. 32.

1. For activities that would result in a loss of Outstanding State or National Resource Waters (OSNRWs), Exceptional Waters (EWs), Coldwater Aquatic Habitat Waters (CAHs) and waters with Designated Critical Habitat (DCH) under the Endangered Species Act for the NWPs listed below, a Pre-Construction Notification (PCN) will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWPs for impacts to these waters.

   NWP 3 (Maintenance)
   NWP 4 (Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities)
   NWP 5 (Scientific Measurement Devices)
   NWP 6 (Survey Activities)
   NWP 12 (Oil or Natural Gas Pipeline Activities)
   NWP 13 (Bank Stabilization)
   NWP 14 (Linear Transportation Projects)
   NWP 15 (U.S. Coast Guard Approved Bridges)
   NWP 16 (Return Water from Upland Contained Disposal Areas)
   NWP 17 (Hydropower Projects)
   NWP 18 (Minor Discharges)
   NWP 19 (Minor Dredging)
   NWP 20 (Response Operations for Oil or Hazardous Substances)
   NWP 22 (Removal of Vessels)
   NWP 23 (Approved Categorical Exclusions)
   NWP 25 (Structural Discharges)
   NWP 30 (Moist Soil Management for Wildlife)
   NWP 32 (Completed Enforcement Actions)
   NWP 33 (Temporary Construction, Access, and Dewatering)
   NWP 36 (Boat Ramps)
   NWP 41 (Reshaping Existing Drainage Ditches)
   NWP 51 (Land-Based Renewable Energy Generation Facilities)
   NWP 57 (Electric Utility Line and Telecommunications Activities)
   NWP 58 (Utility Line Activities for Water and Other Substances)

2. In addition to the notification and agency coordination requirements in the NWPs, for impacts greater than 0.25 acres in all "waters of the U.S." for the NWPs listed below, a PCN will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWPs:

NWP 3 (Maintenance)
NWP 14 (Linear Transportation Projects)

3. Nationwide Permit No. 14 – Linear Transportation Projects.

(a) New road alignments or realignments are limited to a permanent loss of 500 linear feet of intermittent or perennial stream length or the stream bed acreages listed in the table below at each crossing. Road crossings with permanent losses greater than 500 linear feet of intermittent or perennial stream or the stream bed acreages listed in the table below associated with new alignments or realignments will be evaluated as an individual permit (i.e., a Letter of Permission or Standard Permit).

Table of Acreages at Varying Stream Widths for 500 Linear Feet of Impact	
Stream Width (Feet)	Acres of Stream at Varying Widths for 500 Linear Feet of Stream
1	0.011
2	0.023
3	0.034
4	0.046
5	0.057
6	0.069
7	0.080
8	0.092
9	0.103
10	0.115

(b) In addition to the notification requirements contained in NWP 14, the permittee must submit a PCN to the district engineer prior to commencing the activity for the permanent loss of greater than 300 linear feet of stream bed or the stream bed acreages listed in the table below. (See General Condition 32 and the definition of "loss of waters of the United States" in the Nationwide Permits for further information.)

Table of Acreages at Varying Stream Widths for 300 Linear Feet of Impact	
Stream Width (Feet)	Acres of Stream at Varying Widths for 300 Linear Feet of Stream
1	0.007
2	0.014
3	0.021
4	0.028
5	0.034
6	0.041
7	0.048
8	0.055
9	0.062
10	0.069

4. Notification in accordance with General Condition 32 is required to the Corps for all activities located in the following Section 10 waterways, to include the portion of their tributaries below the Ordinary High Water Mark or navigation pool, or otherwise subject to inundation, by the Section 10 waterway:

- Mississippi River
- Ohio River
- Licking River
- Kentucky River
- Salt River
- Green River
- Cumberland River
- Tennessee River
- Big Sandy River (from mouth to Louisa, KY)

5. All applications and requests should be submitted electronically. To submit applications or other requests electronically, all documents should be saved as a PDF document, and then submitted as an attachment in an email to the following email address:

CELRL.Door.To.The.Corps@usace.army.mil

Your email should include the following:
a) Subject Line with the name of the applicant, type of request, and location (County and State). Example: RE: Doe, John, DA Permit Application, Jefferson County, KY
b) Brief description of the request and contact information (phone number, mailing address, and email address) for the applicant and/or their agent.

c) Project Location: Address and Latitude/Longitude in decimal degrees (e.g. 42.927883, -88.362576).

All forms that require signature must be digitally signed or signed manually, scanned and then sent electronically.

Electronic documents must have sufficient resolution to show project details. In order to have the highest quality documents, the original digital documents should be converted to PDF rather than providing scanned copies of original documents.

The electronic application and attached documents must not exceed 10 megabytes (10MB).

6. For all activities, the applicant shall review the U.S. Fish and Wildlife Service's IPaC website: http://ecos.fws.gov/ipac to determine if the activity might affect threatened and/or endangered species or designated critical habitat. If federally-listed species or designated critical habitat are identified, a PCN in accordance with General Condition 18 and 32 would be triggered and the official species list generated from the IPaC website must be submitted with the PCN.

Further information:

Outstanding State or National Resource Water (OSNRWs), Exceptional Waters (EWs), and Coldwater Aquatic Habitat Waters (CAHs) are waters designated by the Commonwealth of Kentucky, Natural Resources and Environmental Protection Cabinet. The list can be found at the following link: http://eppcapp.ky.gov/spwaters/

Designated Critical Habitat (DCH) under the Endangered Species Act is determined within the Commonwealth of Kentucky by the U.S. Fish and Wildlife Service. The current list of Kentucky's Threatened, Endangered, and Federal Candidate Species can be found at the following link: http://www.fws.gov/frankfort/EndangeredSpecies.html

Information on Pre-Construction Notification (PCN) can be found at NWP General Condition No. 32 in the Federal Register (See volume 86, date January 13, 2021, pp 2867-2874 for the text of Section C, General Conditions).

COORDINATING RESOURCE AGENCIES

Chief, Wetlands Regulatory Section
U.S. Environmental Protection Agency
Region IV
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303

Supervisor
U.S. Fish & Wildlife Service
JC Watts Federal Building, Room 265
330 West Broadway
Frankfort, Kentucky 40601

Supervisor
401 Water Quality Certification
Kentucky Division of Water
300 Sower Boulevard, 3rd Floor
Frankfort, KY 40601

Commissioner
Department of Fish and Wildlife Resources
#1 Sportsman's Lane
Frankfort, KY 40601

Executive Director and State Historic Preservation Officer
Kentucky Heritage Council
410 High Street
Frankfort, KY 40601

Appendix C

TRANSPORTATION CABINET

Steven L. Beshear
Governor

Department of Highways District 6 Office
421 Buttermilk Pike
Covington, KY 41017
(859) 341-2700

Michael W. Hancock, P.E.
Secretary

March 10, 2014

Northern KY Water District
2835 Crescent Springs Rd.
Erlanger, KY 41018

RECEIVED
MAR 13 2014
ON THIS DATE

SUBJECT: Campbell, MP – 20.04
Route No. 9
Permit Number 06-2014-00199

Dear Applicant:

Your application for an encroachment permit has been approved by the Department of Highways. We are returning two copies of the approved permit so one may be kept in your records files. The other copy must be given to the party responsible for completing the project and must be kept at the jobsite at all times.

Please see that the work is done in strict conformity with the permit and any other applicable conditions. (See Form TC99-21 and any other attached documents, conditions or specifications). The work should be completed no later than 07/01/15. When the permitted work and any necessary restoration have been completed please notify this office by using the attached form which will serve as a notification for final inspection.

If there are any question regarding this permit, please do not hesitate to contact Laura Mitchell at 859-341-2700 or fax number 859-341-6729.

Sincerely,

Laura T. Mitchell, P.E.
District 6 Permits Supervisor

Robert A. Hans, P.E.
Chief District Engineer
Department of Highways
District 6- Covington
421 Buttermilk Pike
Covington, KY 41017

NOTICE OF COMPLETION OF ENCROACHMENT PERMIT WORK

PLEASE RETURN THIS FORM TO THE DISTRICT OFFICE WHEN WORK IS COMPLETED AND IS READY FOR FINAL INSPECTION.

APPLICANT INFORMATION:

Northern KY Water District
2835 Crescent Springs Rd.
Erlanger, KY 41018

PROJECT IDENTIFICATION:

Campbell, MP – 20.04
Route No. 9
Permit Number 06-2014-00199
Road Name: Licking Pike

I wish to notify the Department of Highways that the work in the above mentioned permit and any necessary right of way restoration work have been completed and are ready for final inspection.

Applicant Signature:_____

Please Return To: Department of Highways
District 6 Covington
421 Buttermilk Pike
Covington, Kentucky 41017

Attention: Laura Mitchell, Permits Supervisor

Kentucky Transportation Cabinet
Department of Highways
Permits Branch

ENCROACHMENT PERMIT

KEPTS No.: T06-2014-00199

Permittee: Northern Kentucky Water District

Latitude: 39.053593

Longitude: -84.488347

Completion Date: 7/1/2015

Coordinates provided on the TC 99-1(B) are the approved location for this permit

Indemnities		
Type	Amount Required	Tracking Number
Performance Bond	0	
Payment Bond	0	
Liability Insurance	0	

This permit has been:

APPROVED ☒ **DENIED** ☐

Laura Mitchell — Permits Supervisor

NAME **TITLE**

Laura Mitchell — 3-7-14

SIGNATURE **DATE**

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.

Kentucky Transportation Cabinet
Department of Highways
Permits Branch

APPLICATION FOR ENCROACHMENT PERMIT

Permittee Information			
Name	Northern Kentucky Water District		
Address	2835 Crescent Springs Road		
City	Erlanger		
State	KY	Zip	41018
Phone#	859-578-9898		
Contact	Brendan O'Bryan		
Phone	859-578-4893	Cell	
Email	bobryan@nkywater.org		
Contact			
Phone		Cell	
Email			

KYTC No. 06-2014-00199

Permit Information			
Address	Licking Pike and South Street		
City	Wilder		
State	KY	Zip	41071
County	Campbell		
Route No.	9	Mile-Point	20.04
Longitude (X)	39.0535		
Latitude (Y)	-84.4883		

Information below to be filled out by KYTC

☐ Air Right ☐ Entrance
☒ Utilities ☐ Other: WATER

☐ Left ☐ Right ☒ X-ing

Access: ☐ Full ☐ Partial ☒ by Permit

General Description of Work:

48" Steel encasement pipe will be directional bored underneath KY 9 just north of its intersection with South Street in Wilder, KY. 36" Water main will be contained inside encasement.

APPROVED

MAR 10 2014

184-749

KYTC District 6

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

2/25/2014
Date

This is not a permit unless and until the permittee(s) receives an approved TC 99-1(B) from KYTC. This application will become void if not approved by the cancellation date. The cancellation date will be one year from the date the permittee submits their application.

APPLICATION FOR ENCROACHMENT PERMIT

TERMS AND CONDITIONS

1. The permit, including this application and all related and accompanying documents and drawings making up the permit, remains in effect and is binding upon the Applicant/Permittee, its successors and assigns, as long as the encroachment(s) exists and also until the permittee is finally relieved by the Department of Highways from all its obligations.

2. Applicant shall meet all requirements of the Clean Water Act if the project will disturb one acre or more, the applicant shall obtain a KPDES KYR10 Permit from the Kentucky Division of Water. All disturbed areas shall meet the requirements of the Department of Highway's Standard Specifications, Sections 212 and 213, as amended.

3. INDEMNITY:

- **A.** PERFORMANCE BOND: The permittee shall provide to the Department a performance bond according to the Permits Manual, Section PE-203 as a guarantee of conformance with the Department's Encroachment Permit requirements.
- **B.** PAYMENT BOND: At the discretion of the department, a payment bond will be required of the permittee to ensure payment of liquidated damages assessed to the permittee.
- **C.** LIABILITY INSURANCE: Liability insurance will be required of the permittee (in an amount approved by the department) to cover all liabilities associated with the encroachment.
- **D.** It shall be the responsibility of the permittee, its successors and assigns, to maintain all indemnities in full force and effect until the permittee is authorized to release the indemnity by the Department.

4. A copy of this application and all related documents making up the approved permit will be given to the applicant and shall be made readily available for review at the work site at all times.

5. Perpetual maintenance of the encroachment is the responsibility of the permittee, its successors and assigns, with the approval of the Department as required, unless otherwise stated.

6. Permittee, its successors and assigns, shall comply with and agrees to be bound by the requirements and terms of (a) this application and all related documents making up the approved permit, (b) by the Department's Permits Manual, and (c) by the Manual on Uniform Traffic Control Devices, both manuals as revised to and in effect on the date of issuance of the permit, all of which documents are made a part thereof by this reference. Compliance by the permittee, its successors and assigns, with subsequent revisions to applicable provisions of either manual or other policy of the Department may be made a condition of allowing the encroachment to persist under the permit.

7. Permittee agrees that this and any encroachment may be ordered removed by the Department at any time, and for any reason, upon thirty days written notice to the last known address of the applicant or to the address at the location of the encroachment. The permittee agrees that the cost of removing and of restoring the associated right-of-way is the responsibility of the permittee, its successors and assigns.

8. Permittee, its successors and assigns, agree that if the Department determines that motor vehicular safety deficiencies develop as a result of the installation or use of the encroachment, the permittee, its successors and assigns, shall provide and bear the expenses to adjust, relocate, or reconstruct the facilities, and/or add signs, auxiliary lanes, or other corrective measures reasonably deemed necessary by the Department within a reasonable time after receipt of a written notice of such deficiency. The period within which such adjustments, relocations, additions, modifications, and/or other corrective measures must be completed will be specified in the notice.

APPLICATION FOR ENCROACHMENT PERMIT

9. Where traffic signals are required as a condition of granting the requested permit or are thereafter required to correct motor vehicular safety deficiencies, as determined by the Department, the costs for signal equipment and installation(s) shall be borne by the permittee, its successors and assigns, and/or the Department in its reasonable discretion and only in accordance with the Department's current policy set forth in the Traffic Operations Manual and Permits Manual. Any modifications to the permittee's entrance necessary to accommodate signalization (including necessary easement(s) on private property) shall be the responsibility of the permittee, its successors and assigns, at no expense to the Department.

10. The requested encroachment shall not infringe on the frontage rights of an abutting owner without their written consent as hereinafter described. Each abutting owner shall express their consent, which shall be binding on their successors and assigns, by the submission of a notarized statement as follows, "I (we), _____, hereby consent to the granting of the permit requested by the applicant along Route _____, which permit does affect frontage rights along my (our) adjacent real property." By signature(s) _____, subscribed and sworn by _____, on this date _____.

11. The permit, if approved, is subject to the agreement that it shall not interfere with any similar rights or permit(s) previously granted to any other party, except as otherwise provided by law.

12. Permittee shall include documentation which describes the facilities to be constructed. Permittee, its successors and assigns, agrees as a condition of the granting of the permit to construct and maintain any and all permitted facilities or other encroachments in strict accordance with the submitted and approved permit documentation and the policies and procedures of the Department. Permittee, its successors and assigns, shall not use facilities authorized herein in any manner contrary to that prescribed by the approved permit. Only normal usage as contemplated by the parties and by this application and routine maintenance are authorized by the permit.

13. Permittee, its successors and assigns, at all times from the date permitted work is commenced until such time as all permitted facilities or other encroachments are removed from the right-of-way and the right-of-way restored, **shall defend, protect, indemnify and save harmless** the Department from any and all liability claims and demands arising out of the work, encroachment, maintenance, or other undertaking by the permittee, its successors and assigns, related or undertaken pursuant to the granted permit, due to any claimed act or omission by the permittee, its servants, agents, employees, or contractors. This provision shall not inure to the benefit of any third party nor operate to enlarge any liability of the Department beyond that existing at common law or otherwise if this right to indemnity did not exist.

14. Upon a violation of any provision of the permit, or otherwise in its reasonable discretion, the Department may require additional action by the permittee, its successors and assigns, up to and including the removal of the encroachment and restoration of the right-of-way. In the event additional actions required by the Department under the permit are not undertaken as ordered and within a reasonable time, the Department may in its discretion cause those or other additional corrective actions to be undertaken and the Department may and shall recover the reasonable costs of those corrective actions from the permittee, its successors and assigns.

15. Permittee, its successors and assigns, shall use the encroachment premises in compliance with all requirements of federal law and regulation, including those imposed pursuant to Title VI of the Civil Right Act of 1964 (42 U.S.C. § 2000d et seq.) and the related regulations of the U.S. Department of Transportation in Title 49 C.F.R. Part 21, all as amended.

APPLICATION FOR ENCROACHMENT PERMIT

16. Permittee, its successors and assigns, agree that if the Department determines it is necessary for the facilities or other encroachment authorized by the permit to be removed, relocated or reconstructed in connection with the reconstruction, relocation or improvement of a highway, the Department may revoke permission for the encroachment to remain under the permit and may order its removal, relocation or reconstruction by the permittee, its successors and assigns, at the expense of the permittee, except where the Department is required by law to pay any or all of those costs.

17. Permittee agrees that the authorized permit is personal to the permittee and shall remain in effect until such time as (a) the permittee's rights to the adjoining real property to have benefitted from the requested encroachment have been relinquished, (b) until all permit obligations have been assumed by appropriate successors and assigns, and (c) unless and until a written release from permit obligations has been granted by the Department. The permit and its requirements shall also bind the real property to have benefitted from the requested encroachment to the extent permitted by law. The permit and the related encroachment become the responsibility of the successors and assigns of the permittee and the successors and assigns of each property owner benefitting from the encroachment, or the encroachment may not otherwise permissibly continue to be maintained on the right-of-way. (Does not apply to utility encroachments serving the general public.)

18. If work authorized by the permit is within a highway construction project in the construction phase, it shall be the responsibility of the permittee to make personal contact with the Department's Engineer on the project in order to coordinate all permitted work with the Department's prime contractor on the project.

19. This permit is not intended to, nor shall it, affect, alter or alleviate any requirement imposed upon the permittee, its successors and assigns, by any other agency.

20. Permittee, its successors and assigns, agrees to contain and maintain all dirt, mud, and other debris emanating from the encroachment away from the surrounding right-of-way and the travel way of the highway hereafter and at all times that its obligations under the permit remain in effect.

ENCROACHMENT PERMIT GENERAL NOTES & SPECIFICATIONS

Permit No. 06-2014-00199

I. SAFETY

A. General Provisions

☒ All signs and control of traffic shall be in accordance with the Manual on Uniform Traffic Control Devices for Streets and Highways, latest edition, Part VI, and safety requirements shall comply with the Permits Manual.

☒ All work necessary in shoulder or ditch line areas of a state highway shall be scheduled to be promptly completed so that hazards adjacent to the traveled way are kept to an absolute minimum.

☒ No more than one (1) traveled-lane shall be blocked or obstructed during normal working hours. All signs and flaggers during lane closure shall conform to the Manual on Uniform Traffic Control Devices.

☒ When necessary to block one (1) traveled-lane of a state highway, the normal working hours shall be as directed by the Department. No lanes shall be blocked or obstructed during adverse weather conditions (rain, snow, fog, etc.) without specific permission from the Department. Working hours shall be between N/A and _____

☒ The traveled-way and shoulders shall be kept clear of mud and other construction debris at all times during construction of the permitted facility.

☒ No nonconstruction equipment or vehicles or office trailers shall be allowed on the right of way during working hours.

☒ The right of way shall be left free and clear of equipment, material, and vehicles during non-working hours.

B. Explosives

☒ No explosive devices or explosive material shall be used within state right of way without proper license and approval of the Kentucky Department of Mines and Minerals, Explosive Division.

C. Other Safety Requirements

☒ NO Lane closure allowed for this work. All work outside roadway pavement.
Jack & Bore method must be used for this work. NO Pavement cuts allowed on KY 9

II. UTILITIES * Applies to Fully Controlled Access Highways **ONLY**

☐ *All work necessary within the right of way shall be performed behind a temporary fence erected prior to a boring operation.

☐ *The temporary woven wire fence shall be removed immediately upon completion of work on the right of way, and the control of access immediately restored to original condition, in accordance with applicable Kentucky Department of Highways Standard Drawings.

☐ *All vents, valves, manholes, etc., shall be located outside of the right-of-way.

☐ *Encasement pipe shall extend from right-of-way line to right-of-way line and shall be one continuous run of pipe. The encasement pipe shall be welded at all joints.

☒ The boring pit and tail ditch shall extend past the existing toe of slope or bottom of ditch line and shall be a minimum of 42 inches deep.

II. UTILITIES (Continued)

☒ Encasement pipe pipe shall conform to current standards for highway crossings in accordance with the Permits Manual.

☒ Parallel lines shall be constructed between back slope of ditch line and right-of-way line and shall have a minimum of 30-inch cover above top of pipe or conduit.

☐ All pavement cuts shall be restored per Kentucky Transportation Cabinet form TC 99-13.

☐ Aerial crossing of this utility line shall have a minimum clearance of _____ feet from the high point of the roadway to the low point of the line (calculated at the coefficient for expansion of 120 degrees Farenheit).

☐ The 30-foot clear zone requirement shall be met to the extent possible in accordance with the Permits Manual.

☒ Special requirements:

NO Lane closure allowed for this work. All work outside roadway pavement.
Jack & Bore method must be used for this work. NO Pavement cuts allowed on KY 9.

Any roadway sign removed or damaged must be replaced according to KYTC standards.

III. GENERAL

A. OSHA

☒ Kentucky Occupational Safety and Health Standards for the construction industry, which has the effect of law, states in part: (Page 52, 1926.651, Specific Excavation Requirements) "Prior to opening an excavation, effort shall be made to determine whether underground installations, (sewer, telephone, water, fuel, electric lines, etc.) will be encountered, and if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined, and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation."

B. Archaeological

☒ Whenever materials of an archaeological nature are discovered during the course of construction work or maintenance operations, contact shall be made immediately with the Division of Environmental Analysis, which maintains an archaeologist on staff, or with the Office of the State Archaeologist located at the University of Kentucky. Following this consultation, further action shall be decided on a case-by-case basis by the State Highway Engineer or the Transportation Planning Engineer or their designated representative.

C. Utilities in the Work Areas

☒ The permittee shall be responsible for any damage to existing utilities, and any utility modifications or relocations within state right of way necessary, as determined by the Department or by the owner of the utility, shall be at the expense of the permittee and subject to the approval of the Department.

☒ All existing manholes and valve boxes shall be adjusted to be flush with finished grade.

D. Environmental

☒ If the activity to which this permit relates disturbs one acre or more of land, you must obtain a KPDES KYR10 permit.

Websites

http://www.water.ky.gov/permitting/wastewaterpermitting/KPDES/storm/

Inspectors for KPDES KYR10 at www.KEPSC.org

Permit No. 06-2014-00199

IV. RIGHT OF WAY RESTORATION

☒ All disturbed portions of the right of way shall be restored to grass as per Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition). A satisfactory turf, as determined by the Department, shall be established by the permittee prior to release of indemnity. Sodding or seeding shall be as follows:

Lawn or High Maintenance Situation	70% Lawn Fescue (e.g., variety - Falcon) 30% Bluegrass **or** 70% Lawn Rye (e.g., variety - Derby) 30% Bluegrass
Right of Way Lawn Maintenance Situation	70% KY 31 Fescue 30% Perennial Rye Grass **or** 100% KY Fescue

☒ Two tons of clean straw mulch per acre of seeding.

☒ Prior to seeding, the ground shall be prepared in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

☐ Substitutes for sod such as artificial turf, rocked mulch, or paved areas may be acceptable if they are aesthetically pleasing.

☐ All ditch-flow lines and all ditch-side slopes shall be sodded.

☒ Existing concrete right of way markers shall not be disturbed, but if damaged in any way, they shall be entirely replaced by the permittee, with new concrete markers to match the original markers, in accordance with Kentucky Department of Highways Standard Drawings. Markers that are entirely removed shall be re-established in the proper locations by the permittee and to the satisfaction of the Department.

☐ Other right of way restoration requirements are as follows:

V. DRAINAGE

☐ All pipe shall be laid in a straight alignment, to proper grades, and with all materials and methods of installation including bedding and joint seating in accordance with Department Standard Specifications for Road and Bridge Construction (latest edition). Pipe shall not be covered until inspected by the Department and express permission obtained to make backfill.

☐ All gutter lines at the base of new curbs shall be on continuous grades, and pockets of water along with curbs or in entrance areas or other paved areas within the right of way shall not be acceptable.

☐ All drainage structures and appurtenances (manholes, catch basins, curbing, inlet basins, etc.) shall conform to Department specifications and shall be constructed in accordance with the Department Standard Drawings. Type required:

Permit No. 06-2014-00199

VI. Paving

☐ No bituminous pavement shall be installed within the right of way between November 15 and April 1, nor when the temperature is below 40 degrees Farenheit, without the express consent of the Department. No bituminous pavement shall be installed when the underlying course is wet.

☐ Paving within the right of way shall be as follows:

☐ Base (Type) _____ (Thickness) _____

☐ Surface Base (Type) _____ (Thickness) _____

☐ Finished Surface (Type) _____ (Thickness) _____

☐ Existing pavement and shoulder material shall be removed to acommodate the above paving specifications.

☐ The finished surface of all new pavement within the right of way shall be true to the required slope and grade, uniform in density and texture, free of irregularities, and equivalent in riding qualities to the adjacent highway pavement or as determined by the Department of Highways.

☐ All materials and methods of construction, including base and subgrade preparation, shall be in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

☐ 24 hours notice to the Department is required prior to beginning paving operations.

Phone: _____ Name: _____

☐ To ensure proper surface drainage, the new pavement shall be flush with the edge of existing highway pavement and shall slope away from the existing edge of the pavement as specified in drawings.

☐ Existing edge of pavement shall be saw-cut to provide a straight and uniform joint for new pavement. An approved joint sealer, in accordance with Kentucky Department of Highways Standard Specifications (latest edition), shall be applied between new and existing pavements.

VII. SIDEWALKS SPECIFICATIONS *This dimension should be equal to the width of the sidewalk.

A. New Sidewalks

☐ Sidewalks shall be constructed of Class A concrete (3,500 p.s.i. test), shall be *____ feet in width, 6 inches in thickness across the bituminous entrance, and 4 inches in thickness across the remaining sections.

☐ Sidewalks shall have tooled joints not less than 1 inch in depth at four foot intervals*, and 1/2 premolded expansion joints extending entirely through the sidewalk at intervals not to exceed 50 feet.

☒ All materials and methods of construction, including curing, shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

B. Existing Sidewalks

☒ **(Applicable if existing sidewalks are being relocated)** Use of the sidewalk shall not be blocked or obstructed, and a usable walkway shall be maintained across the construction area at all times.

☒ All damaged sections of the sidewalks shall be entirely replaced to match existing sections.

VIII. DENSE GRADED SHOULDERS

☐ Any existing dense-graded aggregate shoulders in the entire frontage within the construction area, which have been disturbed or damaged or on which dirt has been placed or mud has been deposited or tracked, shall be restored to original condition by removal of all contaminated material and replaced to proper grade with new dense-graded aggregate.

☐ All new aggregate shoulders as specified in the plan shall consist of 5 inches of compacted dense-graded aggregate, $2^{1/2}$ pounds per square yard of calcium chloride.

☐ All dense-graded aggregate shoulders shall slope away from the new edge of pavement at the rate of 3/4 inch per foot.

IX. CURBING

A. Bituminous Curbs

☐ Bituminous concrete curbs shall be given a paint coat of asphalt emulsion.

☐ The surface under the bituminous concrete curb shall be tacked with asphalt emulsion.

☐ All bituminous concrete curbs shall be constructed of a Class I bituminous concrete mixture as specified by official Department of Highways specifications.

☐ All bituminous curbs shall be rolled curb, with a minimum base width of 8 inches and a minimum height of ____ inches. The top of the curb shall be constructed in such a manner as to guarantee a uniform rolled effect throughout the entire run.

B. Concrete Curbs

☒ All curbs or curb and gutter shall be constructed of Class A concrete (3,500 p.s.i. test) and shall be uniform in height, width, and alignment, true to grade, and satisfactory in finish and appearance as determined by the Department. All materials and methods of construction, including curing, shall be in accordance with Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

☐ All concrete curbs shall be 6 inches in width, extend ____ inches above finished grade and 12 inches below finished grade, with all visible edge rounded to 1/2 inch radii.

☐ All concrete curbs shall have expansion joints constructed at intervals of not more than 30 feet, and 1/2 inch premolded expansion joint material (cut to conform to the curb or to the curb and gutter section) shall be used in each expansion joint.

☐ The last ____ feet of all concrete curbs are to be tapered down to finished grade.

Kentucky Transportation Cabinet
Department of Highways
Permits Branch

EXHIBIT B
TC 99-10
Rev. 9/2004

TYPICAL HIGHWAY BORING CROSSING DETAIL

Permit No. 06-2014-00199
Route No. KY 9
Pavement Width 68'

1. Push Pit and Receiving Pit shall be backfilled and thoroughly compacted.
2. All ditch lines are to remain open at all times.
3. Seed and straw all disturbed areas immediately after completing the work.
4. Provide traffic control as required to insure the safety of the traveling public in accordance with the current edition of the "Manual on Uniform Traffic Control Devices".

ALL SERVICES OVER 2" IN DIAMETER SHALL REQUIRE ENCASEMENT.

IMPORTANT NOTICE

Federal law requires that High Visibility Class 2 or Class 3 retroreflective safety apparel that meets ANSI/ISEA 107-2004 Standards shall be worn at all times by anyone working within the KYTC R/W limits.

Class 3 apparel is required for flaggers after dark.

If any questions, please contact Laura Mitchell at (859) 341-2700.

IMPORTANT NOTICE

Federal law requires that traffic control shall be implemented in accordance with MUTCD Standards and KYTC Specifications under the supervision of a Work Zone Traffic Control Supervisor.

A Work Zone Traffic Control Technician shall be available on the jobsite to ensure that the work zone is in compliance with the applicable standards.

If any questions, please contact Laura Mitchell at (859) 341-2700.

Northern Kentucky
Water District

February 25, 2014

Ms. Laura Mitchell
KDOT District 6
421 Buttermilk Pike
Ft. Mitchell, KY 41017

RE: Encroachment Permit Applications

Dear Ms. Mitchell,

Please find the attached encroachment permit application and corresponding drawings for the 36" Licking River Crossing Project in Wilder, Campbell County, Kentucky.

If you have any questions concerning these applications, please feel free to contact me at 859-578-4893.

Regards,

Brendan O'Bryan
Staff Engineer

2835 Crescent Springs Road P.O. Box 18640 Erlanger, KY 41018
(859) 578-9898 Fax (859) 578-5456

From: Cox, Brian R (KYTC-D06)
To: Steve Broering; Brefeld, Linzy M (KYTC-D06)
Subject: FW: 36" Licking River Crossing Permit 06-2014-00199
Date: Tuesday, December 14, 2021 2:36:14 PM

Steve,
I've extended the permit out to 12-31-22
B

Brian R. Cox, PLS
D-6 Permits
Office: 502-564-5975
Cell: 859-888-7722
Transportation Engineering Tech.
Kentucky Department of Highways, D-6
421 Buttermilk Pike
Covington, KY 41017

From: Brefeld, Linzy M (KYTC-D06) <Linzy.Brefeld@ky.gov>
Sent: Tuesday, December 14, 2021 2:35 PM
To: Cox, Brian R (KYTC-D06) <Brian.Cox@ky.gov>
Subject: RE: 36" Licking River Crossing Permit 06-2014-00199

Ok. Extend it out and let NKWD know.

From: Cox, Brian R (KYTC-D06) <Brian.Cox@ky.gov>
Sent: Tuesday, December 14, 2021 2:34 PM
To: Brefeld, Linzy M (KYTC-D06) <Linzy.Brefeld@ky.gov>
Subject: RE: 36" Licking River Crossing Permit 06-2014-00199

I don't see any reason to start a new file, this has already been approved, and the plans are still good.
I'll do whatever needs to be done
B

Brian R. Cox, PLS
D-6 Permits
Office: 502-564-5975
Cell: 859-888-7722
Transportation Engineering Tech.
Kentucky Department of Highways, D-6
421 Buttermilk Pike
Covington, KY 41017

From: Brefeld, Linzy M (KYTC-D06) <Linzy.Brefeld@ky.gov>

Sent: Monday, December 13, 2021 11:37 AM
To: Cox, Brian R (KYTC-D06) <Brian.Cox@ky.gov>
Subject: Fwd: 36" Licking River Crossing Permit 06-2014-00199

At this point, do we need to start a 2021 kept file for this one? Any issues with the old plans?

Linzy Brefeld, P.E.
Transportation Engineer Supervisor
KYTC District 6
Traffic and Permits Section
Linzy.Brefeld@ky.gov

From: Steve Broering <sbroering@nkywater.org>
Sent: Thursday, December 9, 2021 2:55:26 PM
To: Brefeld, Linzy M (KYTC-D06) <Linzy.Brefeld@ky.gov>
Subject: 36" Licking River Crossing Permit 06-2014-00199

Linzy,
This email message pertains to Licking River Crossing water main crossing Permit 06-2014-00199. The Northern Kentucky Water District could not bid the project out due supply chain issues with the proposed pipe material. The current permit expires on December 31, 2021. The District anticipates construction to commence in mid-summer of 2022 with the approval of the bid from the Public Service Commission.
The Northern Kentucky Water District is requesting that the KYTC encroachment permit be extended 1 year to December 31, 2022. If you have any questions I can be reached via this email or at 859-426-2728.

Regards,
Steve Broering
NKWD

From: Steve Broering
Sent: Friday, November 13, 2020 3:44 PM
To: Linzy Brefeld (linzy.brefeld@ky.gov) <linzy.brefeld@ky.gov>
Subject: 36" Licking River Crossing Permit 06-2014-00199

Linzy,

The Northern Kentucky Water District would like to update you on our 36" water main Licking River Crossing Project. The District has plans to install approximately 3,100 feet of 36" water main from the intersection of Licking Pike and South Street in Campbell County in westerly direction across the Licking River to Kenton County. The project has incurred many delays since the District contacted KTC about the project back in 2014 per the attached original approved permit. The plans have not changed. It has been a long process but at this point we anticipate bidding the project in January 2021. The project will have to be sent to the Public Service Commission for approval which could take up to 90 days after receiving the bids. It is anticipated that the project will start construction in mid to late spring of 2021 and be completed in the fall of 2021.

The District is requesting that Permit 06-2014-00199 be renewed and extended to the fall of 2021.

If you have questions about the project or need another set of plans please contact me via email or at 859-426-2728.

Regards,
Steve Broering
Northern Kentucky Water District

Appendix D

ANDY BESHEAR
GOVERNOR

REBECCA W. GOODMAN
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

ANTHONY R. HATTON
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

April 7, 2021

Mr. Kyle Ryan, PE
Northern KY Water District
2835 Crescent Springs Rd
Erlanger, KY 41018

RE: Licking River Crossing
F13-012
Campbell County, KY
Northern KY Water District
AI #: 2485, FGL20140006

Dear Mr. Ryan:

The Kentucky Division of Water (DOW) has reviewed for completeness and adequacy the construction plans and specifications submitted for the above referenced contract(s). The DOW now approves these plans and specifications with respect to sanitary features of design in accordance with the requirements contained in the attached construction permit. The plans consist of construction of 340 LF of 8-inch DI, 1,201 LF of 36-inch HDPE, and 1,920 LF of 36-inch DI waterlines. The approval conditions and a list of eligible/ineligible items are enclosed. Please note that ineligible items cannot be funded using State Revolving Fund (SRF) monies, and must be paid by other funding sources.

We are enclosing one (1) set of approved plans and specifications. An identical set should be made available at the project site at all times. If modifications are made to these plans and specifications before bidding, two (2) complete sets of as-bid plans and specifications must be submitted to the DOW for approval. A second DOW construction approval must be issued by separate correspondence before proceeding with advertising for bids. Any red line changes that were made by DOW personnel on the approved plans shall be incorporated into the bid set plans unless an alternative is approved.

You may now advertise for bids on the construction of this project. In addition to other notifications, this project must be advertised in the newspaper of the largest daily circulation in the project area.

You are cautioned not to advertise unless you have a proper wage decision. The Federal Davis-Bacon wage rates are applicable for this project. Please contact all other funding sources for their requirements pertaining to federal wage rates.

You are reminded that the construction contracts are subject to the equal employment opportunity requirements contained in Executive Order 11246. Equal employment opportunity affirmative action by the prime contractors and all subcontractors is mandated throughout the duration of the contract. Documentation of efforts to comply with Executive Order 11246, Equal Employment Opportunity is required to be kept by the borrower.

Review the attached Project Review and Cost Summary form for details of the information to be collected and retained in your files or to be submitted to DOW for review and approval. This form must be completed, signed by the recipient, and with the necessary information be then forwarded to the DOW. This signature will certify that all the information to be retained by the recipient has been secured and is available for review by the Division at the pre-construction conference. The required information must be approved by the DOW before executing any contracts.

Along with the Project Review and Cost Summary form, the following items must be submitted to the DOW for review and approval before executing any contracts:

- The bid advertisement
- Revised Project Budget
- Certified bid tabulation
- Documentation of compliance with DBE Good Faith Effort in accordance with 40 CFR 33.301

These items will be reviewed as a part of the Authority to Award process. The DOW will authorize you to award the contracts once these documents are approved

After the Notice to Proceed is signed, the DOW will need a copy of the executed contract documents, including plans and specifications.

Changes orders will require approval from the DOW before payment can be authorized from the State Revolving Fund. Submission of plans and specifications may be required for change order work.

Upon completion of the project, as-built drawings shall be provided to the DOW. As-builts shall be stamped, signed and dated by a professional engineer. A written certification stating that the project was constructed according to the approved plans shall be provided to the DOW by a professional engineer.

The construction permit included in this letter has been issued under the provisions of KRS Chapter 224 and the 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.

You are cautioned that the advertisement and award of this contract will be subject to the laws and regulations that govern the State Revolving Fund (SRF) and to the conditions of your loan agreement. If we can be of further assistance, please contact Mike Snyder, at (502) 782-1235.

Sincerely,

Terry Humphries, P.E.
Supervisor, Engineering Section
Water Infrastructure Branch
Division of Water

TH:MS
Enclosures
Eligible List, Ineligible List, Approval Conditions
Project Review and Cost Summary Form
1 set plans and specification

C: HDR Inc.
Kentucky Infrastructure Authority
Cabinet for Economic Development
Campbell County Health Department
Division of Plumbing

Distribution-Water Line Extension

Northern KY Water District

Facility Requirements

Activity ID No.:APE20210002

PORT0000000288 (Licking River Crossing Contract 2 - SRF Project) 340 LF of 8-inch DI, 1,201 LF of 36-inch HDPE, and 1,920 LF of 36-inch DI waterline:

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]

PORT0000000288 (Licking River Crossing Contract 2 - SRF Project) 340 LF of 8-inch DI, 1,201 LF of 36-inch HDPE, and 1,920 LF of 36-inch DI waterline:

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]

PORT0000000288 (Licking River Crossing Contract 2 - SRF Project) 340 LF of 8-inch DI, 1,201 LF of 36-inch HDPE, and 1,920 LF of 36-inch DI waterline:

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]

PORT0000000288 (Licking River Crossing Contract 2 - SRF Project) 340 LF of 8-inch DI, 1,201 LF of 36-inch HDPE, and 1,920 LF of 36-inch DI waterline:

Narrative Requirements:

Condition No.	Condition
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]
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]

PORT0000000288 (Licking River Crossing Contract 2 - SRF Project) 340 LF of 8-inch DI, 1,201 LF of 36-inch HDPE, and 1,920 LF of 36-inch DI waterline:

Narrative Requirements:

Condition No.	Condition
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]

Appendix E

SD1
GRADING PERMIT

Date:	12/3/2020
Permit No.:	GRP-0359-0514
Project Name:	NKWD Licking River Waterline Crossing
Permittee:	Steve Broering 2835 Cresent Springs Erlanger, KY 41018
Location:	101 ANDREWS WAY Wilder
Permit Use:	Perform Grading & Erosion Control Work

The permittee named above has agreed to comply with all applicable SD1 Rules and Regulations. This permit must be retained by the permittee and made available for review upon request.

This permit shall remain valid for two years from the date of the approval letter. Once work begins, appropriate and timely progress towards completion of work must occur. If this site becomes inactive for more than one year, this permit becomes void.

YOU MUST NOTIFY JASON BURLAGE AT LEAST 72 HOURS BEFORE COMMENCING WORK.

Jason Burlage
Email: jburlage@sd1.org

12/3/2020

Steve Broering
Northern Kentucky Water District
2835 Cresent Springs
Erlanger, KY 41018

RE: NKWD Licking River Waterline Crossing
Grading Permit - GRP-0359-0514

Steve Broering:

Your application for a Grading Permit for the NKWD Licking River Waterline Crossing Project has been reviewed and approved by SD1 under Permit number GRP-0359-0514.

In no event shall SD1's issuance of this permit be construed as relieving you from obtaining all other applicable local, state or federal permits and/or licenses prior to performing any land disturbing activities. It is your responsibility to ensure all land disturbing construction and associated activities pertaining to this permit shall be accomplished pursuant to the approved plans. Any hydrologic issue(s), flooding, property damage, etc. that may result from the approved plans or failure to construct the approved plans is not the responsibility of SD1.

The person named on the permit (permittee) has agreed to comply with all applicable SD1 Rules and Regulations. This permit must be retained by the permittee and made available for review upon request.

Upon completion of this project a Notice of Termination must be submitted to SD1. All erosion protection and sediment control best management practices (e.g., silt fence, sediment basins, etc.) installed on the site must be removed and permanent vegetation established before SD1 will approve any Notice of Termination.

Please be advised that record drawings of storm sewers and storm water control facilities for this permitted project must be submitted at the completion of construction in accordance with Section 1005 of the SD1 Storm Water Rules and Regulations. Please see the last page of this approval letter for the record drawing requirements.

Please contact SD1's Plan Review Administrator, Jason Burlage, at 859-578-6892 at least 72 hours prior to beginning any land disturbing activities to schedule a pre-construction meeting.

This permit shall remain valid for two years from the date of this approval letter. Once work begins, appropriate and timely progress towards completion of work must occur. If the site becomes inactive for one year, this permit becomes void.

If you have any questions or comments regarding this notice, please contact me at

Regards,

Andy Aman
Plan Review Manager
Engineering Services

cc: Ross Guffey - HDR Engineering (*via email only)*

Record Drawing Requirements (02/07/20)

In accordance with the Northern Kentucky Regional Storm Water Management Program Rules and Regulations - Section 1005 Installation Certifications, record drawings for all storm sewers and storm water control measures shall be submitted to SD1 to verify storm water regulations were achieved.

Record drawings shall be submitted in electronic PDF format and in a geodatabase or shapefile with attribute data in the coordinate system, “NAD 1983 HARN StatePlane Kentucky North FIPS 1601 Feet WKID: 2891” or another specified coordinate system. If a GIS file cannot be submitted, an electronic CAD file shall be submitted in standard format (.dwg, .dxf, .dgn). The electronic file shall contain survey information on the structures in the KY HARN NAD 83 coordinate system, tied to USGS Survey Monumentation or another specified coordinate system.

Record drawings shall include the following minimum information:

A. Public and Private Storm Water Control Measures

All the following required information associated with the storm water control measures shall be submitted as Record Drawings and signed and stamped by a Kentucky licensed Professional Engineer.

1. Site plan showing all added impervious areas with quantity listed in either square feet or acres.

2. Topographic survey of the detention/retention basin(s) with no more than (2) foot contours, including the location and ground elevation of any spillways as well as the ground elevation at the bottom of the basin.

3. Final construction survey of the outlet control structure to include:
   - Elevations, sizes and number of all orifices or windows associated with the outlet control structure.
   - All components of any low-flow system for extended detention, including orifice elevation and size, as well as the length and size associated with the underdrain pipe(s).

4. Final constructed stage-storage volume table for each detention/retention basin(s).

5. A storage volume capacity comparison of the final constructed detention/retention basin(s) versus the design.

6. Rain gardens, bioswales and other post-construction storm water control measures with amended soils must be field verified by an SD1 inspector at the time of installation or a completed SD1 Storm Water Control Measure Installation Certification must be submitted by the contractor. The Installation Certification is available on SD1’s website.

If the constructed storm water control measure(s) does not meet the storm water regulations, SD1 may require final construction calculations to support the constructed storm water control measure(s) as well as applicable field changes and updated information to meet the regulations. SD1 understands there may be some variations from the approved plan, which will be accepted if the storm water control measure still meets the regulations.

B. Public Storm Sewers

All the following required information associated with public storm sewers (i.e., pipes and structures) shall be submitted as Record Drawings signed and stamped by a Professional Engineer.

1. Inverts, lengths, slopes, pipe size and material of all storm sewers.

2. Elevations of all storm structures.

C. Private Storm Sewers

All the following required information associated with private storm sewers (i.e., pipes and structures) shall be submitted from the final construction survey or from the contractor's field mark-ups in electronic PDF format.

1. Inverts, lengths, slopes, pipe size and material of all storm sewers.

2. Elevations of all storm structures.

From: Andy Aman
To: Steve Broering
Cc: Jason Burlage
Subject: RE: NKWD Licking River Waterline Crossing, Grading Permit
Date: Friday, December 10, 2021 9:30:42 AM

Hello Steve.

With this email as documentation, this storm water grading permit will remain on "Will Call".

Thank you for the project update.

Regards,

Andy Aman
Plan Review Manager
SD1
1045 Eaton Dr
Ft. Wright, KY 41017
859-578-6880
aaman@sd1.org
www.sd1.org

From: Steve Broering <sbroering@nkywater.org>
Sent: Thursday, December 9, 2021 3:15 PM
To: Andy Aman <aaman@sd1.org>
Cc: Jason Burlage <jburlage@sd1.org>
Subject: FW: NKWD Licking River Waterline Crossing, Grading Permit

Andy,
This email message pertains to Licking River Crossing Grading Permit GRP-0359-0514.
The Northern Kentucky Water District could not bid the project out in 2021 due supply chain issues with the proposed pipe material. Though the current permit expires on December 3, 2022 no activity has taken place. My assumption is that the permit must be renewed. The District anticipates construction to commence in mid-summer of 2022 with the approval of the bid from the Public Service Commission.
The Northern Kentucky Water District is requesting that the Grading Permit be renewed or extended as needed to cover the anticipated 2022 construction activities.
If you have any questions I can be reached via this email or at 859-426-2728.

Regards,
Steve Broering
NKWD

From: Andy Aman <aaman@sd1.org>
Sent: Thursday, December 3, 2020 9:25 AM
To: Steve Broering <sbroering@nkywater.org>
Cc: ross.guffey@hdrinc.com; Minter, Cindy <cminter@campbellcountyky.org>; Jason Burlage <jburlage@sd1.org>
Subject: NKWD Licking River Waterline Crossing, Grading Permit

Everyone,

SD1 has reviewed and approved the Grading Permit application for the above-referenced project.

Please contact SD1's Plan Review Administrator, Jason Burlage, at 859-578-6892 at least 72 hours prior to beginning any land disturbing activities to schedule a pre-construction meeting.

If you have any questions or comments regarding this notice, please feel free to contact me at the number listed below.

Regards,

Cut the clutter. Sign up for e-bills today through our customer portal run by Paymentus, SD1's secure electronic billing provider. Learn more at www.sd1.org.

Public Records Notice: I am not the Official Custodian of Public Records at SD1. All requests for public records must be sent to SD1's Official Custodian of Records at: 1045 Eaton Dr. Ft. Wright, KY 41017, Attention: Official Custodian of Records; facsimile at (859) 331-2436 or via email to records@sd1.org. Your request will not be forwarded.

Appendix F

500 Water Street, J180
Jacksonville, FL 32202
904.279.3806
Eric_Horton@csx.com

Eric Horton
Real Estate Analyst

February 27, 2020

John Scheben, Jr.
Northern Kentucky Water District
2835 Crescent Springs Road
Erlanger, KY 41018

Agreement No.: CSX893460 Dated: September 26, 2019

Dear John Scheben, Jr.,

Attached is the fully-executed Agreement of the above reference file.

In accordance with this Agreement, Agreement Holder is responsible for paying the actual cost of CSXT protection services and/or support services, including all applicable surcharges (collectively "Fees").

No work is to be performed on CSXT property without Roadmaster's authorization.

It is your responsibility to schedule any work on CSXT property with CSXT Outside Services. Please visit the CSX Property Portal to complete the Outside Party (OP) Application in order to have your work scheduled.

It was a pleasure assisting you with this project and we look forward to working with you in the future.

Should there be any questions, please feel free to give us a call at the above referenced number.

Sincerely,

E. Hort

Eric Horton

Attachment

FACILITY ENCROACHMENT AGREEMENT

THIS AGREEMENT, Made and effective as of September 26, 2019, by and between CSX TRANSPORTATION, INC., a Virginia corporation, whose mailing address is 500 Water Street, Jacksonville, Florida 32202, hereinafter called "Licensor," and NORTHERN KENTUCKY WATER DISTRICT, a municipal corporation, political subdivision or state agency, under the laws of the Commonwealth of Kentucky, whose mailing address is 2835 Crescent Springs Road, Po Box 18640, Erlanger, Kentucky 41018, hereinafter called "Licensee," WITNESSETH:

WHEREAS, Licensee desires to construct (unless previously constructed and designated as existing herein), use and maintain the below described facility(ies), hereinafter called "Facilities," over, under or across property owned or controlled by Licensor, at the below described location(s):

1. One (1) twenty-four inch (24") diameter sub-grade pipeline parallel, solely for the conveyance of potable water, located at or near Covington, Kenton County, Kentucky, Louisville Zone Division, Cincinnati Terminal Subdivision, beginning at Milepost 00T-105.6, Latitude N39:03:01.00, Longitude W84:29:49.00, and ending at Milepost 00T-105.8, Latitude N39:03:04.00, Longitude W84:29:42.00;

2. One (1) twenty-four inch (24") diameter pipeline installation, solely for the conveyance of potable water, located at or near Covington, Kenton County, Kentucky, Louisville Zone Division, Cincinnati Terminal Subdivision, at Milepost 00T-105.6, Latitude N39:03:01.00, Longitude W84:29:49.00;

hereinafter, called the "Encroachment," as shown on print(s) labeled Exhibit "A," attached hereto and made a part hereof;

NOW, THEREFORE, in consideration of the mutual covenants, conditions, terms and agreements herein contained, the parties hereto agree and covenant as follows:

1. LICENSE:

1.1 Subject to Article 17, Licensor, insofar as it has the legal right, power and authority to do so, and its present title permits, and subject to:

(A) Licensor's present and future right to occupy, possess and use its property within the area of the Encroachment for any and all purposes;

(B) All encumbrances, conditions, covenants, easements, and limitations applicable to Licensor's title to or rights in the subject property; and

(C) Compliance by Licensee with the terms and conditions herein contained;

does hereby license and permit Licensee to construct, maintain, repair, renew, operate, use, alter or change the Facilities at the Encroachment above for the term herein stated, and to remove same upon termination.

1.2 The term Facilities, as used herein, shall include only those structures and ancillary facilities devoted exclusively to the transmission usage above within the Encroachment, and as shown on attached Exhibit A.

1.3 No additional structures or other facilities shall be placed, allowed, or maintained by Licensee in, upon or on the Encroachment except upon prior separate written consent of Licensor.

2. ENCROACHMENT FEE; TERM:

2.1 Licensee shall pay Licensor a one-time nonrefundable Encroachment Fee of THIRTY-SIX THOUSAND NINE HUNDRED SEVENTY-FIVE AND 00/100 U.S. DOLLARS ($36,975.00) upon execution of this Agreement. Licensee agrees that the Encroachment Fee applies only to the original Licensee under this Agreement. In the event of a successor (by merger, consolidation, reorganization and/or assignment) or if the original Licensee changes its name, then Licensee shall be subject to payment of Licensor's current administrative and document preparation fees for the cost incurred by Licensor in preparing and maintaining this Agreement on a current basis.

2.2 However, Licensee assumes sole responsibility for, and shall pay directly (or reimburse Licensor), any additional annual taxes and/or periodic assessments levied against Licensor or Licensor's property solely on account of said Facilities or Encroachment.

2.3 This Agreement shall terminate as herein provided, but shall also terminate upon: (a) Licensee's cessation of use of the Facilities or Encroachment for the purpose(s) above; (b) removal of the Facilities; (c) subsequent mutual consent; and/or (d) failure of Licensee to complete installation within five (5) years from the effective date of this Agreement.

2.4 In further consideration for the license or right hereby granted, Licensee hereby agrees that Licensor shall not be charged or assessed, directly or indirectly, with any part of the cost of the installation of said Facilities and appurtenances, and/or maintenance thereof, or for any public works project of which said Facilities is a part.

3. CONSTRUCTION, MAINTENANCE AND REPAIRS:

3.1 Licensee shall construct, maintain, relocate, repair, renew, alter, and/or remove the Facilities, in a prudent, workmanlike manner, using quality materials and complying with any applicable standard(s) or regulation(s) of Licensor (CSXT Specifications), or Licensee's particular industry, National Electrical Safety Code, or any governmental or regulatory body having jurisdiction over the Encroachment.

3.2 Location and construction of Facilities shall be made strictly in accordance with design(s) and specifications furnished to and approved by Licensor and of material(s) and size(s) appropriate for the purpose(s) above recited.

3.3 All of Licensee's work, and exercise of rights hereunder, shall be undertaken at time(s) satisfactory to Licensor, and so as to eliminate or minimize any impact on or interference with the safe use and operation of Licensor's property and appurtenances thereto.

3.4 In the installation, maintenance, repair and/or removal of said Facilities, Licensee shall not use explosives of any type or perform or cause any blasting without the separate express written consent of Licensor. As a condition to such consent, a representative will be assigned by Licensor to monitor blasting, and Licensee shall reimburse Licensor for the entire cost and/or expense of furnishing said monitor.

3.5 Any repairs or maintenance to the Facilities, whether resulting from acts of Licensee, or natural or weather events, which are necessary to protect or facilitate Licensor's use of its property, shall be made by Licensee promptly, but in no event later than thirty (30) days after Licensee has notice as to the need for such repairs or maintenance.

3.6 Licensor, in order to protect or safeguard its property, rail operations, equipment and/or employees from damage or injury, may request immediate repair or renewal of the Facilities, and if the same is not performed, may make or contract to make such repairs or renewals, at the sole risk, cost and expense of Licensee.

3.7 Neither the failure of Licensor to object to any work done, material used, or method of construction or maintenance of said Encroachment, nor any approval given or supervision exercised by Licensor, shall be construed as an admission of liability or responsibility by Licensor, or as a waiver by Licensor of any of the obligations, liability and/or responsibility of Licensee under this Agreement.

3.8 All work on the Encroachment shall be conducted in accordance with Licensor's safety rules and regulations.

3.9 Licensee hereby agrees to reimburse Licensor any loss, cost or expense (including losses resulting from train delays and/or inability to meet train schedules) arising from any failure of Licensee to make repairs or conduct maintenance as required by Section 3.5 above or from improper or incomplete repairs or maintenance to the Facilities or Encroachment.

3.10 In the event it becomes necessary for the Licensee to deviate from the approved Exhibit, Licensee shall seek prior approval from Licensor, or when applicable, an official field representative of Licensor permitted to approve changes, authorizing the necessary field changes and Licensee shall provide Licensor with complete As-Built Drawings of the completed work. As-Built Drawings shall be submitted to Licensor in either electronic or hard copy form upon the substantial completion of the project and upon Licensor's request.

3.11 In the event of large scale maintenance/construction work to railroad bridges Licensee is required to protect power lines with insulated covers or comparable safety devices at their costs during construction/maintenance for safety of railroad employees.

4. PERMITS, LICENSES:

4.1 Before any work hereunder is performed, or before use of the Encroachment for the contracted purpose, Licensee, at its sole cost and expense, shall obtain all necessary permit(s) (including but not limited to zoning, building, construction, health, safety or environmental matters), letter(s) or certificate(s) of approval. Licensee expressly agrees and warrants that it shall conform and limit its activities to the terms of such permit(s), approval(s) and authorization(s), and shall comply with all applicable ordinances, rules, regulations, requirements and laws of any governmental authority (State, Federal or Local) having jurisdiction over Licensee's activities, including the location, contact, excavation and protection regulations of the Occupational Safety and Health Act (OSHA) (29 CFR 1926.651(b)), et al., and State "One Call" - "Call Before You Dig" requirements.

4.2 Licensee assumes sole responsibility for failure to obtain such permit(s) or approval(s), for any violations thereof, or for costs or expenses of compliance or remedy.

5. MARKING AND SUPPORT:

5.1 With respect to any subsurface installation or maintenance upon Licensor's property, Licensee, at its sole cost and expense, shall:

(A) support track(s) and roadbed in a manner satisfactory to Licensor;

(B) backfill with satisfactory material and thoroughly tamp all trenches to prevent settling of surface of land and roadbed of Licensor; and

(C) either remove any surplus earth or material from Licensor's property or cause said surplus earth or material to be placed and distributed at location(s) and in such manner Licensor may approve.

5.2 After construction or maintenance of the Facilities, Licensee shall:

(A) Restore any track(s), roadbed and other disturbed property; and

(B) Erect, maintain and periodically verify the accuracy of aboveground markers, in a form approved by Licensor, indicating the location, depth and ownership of any underground Facilities or related facilities.

5.3 Licensee shall be solely responsible for any subsidence or failure of lateral or subjacent support in the Encroachment area for a period of three (3) years after completion of installation.

6. TRACK CHANGES:

6.1 In the event that rail operations and/or track maintenance result in changes in grade or alignment of, additions to, or relocation of track(s) or other facilities, or in the event future use of Licensor's rail corridor or property necessitate any change of location, height or depth in the Facilities or Encroachment, Licensee, at its sole cost and expense and within thirty (30) days after notice in writing from Licensor, shall make changes in the Facilities or Encroachment to accommodate such track(s) or operations.

6.2 If Licensor determines that any portion of Licensee's Facilities or System should be changed, altered or relocated after initial construction, Licensor shall promptly give written notice thereof to Licensee. Within sixty (60) days of receipt of such notice, Licensee shall protect or move such Facilities or System, at Licensee's sole cost and expense, and in a manner satisfactory to Railroad.

6.3 In the event of any relocation of Licensee's System or Facilities under this Article, Licensor shall not be required to purchase for Licensee any replacement land or right-of-way or to pay Licensee the cost to secure same if there is not available Rail Corridor. However, Licensor agrees to allow Licensee to relocate to any other available adjacent or nearby Rail Corridor or other land owned by Licensor at Licensee's sole cost; provided, however, that Licensor shall not be entitled to any additional payment for such replacement Licensor land or Rail Corridor.

6.4 If Licensee fails to do so, Licensor may make or contract to make such changes at Licensee's cost.

7. FACILITY CHANGES:

7.1 Licensee shall periodically monitor and verify the depth or height of the Facilities or Encroachment in relation to the existing tracks and facilities, and shall relocate the Facilities or change the Encroachment, at Licensee's expense, should such relocation or change be necessary to comply with the minimum clearance requirements of Licensor.

7.2 If Licensee undertakes to revise, renew, relocate or change in any manner whatsoever all or any part of the Facilities (including any change in voltage or gauge of wire or any change in circumference, diameter or radius of pipe or change in materials transmitted in and through said pipe), or is required by any public agency or court order to do so, plans therefor shall be submitted to Licensor for approval before such change. After approval, the terms and conditions of this Agreement shall apply thereto.

8. INTERFERENCE WITH RAIL FACILITIES:

8.1 Although the Facilities/Encroachment herein permitted may not presently interfere with Licensor's railroad or facilities, in the event that the operation, existence or maintenance of said Facilities, in the sole judgment of Licensor, causes: (a) interference (including, but not limited to, physical or interference from an electromagnetic induction, or

interference from stray or other currents) with Licensor's power lines, communication, signal or other wires, train control system, or electrical or electronic apparatus; or (b) interference in any manner, with the operation, maintenance or use of the rail corridor, track(s), structures, pole line(s), devices, other property, or any appurtenances thereto; then and in either event, Licensee, upon receipt of written notice from Licensor of any such interference, and at Licensee's sole risk, cost and expense, shall promptly make such changes in its Facilities or installation, as may be required in the reasonable judgment of the Licensor to eliminate all such interference. Upon Licensee's failure to remedy or change, Licensor may do so or contract to do so at Licensee's sole cost.

8.2 Without assuming any duty hereunder to inspect the Facilities, Licensor hereby reserves the right to inspect same and to require Licensee to undertake repairs, maintenance or adjustments to the Facilities, which Licensee hereby agrees to make promptly, at Licensee's sole cost and expense.

9. RISK, LIABILITY, INDEMNITY:

With respect to the relative risk and liabilities of the parties, it is hereby agreed that:

9.1 To the fullest extent permitted by State law (constitutional or statutory, as amended), Licensee hereby agrees to, defend, indemnify, and hold Licensor harmless from and against any and all liability, loss, claim, suit, damage, charge or expense which Licensor may suffer, sustain, incur or in any way be subjected to, on account of death of or injury to any person whomsoever (including officers, agents, employees or invitees of Licensor), and for damage to or loss of or destruction of any property whatsoever, arising out of, resulting from, or in any way connected with the construction, repair, maintenance, replacement, presence, existence, operations, use or removal of the Facilities or any structure in connection therewith, or restoration of premises of Licensor to good order or condition after removal, EXCEPT when proven to have been caused solely by the willful misconduct or gross negligence of Licensor. HOWEVER, to the fullest extent permitted by State law, during any period of actual construction, repair, maintenance, replacement or removal of the Facilities, wherein agents, equipment or personnel of Licensee are on the railroad rail corridor, Licensee's liability hereunder shall be absolute, irrespective of any joint, sole or contributory fault or negligence of Licensor.

9.2 Use of Licensor's rail corridor involves certain risks of loss or damage as a result of the rail operations. Notwithstanding Section 9.1, Licensee expressly assumes all risk of loss and damage to Licensee's Property or the Facilities in, on, over or under the Encroachment, including loss of or any interference with use or service thereof, regardless of cause, including electrical field creation, fire or derailment resulting from rail operations. For this Section, the term "Licensee's Property" shall include property of third parties situated or placed upon Licensor's rail corridor by Licensee or by such third parties at request of or for benefit of Licensee.

9.3 To the fullest extent permitted by State law, as above, Licensee assumes all responsibility for, and agrees to defend, indemnify and hold Licensor harmless from: (a) all claims, costs and expenses, including reasonable attorneys' fees, as a consequence of any sudden or nonsudden pollution of air, water, land and/or ground water on or off the Encroachment area, arising from or in connection with the use of this Encroachment or resulting from leaking, bursting, spilling, or any escape of the material transmitted in or through the Facilities; (b) any claim or liability arising under federal or state law dealing with either such sudden or nonsudden pollution of air, water, land and/or ground water arising therefrom or the remedy thereof; and (c) any subsidence or failure of lateral or subjacent support of the tracks arising from such Facilities leakage.

9.4 Notwithstanding Section 9.1, Licensee also expressly assumes all risk of loss which in any way may result from Licensee's failure to maintain either required clearances for any overhead Facilities or the required depth and encasement for any underground Facilities, whether or not such loss(es) result(s) in whole or part from Licensor's contributory negligence or joint fault.

9.5 Obligations of Licensee hereunder to release, indemnify and hold Licensor harmless shall also extend to companies and other legal entities that control, are controlled by, subsidiaries of, or are affiliated with Licensor, as well as any railroad that operates over the rail corridor on which the Encroachment is located, and the officers, employees and agents of each.

9.6 If a claim is made or action is brought against Licensor, and/or its operating lessee, for which Licensee may be responsible hereunder, in whole or in part, Licensee shall be notified to assume the handling or defense of such claim or action; but Licensor may participate in such handling or defense.

9.7 Notwithstanding anything contained in this Agreement, the limitation of liability contained in the state statutes, as amended from time to time, shall not limit Licensor's ability to collect under the insurance policies required to be maintained under this Agreement.

10. INSURANCE:

10.1 Prior to commencement of surveys, installation or occupation of premises pursuant to this Agreement, Licensee shall procure and shall maintain during the continuance of this Agreement, at its sole cost and expense, a policy of

(i) Statutory Worker's Compensation and Employers Liability Insurance with available limits of not less than ONE MILLION AND 00/100 U.S. DOLLARS ($1,000,000.00).

(ii) Commercial General Liability coverage (inclusive of contractual liability) with available limits of not less than FIVE MILLION AND 00/100 U.S. DOLLARS ($5,000,000.00) in combined single limits for bodily injury and property damage and covering the contractual liabilities assumed under this Agreement and naming Licensor, and/or its designee, as additional insured. The evidence of insurance coverage shall be

endorsed to provide for thirty (30) days' notice to Licensor, or its designee, prior to cancellation or modification of any policy. Mail CGL certificate, along with agreement, to CSX Transportation, Inc., Speed Code J180, 500 Water Street, Jacksonville, FL 32202. On each successive year, send certificate to RenewalCOI@csx.com.

(iii) Business automobile liability insurance with available limits of not less than ONE MILLION AND 00/100 U.S. DOLLARS ($1,000,000.00) combined single limit for bodily injury and/or property damage per occurrence naming Licensor, and/or its designee, as additional insured.

(iv) The insurance policies must contain a waiver of subrogation against CSXT and its Affiliates, except where prohibited by law. All insurance companies must be A. M. Best rated A- and Class VII or better.

(v) Such other insurance as Licensor may reasonably require.

10.2 If Licensee's existing CGL policy(ies) do(es) not automatically cover Licensee's contractual liability during periods of survey, installation, maintenance and continued occupation, a specific endorsement adding such coverage shall be purchased by Licensee. If said CGL policy is written on a "claims made" basis instead of a "per occurrence" basis, Licensee shall arrange for adequate time for reporting losses. Failure to do so shall be at Licensee's sole risk.

10.3 Licensor, or its designee, may at any time request evidence of insurance purchased by Licensee to comply with this Agreement. Failure of Licensee to comply with Licensor's request shall be considered a default by Licensee.

10.4 Securing such insurance shall not limit Licensee's liability under this Agreement, but shall be security therefor.

10.5 (A) In the event Licensee finds it necessary to perform construction or demolition operations within fifty feet (50') of any operated railroad track(s) or affecting any railroad bridge, trestle, tunnel, track(s), roadbed, overpass or underpass, Licensee shall: (a) notify Licensor; and (b) require its contractor(s) performing such operations to procure and maintain during the period of construction or demolition operations, at no cost to Licensor,

i) Railroad Protective Liability (RPL) Insurance, naming Licensor, and/or its designee, as Named Insured, written on the current ISO/RIMA Form (ISO Form No. CG 00 35 04 13) with limits of FIVE MILLION AND 00/100 U.S. DOLLARS ($5,000,000.00) per occurrence for bodily injury and property damage, with at least TEN MILLION AND 00/100 U.S. DOLLARS ($10,000,000.00) aggregate limit per annual policy period. The original of such RPL policy shall be sent to and approved by Licensor prior to commencement of such construction or demolition. Licensor reserves the right to demand higher limits.

OR

ii) The CGL policy shall include endorsement ISO CG 24 17 and the Auto Liability Policy shall include endorsement ISO CA 20 70 evidencing that coverage is provided for work within 50 feet of a railroad. If such endorsements are not included, RPL insurance must be provided.

(B) At Licensor's option, in lieu of purchasing RPL insurance or the 50 foot endorsements from an insurance company (but not CGL insurance), Licensee may pay Licensor, at Licensor's current rate at time of request, the cost of adding this Encroachment, or additional construction and/or demolition activities, to Licensor's Railroad Protective Liability (RPL) Policy for the period of actual construction. This coverage is offered at Licensor's discretion and may not be available under all circumstances.

11. GRADE CROSSINGS; PROTECTION SERVICES:

11.1 Nothing herein contained shall be construed to permit Licensee or Licensee's contractor to move any vehicles or equipment over the track(s), except at public road crossing(s), without separate prior written approval of Licensor.

11.2 If Licensor deems it advisable, during any construction, maintenance, repair, renewal, alteration, change or removal of said Facilities, to place watchmen, flagmen, or field construction managers for protection of operations of Licensor or others on Licensor's rail corridor at the Encroachment, and to keep persons, equipment or materials away from the track(s), Licensor shall have the right to do so at the expense of Licensee, but Licensor shall not be liable for failure to do so.

12. LICENSOR'S COSTS:

12.1 Any additional or alternative costs or expenses incurred by Licensor to accommodate Licensee's continued use of Licensor's property as a result of track changes or wire changes shall also be paid by Licensee.

12.2 Licensor's expense for wages ("force account" charges) and materials for any work performed at the expense of Licensee pursuant hereto shall be paid by Licensee within thirty (30) days after receipt of Licensor's bill therefor. Licensor may, at its discretion, request an advance deposit for estimated Licensor costs and expenses.

12.3 Such expense shall include, but not be limited to, cost of railroad labor and supervision under "force account" rules, plus current applicable overhead percentages, the actual cost of materials, and insurance, freight and handling charges on all material used. Equipment rentals shall be in accordance with Licensor's applicable fixed rate. Licensor may, at its discretion, require advance deposits for estimated costs of such expenses and costs.

13. DEFAULT, BREACH, WAIVER:

13.1 The proper and complete performance of each covenant of this Agreement shall be deemed of the essence thereof, and in the event Licensee fails or refuses to fully and completely perform any of said covenants or remedy any breach within thirty (30) days after receiving written notice from Licensor to do so (or within forty-eight (48) hours in the event of notice of a railroad emergency), Licensor shall have the option of immediately revoking this Agreement and the privileges and powers hereby conferred, regardless of encroachment fee(s) having been paid in advance for any annual or other period. Upon such revocation, Licensee shall make removal in accordance with Article 14.

13.2 No waiver by Licensor of its rights as to any breach of covenant or condition herein contained shall be construed as a permanent waiver of such covenant or condition, or any subsequent breach thereof, unless such covenant or condition is permanently waived in writing by Licensor.

13.3 Neither the failure of Licensor to object to any work done, material used, or method of construction or maintenance of said Encroachment, nor any approval given or supervision exercised by Licensor, shall be construed as an admission of liability or responsibility by Licensor, or as a waiver by Licensor of any of the obligations, liability and/or responsibility of Licensee under this Agreement.

14. TERMINATION, REMOVAL:

14.1 All rights which Licensee may have hereunder shall cease upon the date of (a) termination, (b) revocation, or (c) subsequent agreement, or (d) Licensee's removal of the Facility from the Encroachment. However, neither termination nor revocation of this Agreement shall affect any claims and liabilities which have arisen or accrued hereunder, and which at the time of termination or revocation have not been satisfied; neither party, however, waiving any third party defenses or actions.

14.2 Within thirty (30) days after revocation or termination, Licensee, at its sole risk and expense, shall (a) remove the Facilities from the rail corridor of Licensor, unless the parties hereto agree otherwise, (b) restore the rail corridor of Licensor in a manner satisfactory to Licensor, and (c) reimburse Licensor any loss, cost or expense of Licensor resulting from such removal.

15. NOTICE:

15.1 Licensee shall give Licensor at least thirty (30) days written notice before doing <u>any</u> work on Licensor's rail corridor, except that in cases of emergency shorter notice may be given. Licensee shall provide proper notification as follows:

a. For non-emergencies, Licensee shall submit online via the CSX Property Portal from Licensor's web site, via web link: https://propertyportal.csx.com/pub_ps_res/ps_res/jsf/public/index.faces

b. For emergencies, Licensee shall complete all of the steps outlined in Section 15.1 a. above, and shall also include detailed information of the emergency. Licensee shall also call and report details of the emergency to Licensor's Rail Operations Emergency Telephone Number: 1-800-232-0144. In the event Licensor needs to contact Licensee concerning an emergency involving Licensee's Facility(ies), the emergency phone number for Licensee is: 513-244-9016.

15.2 All other notices and communications concerning this Agreement shall be addressed to Licensee at the address above, and to Licensor at the address shown on Page 1, c/o CSXT Contract Management, J180; or at such other address as either party may designate in writing to the other.

15.3 Unless otherwise expressly stated herein, all such notices shall be in writing and sent via Certified or Registered Mail, Return Receipt Requested, or by courier, and shall be considered delivered upon: (a) actual receipt, or (b) date of refusal of such delivery.

16. ASSIGNMENT:

16.1 The rights herein conferred are the privileges of Licensee only, and Licensee shall obtain Licensor's prior written consent to any assignment of Licensee's interest herein; said consent shall not be unreasonably withheld.

16.2 Subject to Sections 2 and 16.1, this Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors or assigns.

16.3 Licensee shall give Licensor written notice of any legal succession (by merger, consolidation, reorganization, etc.) or other change of legal existence or status of Licensee, with a copy of all documents attesting to such change or legal succession, within thirty (30) days thereof.

16.4 Licensor expressly reserves the right to assign this Agreement, in whole or in part, to any grantee, lessee, or vendee of Licensor's underlying property interests in the Encroachment, upon written notice thereof to Licensee.

16.5 In the event of any unauthorized sale, transfer, assignment, sublicense or encumbrance of this Agreement, or any of the rights and privileges hereunder, Licensor, at its option, may revoke this Agreement by giving Licensee or any such assignee written notice of such revocation; and Licensee shall reimburse Licensor for any loss, cost or expense Licensor may incur as a result of Licensee's failure to obtain said consent.

17. TITLE:

17.1 Licensee understands that Licensor occupies, uses and possesses lands, rights-of-way and rail corridors under all forms and qualities of ownership rights or facts, from full fee simple absolute to bare occupation. Accordingly, nothing in this Agreement shall act as or be deemed to act as any warranty, guaranty or representation of the quality of Licensor's title for any particular Encroachment or segment of Rail Corridor occupied, used or enjoyed in any manner by Licensee under any rights created in this Agreement. It is expressly understood that Licensor does not warrant title to any Rail Corridor and Licensee will accept the grants and privileges contained herein, subject to all lawful outstanding existing liens, mortgages and superior rights in and to the Rail Corridor, and all leases, licenses and easements or other interests previously granted to others therein.

17.2 The term "license," as used herein, shall mean with regard to any portion of the Rail Corridor which is owned by Licensor in fee simple absolute, or where the applicable law of the State where the Encroachment is located otherwise permits Licensor to make such grants to Licensee, a "permission to use" the Rail Corridor, with dominion and control over such portion of the Rail Corridor remaining with Licensor, and no interest in or exclusive right to possess being otherwise granted to Licensee. With regard to any other portion of Rail Corridor occupied, used or controlled by Licensor under any other facts or rights, Licensor merely waives its exclusive right to occupy the Rail Corridor and grants no other rights whatsoever under this Agreement, such waiver continuing only so long as Licensor continues its own occupation, use or control. Licensor does not warrant or guarantee that the license granted hereunder provides Licensee with all of the rights necessary to occupy any portion of the Rail Corridor. Licensee further acknowledges that it does not have the right to occupy any portion of the Rail Corridor held by Licensor in less than fee simple absolute without also receiving the consent of the owner(s) of the fee simple absolute estate. Further, Licensee shall not obtain, exercise or claim any interest in the Rail Corridor that would impair Licensor's existing rights therein.

17.3 Licensee agrees it shall not have nor shall it make, and hereby completely and absolutely waives its right to, any claim against Licensor for damages on account of any deficiencies in title to the Rail Corridor in the event of failure or insufficiency of Licensor's title to any portion thereof arising from Licensee's use or occupancy thereof.

17.4 Licensee agrees to fully and completely indemnify and defend all claims or litigation for slander of title, overburden of easement, or similar claims arising out of or based upon the Facilities placement, or the presence of the Facilities in, on or along any Encroachment(s), including claims for punitive or special damages.

17.5 Licensee shall not at any time own or claim any right, title or interest in or to Licensor's property occupied by the Encroachments, nor shall the exercise of this Agreement for any length of time give rise to any right, title or interest in Licensee to said property other than the license herein created.

17.6 Nothing in this Agreement shall be deemed to give, and Licensor hereby expressly waives, any claim of ownership in and to any part of the Facilities.

17.7 Licensee shall not create or permit any mortgage, pledge, security, interest, lien or encumbrances, including without limitation, tax liens and liens or encumbrances with respect to work performed or equipment furnished in connection with the construction, installation, repair, maintenance or operation of the Facilities in or on any portion of the Encroachment (collectively, "Liens or Encumbrances"), to be established or remain against the Encroachment or any portion thereof or any other Licensor property.

17.8 In the event that any property of Licensor becomes subject to such Liens or Encumbrances, Licensee agrees to pay, discharge or remove the same promptly upon Licensee's receipt of notice that such Liens or Encumbrances have been filed or docketed against the Encroachment or any other property of Licensor; however, Licensee reserves the right to challenge, at its sole expense, the validity and/or enforceability of any such Liens or Encumbrances.

18. GENERAL PROVISIONS:

18.1 This Agreement, and the attached specifications, contains the entire understanding between the parties hereto.

18.2 Neither this Agreement, any provision hereof, nor any agreement or provision included herein by reference, shall operate or be construed as being for the benefit of any third person.

18.3 Except as otherwise provided herein, or in any Rider attached hereto, neither the form of this Agreement, nor any language herein, shall be interpreted or construed in favor of or against either party hereto as the sole drafter thereof.

18.4 This Agreement is executed under current interpretation of applicable Federal, State, County, Municipal or other local statute, ordinance or law(s). However, each separate division (paragraph, clause, item, term, condition, covenant or agreement) herein shall have independent and severable status for the determination of legality, so that if any separate division is determined to be void or unenforceable for any reason, such determination shall have no effect upon the validity or enforceability of each other separate division, or any combination thereof.

18.5 This Agreement shall be construed and governed by the laws of the state in which the Facilities and Encroachment are located.

18.6 If any amount due pursuant to the terms of this Agreement is not paid by the due date, it will be subject to Licensor's standard late charge and will also accrue interest at eighteen percent (18%) per annum, unless limited by local law, and then at the highest rate so permitted.

18.7 Licensee agrees to reimburse Licensor for all reasonable costs (including attorney's fees) incurred by Licensor for collecting any amount due under the Agreement.

18.8 The provisions of this License are considered confidential and may not be disclosed to a third party without the consent of the other party(s), except: (a) as required by statute, regulation or court order, (b) to a parent, affiliate or subsidiary company, (c) to an auditing firm or legal counsel that are agreeable to the confidentiality provisions, or (d) to Lessees of Licensor's land and/or track who are affected by the terms and conditions of this Agreement and will maintain the confidentiality of this Agreement.

18.9 Within thirty (30) days of an overpayment in a cumulative total amount of One Hundred Dollars ($100.00) or more by Licensee to Licensor, Licensee shall notify Licensor in writing with documentation evidencing such overpayment. Licensor shall refund the actual amount of Licensee's overpayment within 120 days of Licensor's verification of such overpayment.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in duplicate (each of which shall constitute an original) as of the effective date of this Agreement.

Witness for Licensor:

_____

CSX TRANSPORTATION, INC.

By: _____

Print/Type Name: Dona Jadwin
Sr. Manager Real Estate Services

Print/Type Title: _____

Witness for Licensee:

_____

NORTHERN KENTUCKY WATER DISTRICT

By: _____

Who, by the execution hereof, affirms that he/she has the authority to do so and to bind the Licensee to the terms and conditions of this Agreement.

Print/Type Name: Amy Kramer

Print/Type Title: VP Engineering, Production & Distribution

Tax ID No.: 61-1311695

Authority under Ordinance or

Resolution No. 015-101719,

Dated October 17, 2019.

CSX-893460 EXHIBIT A

Wilder, Kenton Co., KY
Midwest Region / Louisville Zone / Cincinnati Terminal (CT) Subdivision
From MP 00T-105.6 To MP 00T-105.8 (CP Latonia)
Total Length of Occupancy Along CSX ROW: 725-LF
From N39:03:01.00 / W84:29:49.00 To N39:03:04.00 / W84:29:42.00

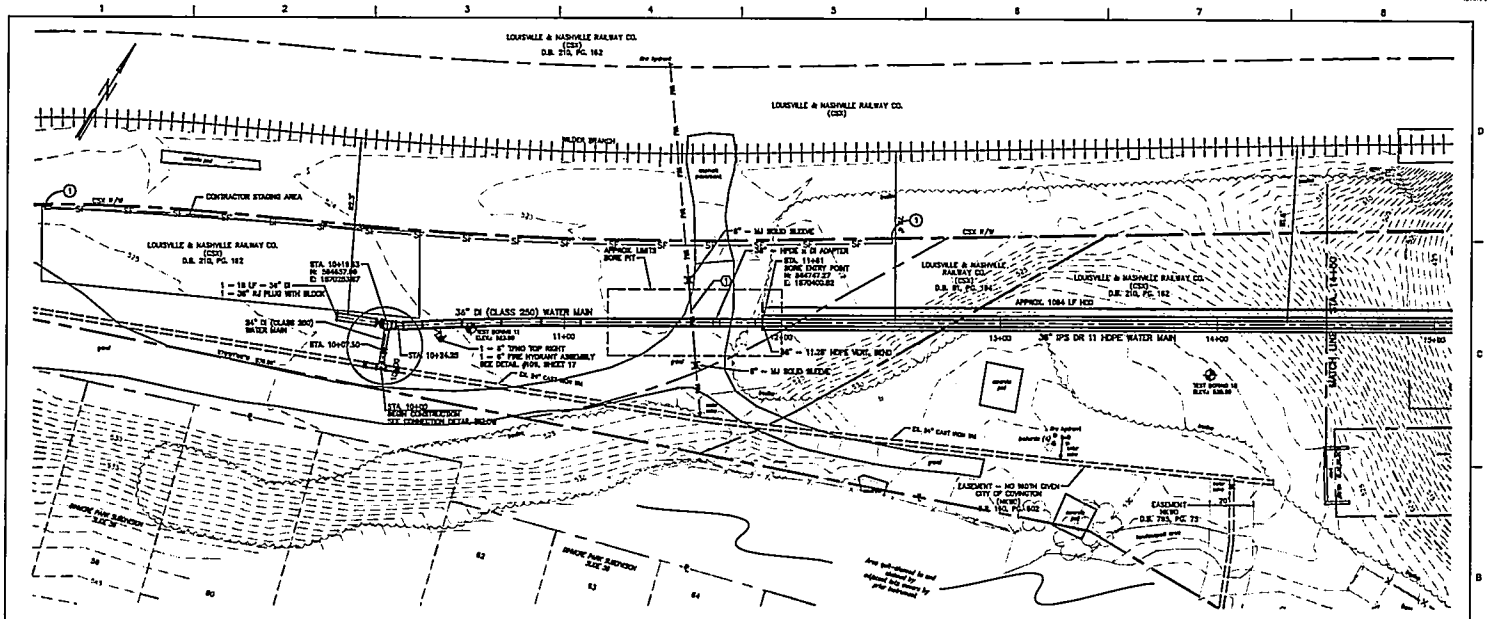
CSX PROPERTY SERVICES REVIEW
☐ No Exceptions ☒ Exceptions Noted
This review is for the general conformance with CSX utility design specifications only. Sole responsibility for all aspects of the overall design shall remain with the facility owner. This review does not constitute approval to proceed without meeting all of CSX's safety and contractual requirements.
By:

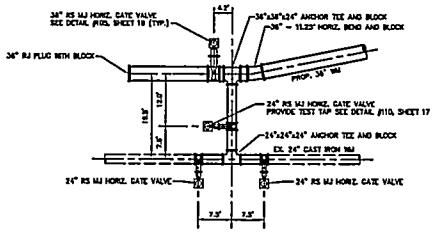
CSX GENERAL NOTES:

1. REFER TO THE CSX PIPELINE DESIGN & CONSTRUCTION SPECIFICATIONS AND THE CSX INTERIM HDD GUIDELINES FOR ADDITIONAL INFORMATION.
2. DRILLING FLUID WITH BENTONITE ADDITIVE IS REQUIRED.
3. ONCE THE BORE ENTERS CSX PROPERTY, THE WORK MUST BE CONTINUOUS UNTIL DRILLING IS COMPLETE AND THE PIPE IS PULLED IN PLACE.
4. THE BORE MUST BE TRACKED CONSTANTLY, WITH THE LOCATION AND DEPTH MARKED EVERY 10 FEET.
5. PIPELINE SHALL BE PROMINENTLY MARKED AT BOTH SIDES OF THE CSX PROPERTY LINES BY DURABLE, WEATHERPROOF SIGNS LOCATED OVER THE CENTERLINE OF THE PIPE IN ACCORDANCE WITH CSX SPECIFICATIONS.
6. DRY AND WET BORES (JETTING) ARE NOT ALLOWED.
7. TRAILING RODS MUST BE UTILIZE FOR ALL BACK REAMING.
8. IF REQUIRED, A DEWATERING PLAN IN ACCORDANCE WITH CSX SPECIFICATIONS WILL BE SUBMITTED TO THE CSX REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO ANY DEWATERING OPERATIONS.
9. BLASTING IS NOT PERMITTED UNDER OR ON CSX PROPERTY.
10. ALL PERSONNEL SHALL RECEIVE SAFETY BRIEFINGS BY A CSXT FLAGMAN OR DESIGNATED CSXT REPRESENTATIVE EACH DAY BEFORE BEGINNING WORK ON THE RIGHT OF WAY. ADDITIONAL SAFETY BRIEFINGS MAY BE REQUIRED WHEN CONDITIONS AND/OR WORK SITES ARE CHANGED.
11. AGENCY OR ITS CONTRACTOR SHALL ARRANGE AND CONDUCT ITS WORK SO THAT THERE WILL BE NO INTERFERENCE WITH CSXT OPERATIONS, INCLUDING TRAIN, SIGNAL, TELEPHONE AND TELEGRAPHIC SERVICES, OR DAMAGES TO CSXT'S PROPERTY, OR TO POLES, WIRES, AND OTHER FACILITIES OF TENANTS OF CSXT'S PROPERTY OR RIGHT-OF-WAY.
12. CONTRACTOR ACCESS WILL BE LIMITED TO THE IMMEDIATE PROJECT AREA ONLY. THE CSXT RIGHT-OF-WAY OUTSIDE THE PROJECT AREA MAY NOT BE USED FOR CONTRACTOR ACCESS TO THE PROJECT SITE AND NO TEMPORARY AT-GRADE CROSSINGS WILL BE ALLOWED.
13. DURING CONSTRUCTION, THE CONTRACTOR SHALL PROTECT ALL ACTIVE RAILROAD FACILITIES, INCLUDING ELECTRICAL, WATER LINES, SEWER LINES, COMMUNICATION AND SIGNAL LINES AS WELL AS UNDERGROUND PIPING. THE CONTRACTOR SHALL BE REQUIRED TO KEEP ALL EQUIPMENT AND MATERIAL A MINIMUM OF SIX (6) FEET FROM AFOREMENTIONED ELEVATED COMMUNICATION AND SIGNAL FACILITIES.
14. CONTRACTOR MUST CONDUCT ALL OF ITS WORK IN A SAFE MANNER. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH RULES, REGULATIONS, PROCEDURES AND SAFE PRACTICES OF CSXT, OSHA, THE FRA AND ALL OTHER GOVERNMENT AGENCIES HAVING JURISDICTION OVER THE PROJECT.
15. OWNER SHALL REIMBURSE CSXT DIRECTLY FOR ALL COSTS OF FLAGGING AND INSPECTION SERVICE THAT ARE REQUIRED ON ACCOUNT OF CONSTRUCTION WITHIN CSXT PROPERTY SHOWN IN THE PLANS, OR COVERED BY AN APPROVED PLAN REVISION, SUPPLEMENTAL AGREEMENT OR CHANGE ORDER. INSPECTION SERVICE SHALL NOT RELIEVE CONTRACTOR FROM LIABILITY FOR ITS WORK.
16. OWNER OR CONTRACTOR SHALL GIVE A MINIMUM OF 30 DAYS' ADVANCE NOTICE TO CSXT REPRESENTATIVE FOR ANTICIPATED NEED FOR FLAGGING AND INSPECTION SERVICE. NO WORK SHALL BE UNDERTAKEN UNTIL THE FLAG PERSON(S) AND INSPECTOR(S) IS/ARE AT THE JOB SITE. IF IT IS NECESSARY FOR CSXT TO ADVERTISE A FLAGGING JOB FOR BID, CSXT SHALL NOT BE LIABLE FOR THE COST OF DELAYS ATTRIBUTABLE TO OBTAINING SUCH SERVICE.
17. THE RIGHT OF WAY SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE CONDITION PRIOR TO BEGINNING THE PROJECT BEFORE FINAL ACCEPTANCE WILL BE PROVIDED. PUNCH LISTS SHALL BE RESPONDED TO PRIOR TO ISSUANCE OF AN ACCEPTANCE MEMORANDUM SIGNED BY THE CSXT REPRESENTATIVE.
18. CONTRACTOR ALSO HAS THE SOLE RESPONSIBILITY OF ASCERTAINING THAT ALL OTHER UTILITIES HAVE BEEN PROPERLY LOCATED BY COMPLYING WITH THE LOCAL "CALL BEFORE YOU DIG" REGULATION(S). CONTRACTOR SHALL SOLELY BE RESPONSIBLE FOR NOTIFYING OWNERS OF ADJACENT PROPERTIES AND OF UNDERGROUND FACILITIES AND UTILITY OWNERS WHEN PROSECUTION OF THE WORK MAY AFFECT THEM, AND SHALL COOPERATE WITH THEM IN THE PROTECTION, REMOVAL, RELOCATION AND REPLACEMENT OF THEIR PROPERTY.
19. CONTRACTOR SHALL CONDUCT "PRE-DIG" MEETING PRIOR TO CONSTRUCTION WORK, WITH ALL SUBCONTRACTORS AND WORKERS TO REVIEW THE LOCATION OF ALL UTILITIES AS MARKED OUT, EXCAVATION PROCEDURES, AND TO CONFIRM THE "ONE CALL" REQUEST. ALL EXISTING UTILITIES ARE REQUIRED TO BE POTHOLED PRIOR TO COMMENCEMENT OF CONSTRUCTION AND SHALL BE PERFORMED IN ACCORDANCE WITH CSX SPECIFICATIONS.
20. BEFORE EXCAVATING, ALL SIGNAL CABLES AND OTHER UTILITIES MUST BE LOCATED AND MARKED/FLAGGED. CONTRACTOR SHALL BE HELD LIABLE FOR ANY DAMAGES TO CSX SIGNAL FACILITIES.
21. PROJECTS THAT GENERATE SOILS FROM CSXT PROPERTY MUST ADHERE TO CSXT'S SOIL MANAGEMENT POLICIES. CSXT REQUIRES SOILS GENERATED FROM ITS PROPERTY TO EITHER BE REUSED ON CSXT PROPERTY OR PROPERLY DISPOSED IN A CSXT APPROVED DISPOSAL FACILITY. THE MANAGEMENT OF SOILS GENERATED FROM CSXT PROPERTY SHOULD BE PLANNED FOR AND PROPERLY PERMITTED (IF APPLICABLE) PRIOR TO INITIATING ANY WORK ON CSXT PROPERTY.

CSX ADDITIONAL NOTES (EXCEPTIONS):

1. CSX BORE PLAN TEMPLATE AND FRACTION MITIGATION PLAN WILL BE SUBMITTED TO CSX REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
2. Contractor shall be governed by CSXT SR 1300-01 Excavation and Trenching Guidelines.
3. Contractor shall be governed by CSXT Section 020105 Clearing and Grubbing Specification.
3. Trench excavation shall be of such dimensions as to provide ample room for construction. Trench widths shall be at least 12 inches wider than the outside diameter of the pipe (6-inches either side of the pipe). The bottom of the trench, in so far as is practical, shall be excavated to permit proper placement of the pipe. The excavation for the pipeline shall include the removal of any obstructions encountered. The trench shall be excavated to a depth at least 3 inches below the outside bottom elevation of the planned pipeline. When necessary, all excavations should be dewatered prior to and during installation and backfilling of the system.
4. For pipelines running longitudinally on CSX R/W, signs shall be placed over the pipe (or offset and appropriately marked) at all changes in direction of the pipeline. In no event shall they be placed more than 500 feet apart.
5. All pressure pipelines installed by the trench method, without a casing, shall have a warning tape placed directly above the pipeline, 2 feet below the ground surface.





CONNECTION DETAIL STA. 10+00
1" = 10'

SHEET NOTES:

① CUT AND REMOVE EXISTING 6" WATER MAIN AS NECESSARY TO EXCAVATE FOR BORE PIT AND INSTALL NEW 36" WATER MAIN. REPLACE SECTION OF REMOVED PIPE WITH NEW 6" DI WATER MAIN AFTER THE INSTALLATION OF NEW 36" WATER MAIN.

BMP KEYNOTES:

① INSTALL SILT FENCE PER SANITATION DISTRICT NO. 1 STANDARD DRAWING DPSC-13.1 AND DPSC-13.2, SHEET 19.

Call 811 Before You Dig
www.kentucky811.org

HDR

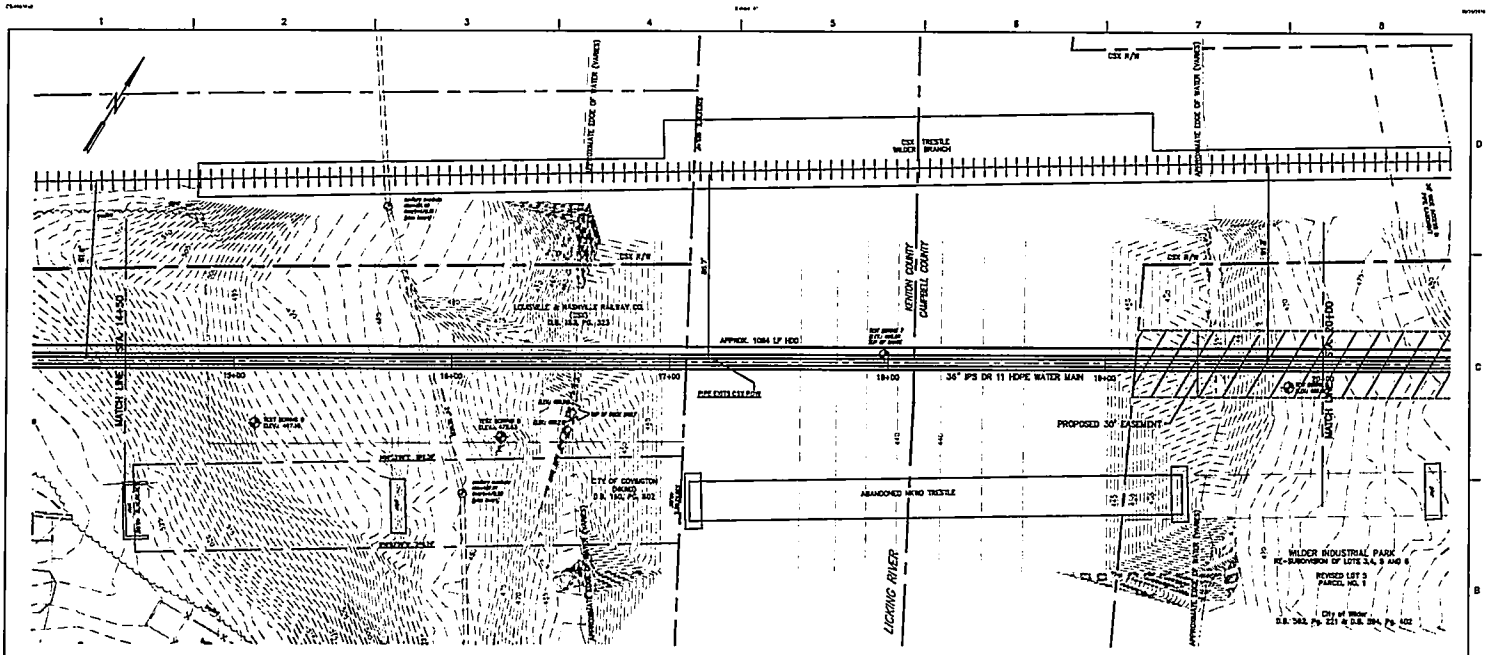
ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	SCOTT A. TIPPEY
DESIGNED	KJW
DRAWN	SAS
CHECKED	
QA / QC	
PROJECT NUMBER	197476

LICKING RIVER CROSSING

PLAN
STA 10+00 TO 14+50

FILENAME	Sheet.dwg
SCALE	1" = 20'
SHEET	04



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ISSUE	DATE	DESCRIPTION

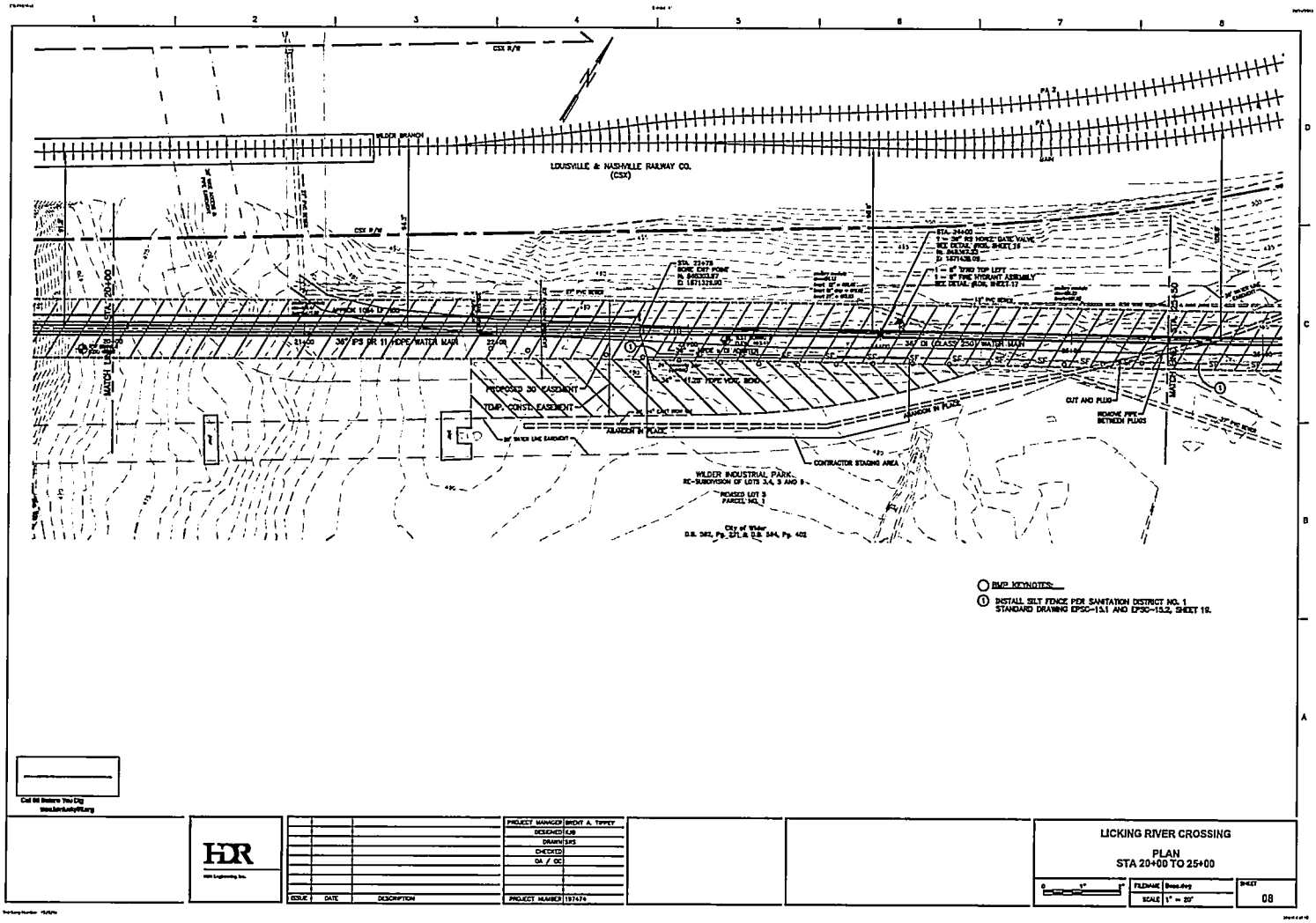
PROJECT MANAGER	BRENT A. TIPPEY
DESIGNED	KJB
DRAWN	SAS
CHECKED	
QA / QC	
PROJECT NUMBER	197476

LICKING RIVER CROSSING

PLAN
STA 14+50 TO 20+00

FILENAME	Base.dwg
SCALE	1" = 20'

SHEET 06



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HDR

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	BRENT A. TIPPEY
DESIGNED	KJB
DRAWN	SWS
CHECKED	
QA / QC	
PROJECT NUMBER	197476

LICKING RIVER CROSSING

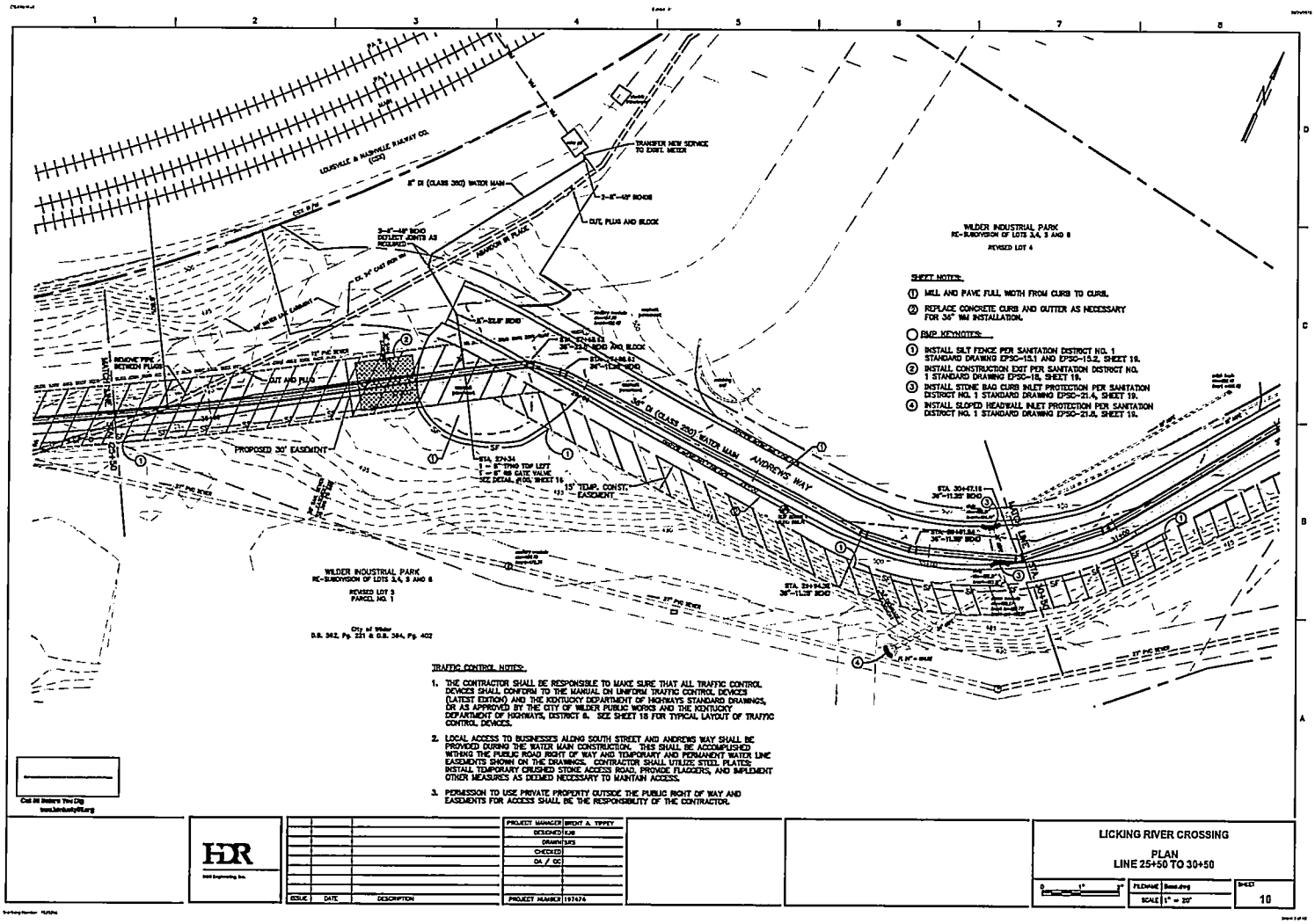
PLAN
STA 20+00 TO 25+00

0 1" 2"

FILENAME: Boss.dwg

SCALE: 1" = 20'

SHEET: 08



TRAFFIC CONTROL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE SURE THAT ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION) AND THE KENTUCKY DEPARTMENT OF HIGHWAYS STANDARD DRAWINGS, OR AS APPROVED BY THE CITY OF WILDER PUBLIC WORKS AND THE KENTUCKY DEPARTMENT OF HIGHWAYS, DISTRICT 6. SEE SHEET 18 FOR TYPICAL LAYOUT OF TRAFFIC CONTROL DEVICES.
2. LOCAL ACCESS TO BUSINESSES ALONG SOUTH STREET AND ANDREWS WAY SHALL BE PROVIDED DURING THE WATER MAIN CONSTRUCTION. THIS SHALL BE ACCOMPLISHED WITHIN THE PUBLIC ROAD RIGHT OF WAY AND TEMPORARY AND PERMANENT WATER LINE EASEMENTS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL UTILIZE STEEL PLATES; INSTALL TEMPORARY CRUSHED STONE ACCESS ROAD, PROVIDE FLAGGERS, AND IMPLEMENT OTHER MEASURES AS DEEMED NECESSARY TO MAINTAIN ACCESS.
3. PERMISSION TO USE PRIVATE PROPERTY OUTSIDE THE PUBLIC RIGHT OF WAY AND EASEMENTS FOR ACCESS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

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HDR

ISSUE	DATE	DESCRIPTION

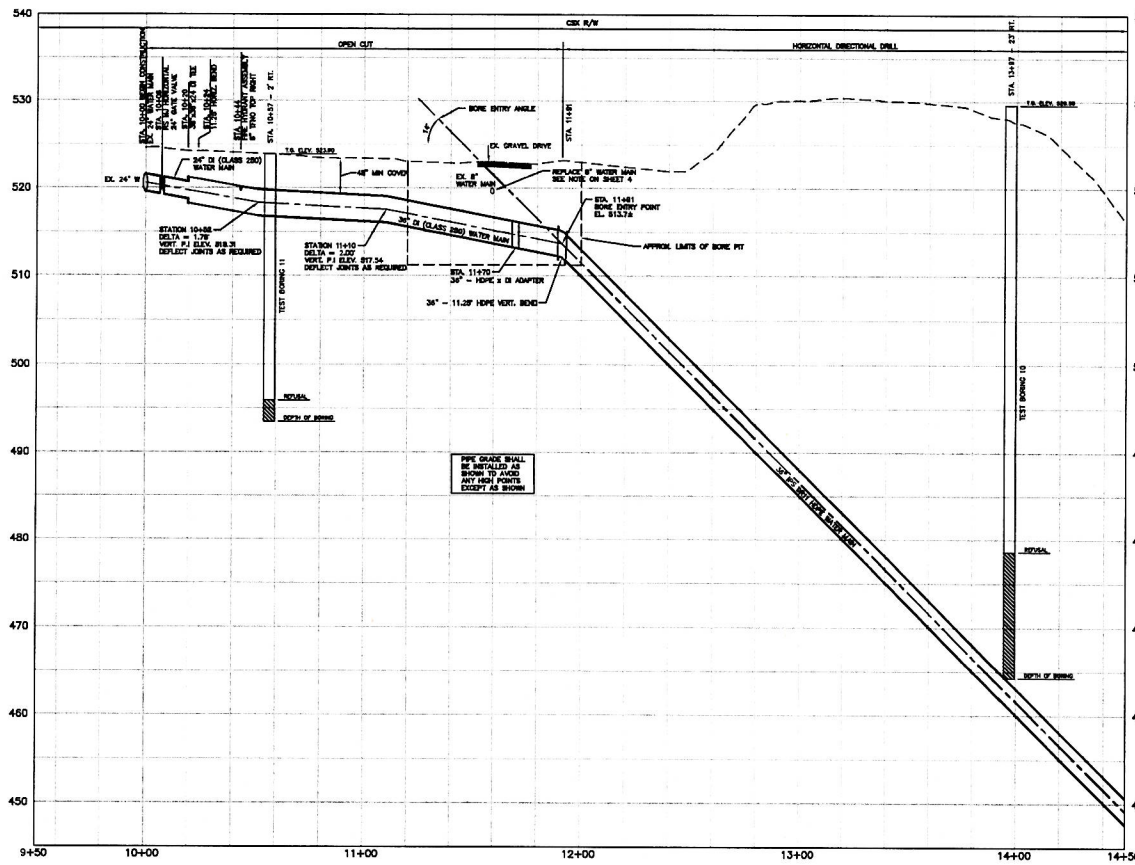
PROJECT MANAGER	BRENT A. TIPPEY
DESIGNED	KJB
DRAWN	SJS
CHECKED	
QA / QC	
PROJECT NUMBER	197476

LICKING RIVER CROSSING

PLAN
LINE 25+50 TO 30+50

0 1" 2"

FILENAME: Base.dwg
SCALE: 1" = 20'
SHEET: 10



Kentucky 811
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HDR
HDR Engineering, Inc.

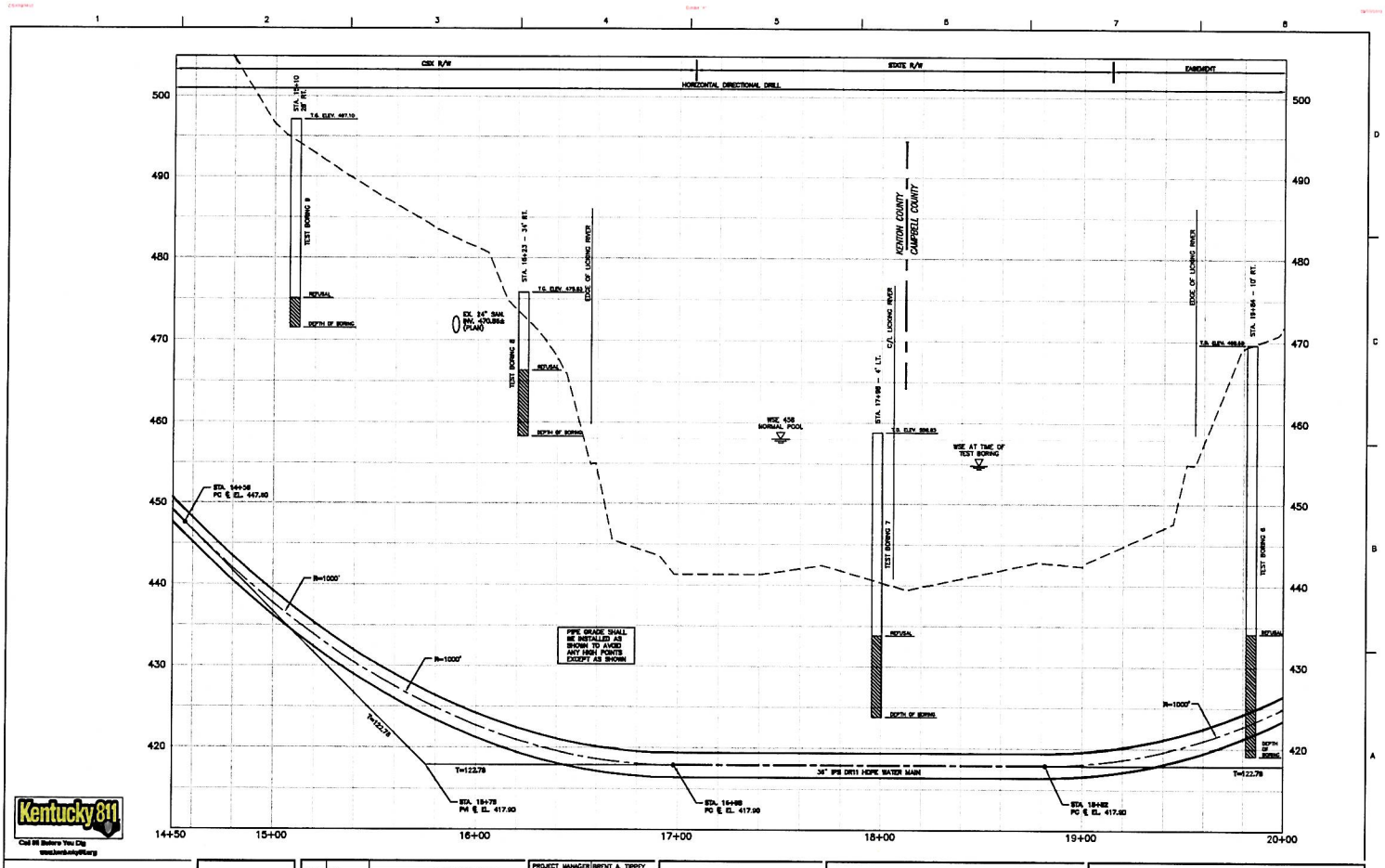
ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	BRENT A. TIPPEY
DESIGNED	KJB
DRAWN	SRS
CHECKED	
QA / QC	
PROJECT NUMBER	197474

LICKING RIVER CROSSING

PROFILE
STA 10+00 TO 14+50

FILENAME	Base.dwg
SCALE	H:1"=20' V:1"=5'
SHEET	05



Kentucky 811
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HDR
HDR Engineering, Inc.

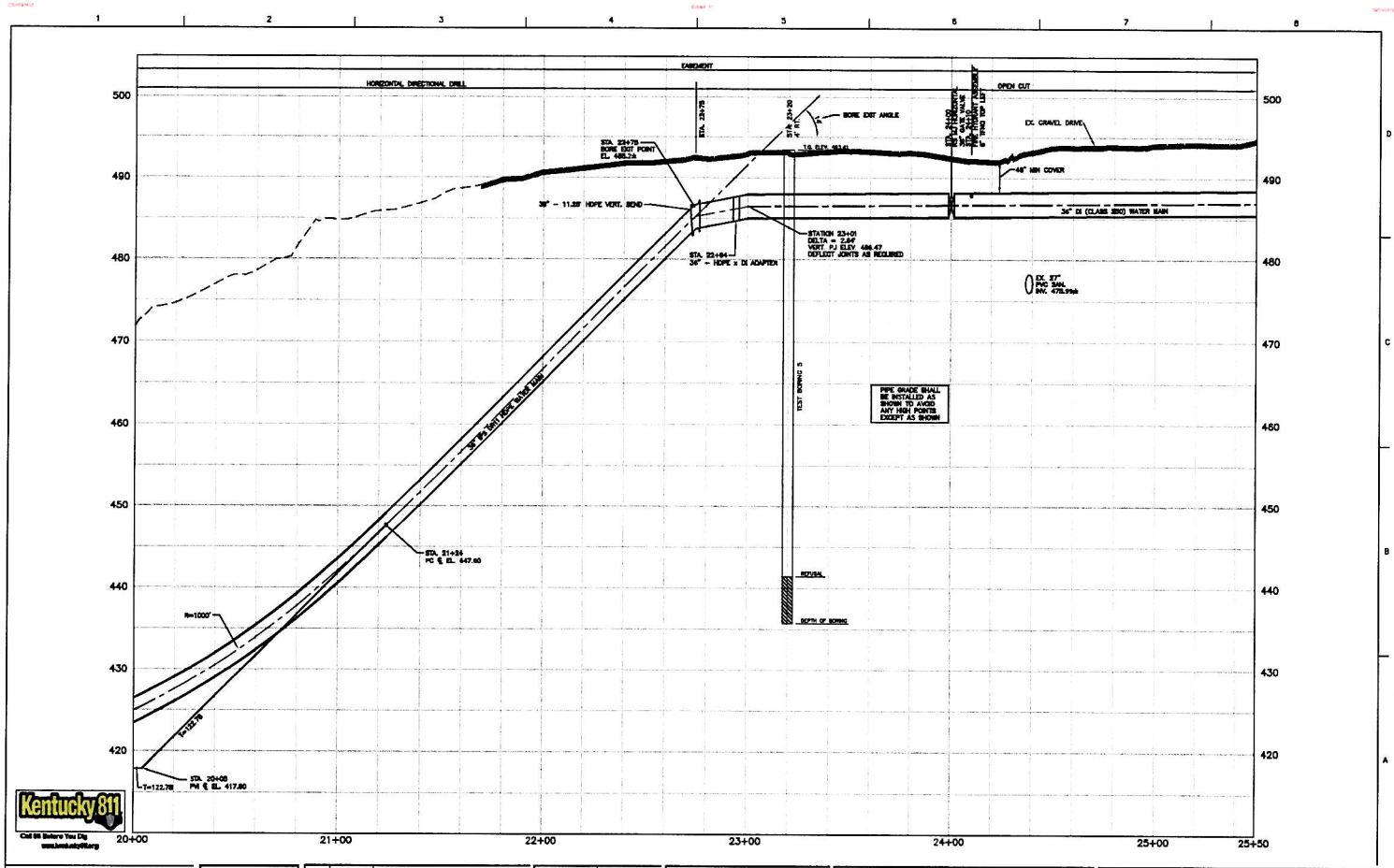
ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	BRENT A. TIPPEY
DESIGNED	KJB
DRAWN	SRS
CHECKED	
QA / QC	
PROJECT NUMBER	197474

LICKING RIVER CROSSING

PROFILE
STA 14+50 TO 20+00

FILENAME	Base.dwg
SCALE	H:1"=20' V:1"=5'
SHEET	07



Kentucky 811
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HDR
HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	BRENT A. TIPPEY
DESIGNED	KJB
DRAWN	SRS
CHECKED	
QA / QC	
PROJECT NUMBER	197474

LICKING RIVER CROSSING

PROFILE
STA 20+00 TO 25+00

0 1" 2"

FILENAME	Bore-prof
SCALE	H:1"=20' V:1"=5'
SHEET	09

CSX File Number: 893460

PIPE DATA AND SPECIFICATIONS *(Use F11 Key to tab from cell to cell)*			
	Specification	**Carrier Pipe**	**Casing Pipe**
(1)	Pipe material	Ductile Iron	N/A
(2)	Material specifications and grade	Class 350	N/A
(3)	Specified minimum yield strength	42,000	N/A
(4)	Nominal size in inches	36"	N/A
(5)	Wall thickness in inches	0.43"	N/A
(6)	Type of seam		N/A
(7)	Type of joints	Push-on	N/A
	Check Yes or No		
(8)	Are tunnel liner plates required	~~Yes~~ No	
(9)	Protective coating	~~Yes~~ No	
(10)	Cathodic protection	~~Yes~~ No	
(11)	Cathodic protection type	N/A	
(12)	Commodity Description:	Finished Potable Water	
(13)	Maximum Operating Pressure:	200 psi	
(14)	Is Commodity Flammable:	No	

Notes / Comments:

The portion of the project installed via open trench will be ductile iron and the horizontal direction drill will be HDPE.

CSX File Number: 893460

PIPE DATA AND SPECIFICATIONS *(Use F11 Key to tab from cell to cell)*			
	Specification	**Carrier Pipe**	**Casing Pipe**
(1)	Pipe material	HDPE	N/A
(2)	Material specifications and grade	IPS, DR 11	N/A
(3)	Specified minimum yield strength	2,800	N/A
(4)	Nominal size in inches	36"	N/A
(5)	Wall thickness in inches	3.273"	N/A
(6)	Type of seam		N/A
(7)	Type of joints	Fused	N/A
	Check Yes or No		
(8)	Are tunnel liner plates required	~~Yes~~ No	
(9)	Protective coating	~~Yes~~ No	
(10)	Cathodic protection	~~Yes~~ No	
(11)	Cathodic protection type	N/A	
(12)	Commodity Description:	Finished Potable Water	
(13)	Maximum Operating Pressure:	200 psi	
(14)	Is Commodity Flammable:	No	

Notes / Comments:

The portion of the project installed via open trench will be ductile iron and the horizontal direction drill will be HDPE.

ADDENDUM NO. 1
Licking River Crossing (WX21037003 – Contract 2)
Cities of Wilder / Covington,
Campbell / Kenton County, Kentucky
NORTHERN KENTUCKY WATER DISTRICT

HDR, Inc. **June 9, 2022**

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents. All addendums will be issued through the Owner's QUESTCDN electronic bidding site. You must download the bid documents to be a plan holder and receive any addenda. It is the sole responsibility of the Bidder to review all addendums twenty-four (24) hours prior to bid.

I. CHANGES TO BID FORM

A revised bid form with updated bid items has been issued through the Owner's QUESTCDN electronic bidding site. The additional bid items include:

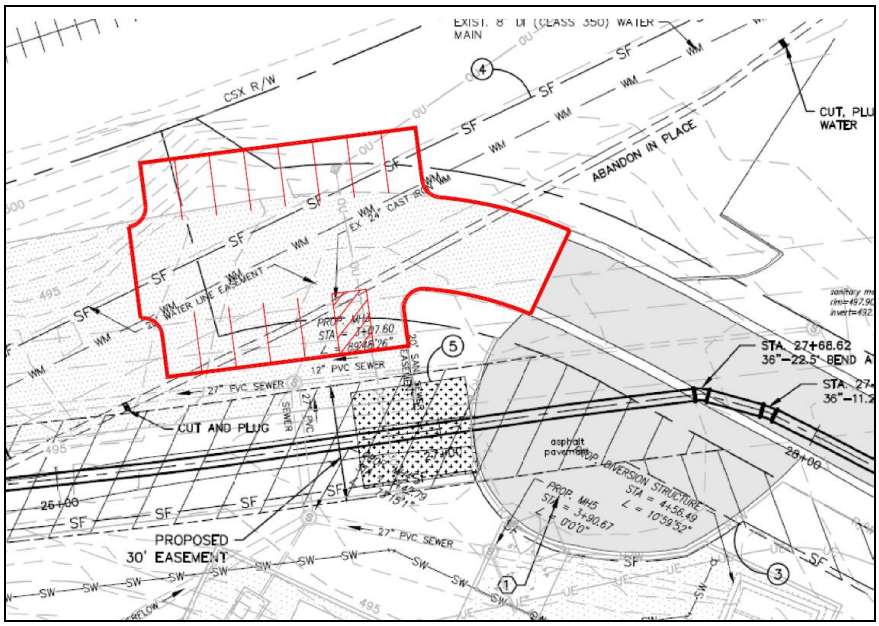
27	12.09 - Asphaltic Concrete (11")	SY	950
28	12.10 Asphaltic Concrete (5.5") – PARKING AREA	SY	535
29	12.11 Concrete Curbing	LF	500

II. CHANGES TO SPECIFICATIONS

Section 01025, MEASUREMENT AND PAYMENT, Page 8 of 8
Add the following to the end of section 01025:

12.09 ASPHALTIC CONCRETE. Includes the labor, equipment and materials required to perform any necessary removal and replacement of asphalt to a minimum depth of 11 inches or match existing depth (whichever is greater) and abandoning of valve boxes in accordance with specifications and standard drawing #103A. Paid SQUARE YARD (SY).

12.10 ASPHALTIC CONCRETE – PARKING AREA. Includes the labor, equipment and materials required to perform any necessary installation of 4" asphalt base and 1.5" asphalt surface over an existing stone base (grading and existing stone base by others) and striping of the parking stalls including 1 ADA parking space in accordance with the specifications and standard drawing #103A. See exhibit below for approximate location of parking area. Paid SQUARE YARD (SY).



12.11 CONCRETE CURBING. Includes the labor, equipment and materials required to place KDOT class A Concrete to match existing in accordance with specifications and standard drawings. Paid LINEAR FEET (LF).

III. CLARIFICATION – Q & A

Do the Alternates have to be bid on?

Please review the special instructions in the bid form (attached for convienence). Specifically, "Bidders must provide a base bid and are strongly encouraged to provide pricing for a SRF funding scenario (Alternate 1). If a Bidder does not provide pricing for Alternate 1, they must describe the reason for not doing so." As to alternates 2 and 3, the bidder can opt not to fill out without giving an explanation.

Additional Information: Download

At station #10+44. What is a 6" TFNO top right? Will a 6" welded outlet be acceptable for the fire hydrant?

TFNO is "Tangential Flanged Neck Outlet". A 6" welded outlet is acceptable.

At station #10+07.50, connection to existing 24" MJ gate valve. Is a plain end of 24" ductile iron pipe and mega lug acceptable or will this connection require MJ coupled joint? Will all 3 of the existing 24" valves be able to be closed during tie in work?

At this location, a plain end of 24" ductile iron pipe and mega lug is acceptable. Connections to existing mains must maintain cathodic isolation as noted on the plans. Yes, all 3 valves can be shut down but the 24" valve on the branch (connection point) is restrained to the tee. There should be no need to close all 3 valves.

What size are the proposed ARV's? So we know what size tap we will be making.

The ARV's will be 2".

Station #10+10.50, ARV with Test Tap. Detail #106 on sheet 16 does not show a test tap. Can you provide a detail and size for the test tap?

NKWD's test tap detail can be found on Standard Drawing 110. The following is a link to all NKWD Standard Specifications and Drawings: https://nkywater.org/standarddrawings/2021Standards.pdf

36" HDPE x Ductile Iron Restrained Adapter. I assume this will be a HDPE MJ adapter butt fused to the HDPE pipe and connect to the ductile iron pipe with a 36" MJ solid sleeve. Will a 36" mega lug be acceptable on the ductile side of the sleeve?

At this location, a 36" mega lug is acceptable on the ductile side of the sleeve.

Will NKWD be providing the meter for the River Leak Detection? What size leak detection is required?

NKWD will provide the meter. The piping will be ¾" copper and the meter is 5/8".

Bid item #7, tie into existing 8" waterline, 3 each. I have only found one 8" tie in at station #24+66. Can you tell me the location of the two other tie in's? Are mega lug's & MJ fittings acceptable for these tie in's?

The other 8" connections are at Sta. 11+59. Mega lugs and MJ fittings are acceptable at these locations.

Station 40+78. Is the existing 36" gate valve MJ? Is this valve restrained to the existing tee?

The 36" is MJ and restrained to the existing tee.

Can a pay item be added for the replacement of concrete curb & gutter on South Street & Andrews Way?

Yes, we will issue by addendum next week.

Is railroad protective insurance required for the work on CSX property?

Yes. Contractor shall procure and maintain during the period of construction operations: i) Railroad Protective Liability (RPL) Insurance, naming CSX TRANSPORTATION, INC. and Northern Kentucky Water District, and/or its designees, as Named Insured, written on the current ISO/RIMA Form (ISO Form No. CG 00 35 04 13) with limits of FIVE MILLION AND 00/100 U.S. DOLLARS ($5,000,000.00) per occurrence for bodily injury and property damage, with at least TEN MILLION AND 00/100 U.S. DOLLARS ($10,000,000.00) aggregate limit per annual policy period. The original of such RPL policy shall be sent to and approved by CSX TRANSPORTATION, INC. and Northern Kentucky Water District prior to commencement of such construction or demolition. Please note that CSX Transportation Inc., reserves the right to demand higher limits. OR ii) The CGL policy shall include endorsement ISO CG 24 17 and the Auto Liability Policy shall include endorsement ISO CA 20 70 evidencing that coverage is provided for work within 50 feet of a railroad. If such endorsements are not included, RPL insurance must be provided.

Are only KYTC certified DBE's recognized?

No

Is there an engineers cost estimate for this project?

The Engineer estimate was $4,673,100.00

Payment and Performance Bonds are usually provided upon award of contract. Since they are required with the bid and there is a alternate how would you like the contract amount to be?

The Payment and Performance Bond documents can be left blank and are not required to be completed until a contract is awarded. However, the Bid Bond will need to be completed and it will be based on the Base Bid.

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

Licking River Crossing (WX21037003 – Contract 2)

				Non-SRF Cost (Base Bid)		SRF Cost (Alternate 1)	
Item No.	Description	Unit of Measure	Est Qty.	Unit Cost Total	Total Cost	Unit Cost Total	Total Cost
1	6.01 - 8" Ductile Iron Pipe – Internal Restrained Joint	LF	80	$	$	$	$
2	6.02 – 24" Ductile Iron Pipe – Internal Restrained Joint	LF	20	$	$	$	$
3	6.02 – 36" Ductile Iron Pipe – Internal Restrained Joint	LF	1,920	$	$	$	$
4	6.03 – 48" Casing Pipe – Bore & Jack	LF	120	$	$	$	$
5	6.04 – 36" DIPS DR11 HDPE (Open-Cut)	LF	50	$	$	$	$
6	6.05 – 36" DIPS DR11 HDPE HDD	LF	1,170	$	$	$	$
7	7.01 – Tie into Existing 8" Waterline	EA	3	$	$	$	$
8	7.01 – Tie into Existing 24" Gate Valve	EA	1	$	$	$	$
9	7.01 – Tie into Existing 36" Gate Valve	EA	1	$	$	$	$
10	8.01 – Install Fire Hydrant Assembly	EA	2	$	$	$	$
11	9.01 – 8" Ductile Iron Resilient Seated Gate Valve	EA	1	$	$	$	$
12	9.02 – 36" RS Horizontal Gate Valve	EA	2	$	$	$	$
13	10.01 – Water Meter Setting (River Leak Detection)	EA	1	$	$	$	$
14	11.01 – 8" Plug and Block (Pressure Main)	EA	1	$	$	$	$
15	11.01 – 36" Plug and Block (Pressure Main)	EA	1	$	$	$	$
16	11.01 – 24" Plug and Block (Existing Pressure Main)	EA	1	$	$	$	$
17	11.02 – 24" Cut & Plug (Abandoned Main)	EA	3	$	$	$	$
18	11.03 – Air Release Valve	EA	3	$	$	$	$
19	11.04 – 36" x 24" Anchoring Tee and Block	EA	1	$	$	$	$
20	11.05 – Test Tap	EA	1	$	$	$	$
21	11.06 – Corrosion Test Station	EA	13	$	$	$	$
22	11.07 – Magnesium Anodes	EA	42	$	$	$	$
23	12.05 – Asphaltic Concrete Milling and Paving	SY	2,725	$	$	$	$
24	12.06 – Concrete Sidewalk	SY	15	$	$	$	$
25	12.07 - Gravel Driveway	SY	260	$	$	$	$
26	12.08 – Best Management Practice	LS	1	$	$	$	$
27	12.09 - Asphaltic Concrete (11")	SY	950	$	$	$	$
28	12.10 Asphaltic Concrete (5.5") – PARKING AREA	SY	535	$	$	$	$
29	12.11 Concrete Curbing	LF	500	$	$	$	$
				Total Non-SRF Base Bid	$	**Total SRF Bid (Alternate 1)**	$

Total Base Bid in Words

Total SRF Bid (Alternate 1) in Words

Bid Form Instructions: The unit price schedule above includes columns to price bids for both a non-SRF (Base Bid) and SRF funding scenario (Alternate 1). Bidders must provide a base bid and are strongly encouraged to provide pricing for a SRF funding scenario (Alternate 1). If a Bidder does not provide pricing for Alternate 1, they must describe the reason for not doing so. If Bidders are proposing both a non-SRF and SRF scenario, they must enter numbers in every box in both columns even if the numbers are the same for the non-SRF and SRF scenarios.

Alternative Bid No. 2 & 3

In lieu of 36" DIPS DR11 HDPE (Open-cut) - Item No. 5 and 36" DIPS DR 11 HDPE HDD - Item No. 6, the following:

				(Alternate 2) Non-SRF Cost for Fusible PVC		(Alternate 3) SRF Cost for Fusible PVC	
Item No.	Description	Unit of Measure	Est Qty.	Unit Cost Total	Total Cost	Unit Cost Total	Total Cost
6	6.06 – 36" DIPS DR21 FUSIBLE PVC (Open-Cut)	LF	50	$	$	$	$
7	6.07 – 36" DIPS DR21 FUSIBLE PVC HDD	LF	1,170	$	$	$	$

Alternate includes all work associated with installation of the alternative, including fittings and restrained joint connection to the ductile iron.

Northern Kentucky Water District

REMAINING PORTIONS SUBMITTED
FOR CONFIDENTIAL TREATMENT
PURSUANT TO 807 KAR 5:001, SECTION 13

EXHIBIT B

APPROVALS AND PERMITS
(Franchises, Plan Review and Permit Status, Easements, Right-of-Ways, Construction Start and In-Service Date, Plant Retirements)

APPROVAL AND PERMITS
SUMMARY SHEET

Franchises required – None

Plan Review and Permit Status - The District has reviewed and approved the Plans and Specifications prepared by HDR Engineering, Inc., titled "Licking River Crossing" dated May 2022, digitally sealed by a P.E.

See enclosed permit letters for:

- Kentucky Division of Water on April 7, 2021 AI#2485, FGL20140006
- Kentucky Division of Water KPDES Permit No. KYR10Q468
- Kentucky Department of Transportation encroachment permit #06-2014- 00199
- U.S. Army Corp of Engineers stream crossing permit LRL-2022-88-cat
- Sanitation District No. 1 Grading Permit - GRP-0359-0514
- CSX Facility Encroachment Agreement No. CSX893460

Easements and Right-of-Way Status –Easements are needed for this project and all have been secured

PIDN – 999-99-18-498.06
PIDN – 999-99-18-498.05

Estimated Start date of construction – October 2022

Proposed date in service – October 2023

Plant retirements – There are no retirements as a result of this project.

ANDY BESHEAR
GOVERNOR

REBECCA W. GOODMAN
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

ANTHONY R. HATTON
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

April 7, 2021

Mr. Kyle Ryan, PE
Northern KY Water District
2835 Crescent Springs Rd
Erlanger, KY 41018

RE: Licking River Crossing
F13-012
Campbell County, KY
Northern KY Water District
AI #: 2485, FGL20140006

Dear Mr. Ryan:

The Kentucky Division of Water (DOW) has reviewed for completeness and adequacy the construction plans and specifications submitted for the above referenced contract(s). The DOW now approves these plans and specifications with respect to sanitary features of design in accordance with the requirements contained in the attached construction permit. The plans consist of construction of 340 LF of 8-inch DI, 1,201 LF of 36-inch HDPE, and 1,920 LF of 36-inch DI waterlines. The approval conditions and a list of eligible/ineligible items are enclosed. Please note that ineligible items cannot be funded using State Revolving Fund (SRF) monies, and must be paid by other funding sources.

We are enclosing one (1) set of approved plans and specifications. An identical set should be made available at the project site at all times. If modifications are made to these plans and specifications before bidding, two (2) complete sets of as-bid plans and specifications must be submitted to the DOW for approval. A second DOW construction approval must be issued by separate correspondence before proceeding with advertising for bids. Any red line changes that were made by DOW personnel on the approved plans shall be incorporated into the bid set plans unless an alternative is approved.

You may now advertise for bids on the construction of this project. In addition to other notifications, this project must be advertised in the newspaper of the largest daily circulation in the project area.

You are cautioned not to advertise unless you have a proper wage decision. The Federal Davis-Bacon wage rates are applicable for this project. Please contact all other funding sources for their requirements pertaining to federal wage rates.

You are reminded that the construction contracts are subject to the equal employment opportunity requirements contained in Executive Order 11246. Equal employment opportunity affirmative action by the prime contractors and all subcontractors is mandated throughout the duration of the contract. Documentation of efforts to comply with Executive Order 11246, Equal Employment Opportunity is required to be kept by the borrower.

Review the attached Project Review and Cost Summary form for details of the information to be collected and retained in your files or to be submitted to DOW for review and approval. This form must be completed, signed by the recipient, and with the necessary information be then forwarded to the DOW. This signature will certify that all the information to be retained by the recipient has been secured and is available for review by the Division at the pre-construction conference. The required information must be approved by the DOW before executing any contracts.

Along with the Project Review and Cost Summary form, the following items must be submitted to the DOW for review and approval before executing any contracts:

- The bid advertisement
- Revised Project Budget
- Certified bid tabulation
- Documentation of compliance with DBE Good Faith Effort in accordance with 40 CFR 33.301

These items will be reviewed as a part of the Authority to Award process. The DOW will authorize you to award the contracts once these documents are approved

After the Notice to Proceed is signed, the DOW will need a copy of the executed contract documents, including plans and specifications.

Changes orders will require approval from the DOW before payment can be authorized from the State Revolving Fund. Submission of plans and specifications may be required for change order work.

Upon completion of the project, as-built drawings shall be provided to the DOW. As-builts shall be stamped, signed and dated by a professional engineer. A written certification stating that the project was constructed according to the approved plans shall be provided to the DOW by a professional engineer.

The construction permit included in this letter has been issued under the provisions of KRS Chapter 224 and the 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.

You are cautioned that the advertisement and award of this contract will be subject to the laws and regulations that govern the State Revolving Fund (SRF) and to the conditions of your loan agreement. If we can be of further assistance, please contact Mike Snyder, at (502) 782-1235.

Sincerely,

Terry Humphries, P.E.
Supervisor, Engineering Section
Water Infrastructure Branch
Division of Water

TH:MS
Enclosures
Eligible List, Ineligible List, Approval Conditions
Project Review and Cost Summary Form
1 set plans and specification

C: HDR Inc.
Kentucky Infrastructure Authority
Cabinet for Economic Development
Campbell County Health Department
Division of Plumbing

Distribution-Water Line Extension

Northern KY Water District

Facility Requirements

Activity ID No.:APE20210002

PORT0000000288 (Licking River Crossing Contract 2 - SRF Project) 340 LF of 8-inch DI, 1,201 LF of 36-inch HDPE, and 1,920 LF of 36-inch DI waterline:

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]

PORT0000000288 (Licking River Crossing Contract 2 - SRF Project) 340 LF of 8-inch DI, 1,201 LF of 36-inch HDPE, and 1,920 LF of 36-inch DI waterline:

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]

PORT0000000288 (Licking River Crossing Contract 2 - SRF Project) 340 LF of 8-inch DI, 1,201 LF of 36-inch HDPE, and 1,920 LF of 36-inch DI waterline:

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]

PORT0000000288 (Licking River Crossing Contract 2 - SRF Project) 340 LF of 8-inch DI, 1,201 LF of 36-inch HDPE, and 1,920 LF of 36-inch DI waterline:

Narrative Requirements:

Condition No.	Condition
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]
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]

PORT0000000288 (Licking River Crossing Contract 2 - SRF Project) 340 LF of 8-inch DI, 1,201 LF of 36-inch HDPE, and 1,920 LF of 36-inch DI waterline:

Narrative Requirements:

Condition No.	Condition
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]

ANDY BESHEAR
GOVERNOR

REBECCA W. GOODMAN
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

ANTHONY R. HATTON
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

June 27, 2022

Steve Broering
Northern KY Water District
2835 Crescent Springs Rd
Erlanger, KY 41018

Re: KYR10 Coverage Acknowledgment
KPDES No.: KYR10Q468
Licking River Waterline Crossing
Permit Type: Construction
AI ID: 2485
Campbell County, Kentucky

Dear Steve Broering :

The discharges associated with the Notice of Intent you submitted have been approved for coverage under the "Kentucky Pollutant Discharge Elimination System (KPDES) General Permit for Storm Water Discharges Associated with Construction Activities (KYR100000)" master general permit. Your coverage becomes effective on the date of this letter, and will automatically terminate two years from the effective date of your coverage unless an extension is requested prior to the termination date, until the KYR100000 master general permit expires on November 30, 2024, or the Division of Water revokes coverage, whichever comes first. During this period of coverage all discharges shall comply with the conditions of the KYR100000 master general permit. This permit and links to the eNOI (and permit coverage extension) and eNOT forms can be found on our website:
https://eec.ky.gov/Environmental-Protection/Water/PermitCert/KPDES/Documents/KYR10PermitPage.pdf.

Any person aggrieved by the issuance of a permit final decision may demand a hearing pursuant to KRS 224.10-420(2) within thirty (30) days from the date of the issuance of this letter. Any demand for a hearing on the permit shall be filed in accordance with the procedures specified in KRS 224.10-420, 224.10-440, 224.10-470, and the regulations promulgated thereto. The request for hearing should be submitted in writing to the Energy and Environment Cabinet, Office of Administrative Hearings, 211 Sower Boulevard, Frankfort, Kentucky 40601 and the Commonwealth of Kentucky, Energy and Environment Cabinet, Division of Water, 300 Sower Boulevard, Frankfort, Kentucky 40601. For your record keeping purposes, it is recommended that these requests be sent by certified mail. The written request must conform to the appropriate statutes referenced above.

Any questions concerning the general permit and its requirements should be directed to me at 502-782-7123 or email me at Karina.Villanueva@ky.gov

Construction Site GPS Coordinates: 39.051771, -84.494076
Receiving Water: Sanitation District No 1

Sincerely,

Karina Villanueva
Surface Water Permits Branch
Division of Water

cc: Steve Broering, eNOI Preparer
Matt Gross, Florence Regional Office
Brooke Shireman, Sanitation District No. 1

TRANSPORTATION CABINET

Steven L. Beshear
Governor

Department of Highways District 6 Office
421 Buttermilk Pike
Covington, KY 41017
(859) 341-2700

Michael W. Hancock, P.E.
Secretary

March 10, 2014

Northern KY Water District
2835 Crescent Springs Rd.
Erlanger, KY 41018

RECEIVED
MAR 13 2014
ON THIS DATE

SUBJECT: Campbell, MP – 20.04
Route No. 9
Permit Number 06-2014-00199

Dear Applicant:

Your application for an encroachment permit has been approved by the Department of Highways. We are returning two copies of the approved permit so one may be kept in your records files. The other copy must be given to the party responsible for completing the project and must be kept at the jobsite at all times.

Please see that the work is done in strict conformity with the permit and any other applicable conditions. (See Form TC99-21 and any other attached documents, conditions or specifications). The work should be completed no later than 07/01/15. When the permitted work and any necessary restoration have been completed please notify this office by using the attached form which will serve as a notification for final inspection.

If there are any question regarding this permit, please do not hesitate to contact Laura Mitchell at 859-341-2700 or fax number 859-341-6729.

Sincerely,

Laura T. Mitchell, P.E.
District 6 Permits Supervisor

Robert A. Hans, P.E.
Chief District Engineer
Department of Highways
District 6- Covington
421 Buttermilk Pike
Covington, KY 41017

NOTICE OF COMPLETION OF ENCROACHMENT PERMIT WORK

PLEASE RETURN THIS FORM TO THE DISTRICT OFFICE WHEN WORK IS COMPLETED AND IS READY FOR FINAL INSPECTION.

APPLICANT INFORMATION:

Northern KY Water District
2835 Crescent Springs Rd.
Erlanger, KY 41018

PROJECT IDENTIFICATION:

Campbell, MP – 20.04
Route No. 9
Permit Number 06-2014-00199
Road Name: Licking Pike

I wish to notify the Department of Highways that the work in the above mentioned permit and any necessary right of way restoration work have been completed and are ready for final inspection.

Applicant Signature:_____

Please Return To: Department of Highways
District 6 Covington
421 Buttermilk Pike
Covington, Kentucky 41017

Attention: Laura Mitchell, Permits Supervisor

Kentucky Transportation Cabinet
Department of Highways
Permits Branch

ENCROACHMENT PERMIT

KEPTS No.: T06-2014-00199

Permittee: Northern Kentucky Water District

Latitude: 39.053593

Longitude: -84.488347

Completion Date: 7/1/2015

Coordinates provided on the TC 99-1(B) are the approved location for this permit

Indemnities		
Type	Amount Required	Tracking Number
Performance Bond	0	
Payment Bond	0	
Liability Insurance	0	

This permit has been:

APPROVED ☒ **DENIED** ☐

Laura Mitchell — Permits Supervisor

NAME **TITLE**

Laura Mitchell — 3-7-14

SIGNATURE **DATE**

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.

Kentucky Transportation Cabinet
Department of Highways
Permits Branch

APPLICATION FOR ENCROACHMENT PERMIT

Permittee Information			
Name	Northern Kentucky Water District		
Address	2835 Crescent Springs Road		
City	Erlanger		
State	KY	Zip	41018
Phone#	859-578-9898		
Contact	Brendan O'Bryan		
Phone	859-578-4893	Cell	
Email	bobryan@nkywater.org		
Contact			
Phone		Cell	
Email			

KYTC No. 06-2014-00199

Permit Information			
Address	Licking Pike and South Street		
City	Wilder		
State	KY	Zip	41071
County	Campbell		
Route No.	9	Mile-Point	20.04
Longitude (X)	39.0535		
Latitude (Y)	-84.4883		

Information below to be filled out by KYTC

☐ Air Right ☐ Entrance
☒ Utilities ☐ Other: WATER

☐ Left ☐ Right ☒ X-ing

Access: ☐ Full ☐ Partial ☒ by Permit

General Description of Work:

48" Steel encasement pipe will be directional bored underneath KY 9 just north of its intersection with South Street in Wilder, KY. 36" Water main will be contained inside encasement.

APPROVED

MAR 10 2014

184-749

KYTC District 6

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

2/25/2014
Date

This is not a permit unless and until the permittee(s) receives an approved TC 99-1(B) from KYTC. This application will become void if not approved by the cancellation date. The cancellation date will be one year from the date the permittee submits their application.

APPLICATION FOR ENCROACHMENT PERMIT

TERMS AND CONDITIONS

1. The permit, including this application and all related and accompanying documents and drawings making up the permit, remains in effect and is binding upon the Applicant/Permittee, its successors and assigns, as long as the encroachment(s) exists and also until the permittee is finally relieved by the Department of Highways from all its obligations.

2. Applicant shall meet all requirements of the Clean Water Act if the project will disturb one acre or more, the applicant shall obtain a KPDES KYR10 Permit from the Kentucky Division of Water. All disturbed areas shall meet the requirements of the Department of Highway's Standard Specifications, Sections 212 and 213, as amended.

3. INDEMNITY:

- **A.** PERFORMANCE BOND: The permittee shall provide to the Department a performance bond according to the Permits Manual, Section PE-203 as a guarantee of conformance with the Department's Encroachment Permit requirements.
- **B.** PAYMENT BOND: At the discretion of the department, a payment bond will be required of the permittee to ensure payment of liquidated damages assessed to the permittee.
- **C.** LIABILITY INSURANCE: Liability insurance will be required of the permittee (in an amount approved by the department) to cover all liabilities associated with the encroachment.
- **D.** It shall be the responsibility of the permittee, its successors and assigns, to maintain all indemnities in full force and effect until the permittee is authorized to release the indemnity by the Department.

4. A copy of this application and all related documents making up the approved permit will be given to the applicant and shall be made readily available for review at the work site at all times.

5. Perpetual maintenance of the encroachment is the responsibility of the permittee, its successors and assigns, with the approval of the Department as required, unless otherwise stated.

6. Permittee, its successors and assigns, shall comply with and agrees to be bound by the requirements and terms of (a) this application and all related documents making up the approved permit, (b) by the Department's Permits Manual, and (c) by the Manual on Uniform Traffic Control Devices, both manuals as revised to and in effect on the date of issuance of the permit, all of which documents are made a part thereof by this reference. Compliance by the permittee, its successors and assigns, with subsequent revisions to applicable provisions of either manual or other policy of the Department may be made a condition of allowing the encroachment to persist under the permit.

7. Permittee agrees that this and any encroachment may be ordered removed by the Department at any time, and for any reason, upon thirty days written notice to the last known address of the applicant or to the address at the location of the encroachment. The permittee agrees that the cost of removing and of restoring the associated right-of-way is the responsibility of the permittee, its successors and assigns.

8. Permittee, its successors and assigns, agree that if the Department determines that motor vehicular safety deficiencies develop as a result of the installation or use of the encroachment, the permittee, its successors and assigns, shall provide and bear the expenses to adjust, relocate, or reconstruct the facilities, and/or add signs, auxiliary lanes, or other corrective measures reasonably deemed necessary by the Department within a reasonable time after receipt of a written notice of such deficiency. The period within which such adjustments, relocations, additions, modifications, and/or other corrective measures must be completed will be specified in the notice.

APPLICATION FOR ENCROACHMENT PERMIT

9. Where traffic signals are required as a condition of granting the requested permit or are thereafter required to correct motor vehicular safety deficiencies, as determined by the Department, the costs for signal equipment and installation(s) shall be borne by the permittee, its successors and assigns, and/or the Department in its reasonable discretion and only in accordance with the Department's current policy set forth in the Traffic Operations Manual and Permits Manual. Any modifications to the permittee's entrance necessary to accommodate signalization (including necessary easement(s) on private property) shall be the responsibility of the permittee, its successors and assigns, at no expense to the Department.

10. The requested encroachment shall not infringe on the frontage rights of an abutting owner without their written consent as hereinafter described. Each abutting owner shall express their consent, which shall be binding on their successors and assigns, by the submission of a notarized statement as follows, "I (we), _____, hereby consent to the granting of the permit requested by the applicant along Route _____, which permit does affect frontage rights along my (our) adjacent real property." By signature(s) _____, subscribed and sworn by _____, on this date _____.

11. The permit, if approved, is subject to the agreement that it shall not interfere with any similar rights or permit(s) previously granted to any other party, except as otherwise provided by law.

12. Permittee shall include documentation which describes the facilities to be constructed. Permittee, its successors and assigns, agrees as a condition of the granting of the permit to construct and maintain any and all permitted facilities or other encroachments in strict accordance with the submitted and approved permit documentation and the policies and procedures of the Department. Permittee, its successors and assigns, shall not use facilities authorized herein in any manner contrary to that prescribed by the approved permit. Only normal usage as contemplated by the parties and by this application and routine maintenance are authorized by the permit.

13. Permittee, its successors and assigns, at all times from the date permitted work is commenced until such time as all permitted facilities or other encroachments are removed from the right-of-way and the right-of-way restored, **shall defend, protect, indemnify and save harmless** the Department from any and all liability claims and demands arising out of the work, encroachment, maintenance, or other undertaking by the permittee, its successors and assigns, related or undertaken pursuant to the granted permit, due to any claimed act or omission by the permittee, its servants, agents, employees, or contractors. This provision shall not inure to the benefit of any third party nor operate to enlarge any liability of the Department beyond that existing at common law or otherwise if this right to indemnity did not exist.

14. Upon a violation of any provision of the permit, or otherwise in its reasonable discretion, the Department may require additional action by the permittee, its successors and assigns, up to and including the removal of the encroachment and restoration of the right-of-way. In the event additional actions required by the Department under the permit are not undertaken as ordered and within a reasonable time, the Department may in its discretion cause those or other additional corrective actions to be undertaken and the Department may and shall recover the reasonable costs of those corrective actions from the permittee, its successors and assigns.

15. Permittee, its successors and assigns, shall use the encroachment premises in compliance with all requirements of federal law and regulation, including those imposed pursuant to Title VI of the Civil Right Act of 1964 (42 U.S.C. § 2000d et seq.) and the related regulations of the U.S. Department of Transportation in Title 49 C.F.R. Part 21, all as amended.

APPLICATION FOR ENCROACHMENT PERMIT

16. Permittee, its successors and assigns, agree that if the Department determines it is necessary for the facilities or other encroachment authorized by the permit to be removed, relocated or reconstructed in connection with the reconstruction, relocation or improvement of a highway, the Department may revoke permission for the encroachment to remain under the permit and may order its removal, relocation or reconstruction by the permittee, its successors and assigns, at the expense of the permittee, except where the Department is required by law to pay any or all of those costs.

17. Permittee agrees that the authorized permit is personal to the permittee and shall remain in effect until such time as (a) the permittee's rights to the adjoining real property to have benefitted from the requested encroachment have been relinquished, (b) until all permit obligations have been assumed by appropriate successors and assigns, and (c) unless and until a written release from permit obligations has been granted by the Department. The permit and its requirements shall also bind the real property to have benefitted from the requested encroachment to the extent permitted by law. The permit and the related encroachment become the responsibility of the successors and assigns of the permittee and the successors and assigns of each property owner benefitting from the encroachment, or the encroachment may not otherwise permissibly continue to be maintained on the right-of-way. (Does not apply to utility encroachments serving the general public.)

18. If work authorized by the permit is within a highway construction project in the construction phase, it shall be the responsibility of the permittee to make personal contact with the Department's Engineer on the project in order to coordinate all permitted work with the Department's prime contractor on the project.

19. This permit is not intended to, nor shall it, affect, alter or alleviate any requirement imposed upon the permittee, its successors and assigns, by any other agency.

20. Permittee, its successors and assigns, agrees to contain and maintain all dirt, mud, and other debris emanating from the encroachment away from the surrounding right-of-way and the travel way of the highway hereafter and at all times that its obligations under the permit remain in effect.

ENCROACHMENT PERMIT GENERAL NOTES & SPECIFICATIONS

Permit No. 06-2014-00199

I. SAFETY

A. General Provisions

☒ All signs and control of traffic shall be in accordance with the Manual on Uniform Traffic Control Devices for Streets and Highways, latest edition, Part VI, and safety requirements shall comply with the Permits Manual.

☒ All work necessary in shoulder or ditch line areas of a state highway shall be scheduled to be promptly completed so that hazards adjacent to the traveled way are kept to an absolute minimum.

☒ No more than one (1) traveled-lane shall be blocked or obstructed during normal working hours. All signs and flaggers during lane closure shall conform to the Manual on Uniform Traffic Control Devices.

☒ When necessary to block one (1) traveled-lane of a state highway, the normal working hours shall be as directed by the Department. No lanes shall be blocked or obstructed during adverse weather conditions (rain, snow, fog, etc.) without specific permission from the Department. Working hours shall be between N/A and _____

☒ The traveled-way and shoulders shall be kept clear of mud and other construction debris at all times during construction of the permitted facility.

☒ No nonconstruction equipment or vehicles or office trailers shall be allowed on the right of way during working hours.

☒ The right of way shall be left free and clear of equipment, material, and vehicles during non-working hours.

B. Explosives

☒ No explosive devices or explosive material shall be used within state right of way without proper license and approval of the Kentucky Department of Mines and Minerals, Explosive Division.

C. Other Safety Requirements

☒ NO Lane closure allowed for this work. All work outside roadway pavement.
Jack & Bore method must be used for this work. NO Pavement cuts allowed on KY 9

II. UTILITIES * Applies to Fully Controlled Access Highways **ONLY**

☐ *All work necessary within the right of way shall be performed behind a temporary fence erected prior to a boring operation.

☐ *The temporary woven wire fence shall be removed immediately upon completion of work on the right of way, and the control of access immediately restored to original condition, in accordance with applicable Kentucky Department of Highways Standard Drawings.

☐ *All vents, valves, manholes, etc., shall be located outside of the right-of-way.

☐ *Encasement pipe shall extend from right-of-way line to right-of-way line and shall be one continuous run of pipe. The encasement pipe shall be welded at all joints.

☒ The boring pit and tail ditch shall extend past the existing toe of slope or bottom of ditch line and shall be a minimum of 42 inches deep.

II. UTILITIES (Continued)

☒ Encasement pipe pipe shall conform to current standards for highway crossings in accordance with the Permits Manual.

☒ Parallel lines shall be constructed between back slope of ditch line and right-of-way line and shall have a minimum of 30-inch cover above top of pipe or conduit.

☐ All pavement cuts shall be restored per Kentucky Transportation Cabinet form TC 99-13.

☐ Aerial crossing of this utility line shall have a minimum clearance of _____ feet from the high point of the roadway to the low point of the line (calculated at the coefficient for expansion of 120 degrees Farenheit).

☐ The 30-foot clear zone requirement shall be met to the extent possible in accordance with the Permits Manual.

☒ Special requirements:

NO Lane closure allowed for this work. All work outside roadway pavement.
Jack & Bore method must be used for this work. NO Pavement cuts allowed on KY 9.

Any roadway sign removed or damaged must be replaced according to KYTC standards.

III. GENERAL

A. OSHA

☒ Kentucky Occupational Safety and Health Standards for the construction industry, which has the effect of law, states in part: (Page 52, 1926.651, Specific Excavation Requirements) "Prior to opening an excavation, effort shall be made to determine whether underground installations, (sewer, telephone, water, fuel, electric lines, etc.) will be encountered, and if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined, and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation."

B. Archaeological

☒ Whenever materials of an archaeological nature are discovered during the course of construction work or maintenance operations, contact shall be made immediately with the Division of Environmental Analysis, which maintains an archaeologist on staff, or with the Office of the State Archaeologist located at the University of Kentucky. Following this consultation, further action shall be decided on a case-by-case basis by the State Highway Engineer or the Transportation Planning Engineer or their designated representative.

C. Utilities in the Work Areas

☒ The permittee shall be responsible for any damage to existing utilities, and any utility modifications or relocations within state right of way necessary, as determined by the Department or by the owner of the utility, shall be at the expense of the permittee and subject to the approval of the Department.

☒ All existing manholes and valve boxes shall be adjusted to be flush with finished grade.

D. Environmental

☒ If the activity to which this permit relates disturbs one acre or more of land, you must obtain a KPDES KYR10 permit.

Websites

http://www.water.ky.gov/permitting/wastewaterpermitting/KPDES/storm/

Inspectors for KPDES KYR10 at www.KEPSC.org

Permit No. 06-2014-00199

IV. RIGHT OF WAY RESTORATION

☒ All disturbed portions of the right of way shall be restored to grass as per Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition). A satisfactory turf, as determined by the Department, shall be established by the permittee prior to release of indemnity. Sodding or seeding shall be as follows:

Lawn or High Maintenance Situation	70% Lawn Fescue (e.g., variety - Falcon) 30% Bluegrass **or** 70% Lawn Rye (e.g., variety - Derby) 30% Bluegrass
Right of Way Lawn Maintenance Situation	70% KY 31 Fescue 30% Perennial Rye Grass **or** 100% KY Fescue

☒ Two tons of clean straw mulch per acre of seeding.

☒ Prior to seeding, the ground shall be prepared in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

☐ Substitutes for sod such as artificial turf, rocked mulch, or paved areas may be acceptable if they are aesthetically pleasing.

☐ All ditch-flow lines and all ditch-side slopes shall be sodded.

☒ Existing concrete right of way markers shall not be disturbed, but if damaged in any way, they shall be entirely replaced by the permittee, with new concrete markers to match the original markers, in accordance with Kentucky Department of Highways Standard Drawings. Markers that are entirely removed shall be re-established in the proper locations by the permittee and to the satisfaction of the Department.

☐ Other right of way restoration requirements are as follows:

V. DRAINAGE

☐ All pipe shall be laid in a straight alignment, to proper grades, and with all materials and methods of installation including bedding and joint seating in accordance with Department Standard Specifications for Road and Bridge Construction (latest edition). Pipe shall not be covered until inspected by the Department and express permission obtained to make backfill.

☐ All gutter lines at the base of new curbs shall be on continuous grades, and pockets of water along with curbs or in entrance areas or other paved areas within the right of way shall not be acceptable.

☐ All drainage structures and appurtenances (manholes, catch basins, curbing, inlet basins, etc.) shall conform to Department specifications and shall be constructed in accordance with the Department Standard Drawings. Type required:

Permit No. 06-2014-00199

VI. Paving

☐ No bituminous pavement shall be installed within the right of way between November 15 and April 1, nor when the temperature is below 40 degrees Farenheit, without the express consent of the Department. No bituminous pavement shall be installed when the underlying course is wet.

☐ Paving within the right of way shall be as follows:

☐ Base (Type) _____ (Thickness) _____

☐ Surface Base (Type) _____ (Thickness) _____

☐ Finished Surface (Type) _____ (Thickness) _____

☐ Existing pavement and shoulder material shall be removed to acommodate the above paving specifications.

☐ The finished surface of all new pavement within the right of way shall be true to the required slope and grade, uniform in density and texture, free of irregularities, and equivalent in riding qualities to the adjacent highway pavement or as determined by the Department of Highways.

☐ All materials and methods of construction, including base and subgrade preparation, shall be in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

☐ 24 hours notice to the Department is required prior to beginning paving operations.

Phone: _____ Name: _____

☐ To ensure proper surface drainage, the new pavement shall be flush with the edge of existing highway pavement and shall slope away from the existing edge of the pavement as specified in drawings.

☐ Existing edge of pavement shall be saw-cut to provide a straight and uniform joint for new pavement. An approved joint sealer, in accordance with Kentucky Department of Highways Standard Specifications (latest edition), shall be applied between new and existing pavements.

VII. SIDEWALKS SPECIFICATIONS *This dimension should be equal to the width of the sidewalk.

A. New Sidewalks

☐ Sidewalks shall be constructed of Class A concrete (3,500 p.s.i. test), shall be *____ feet in width, 6 inches in thickness across the bituminous entrance, and 4 inches in thickness across the remaining sections.

☐ Sidewalks shall have tooled joints not less than 1 inch in depth at four foot intervals*, and 1/2 premolded expansion joints extending entirely through the sidewalk at intervals not to exceed 50 feet.

☒ All materials and methods of construction, including curing, shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

B. Existing Sidewalks

☒ **(Applicable if existing sidewalks are being relocated)** Use of the sidewalk shall not be blocked or obstructed, and a usable walkway shall be maintained across the construction area at all times.

☒ All damaged sections of the sidewalks shall be entirely replaced to match existing sections.

VIII. DENSE GRADED SHOULDERS

☐ Any existing dense-graded aggregate shoulders in the entire frontage within the construction area, which have been disturbed or damaged or on which dirt has been placed or mud has been deposited or tracked, shall be restored to original condition by removal of all contaminated material and replaced to proper grade with new dense-graded aggregate.

☐ All new aggregate shoulders as specified in the plan shall consist of 5 inches of compacted dense-graded aggregate, $2^{1/2}$ pounds per square yard of calcium chloride.

☐ All dense-graded aggregate shoulders shall slope away from the new edge of pavement at the rate of 3/4 inch per foot.

IX. CURBING

A. Bituminous Curbs

☐ Bituminous concrete curbs shall be given a paint coat of asphalt emulsion.

☐ The surface under the bituminous concrete curb shall be tacked with asphalt emulsion.

☐ All bituminous concrete curbs shall be constructed of a Class I bituminous concrete mixture as specified by official Department of Highways specifications.

☐ All bituminous curbs shall be rolled curb, with a minimum base width of 8 inches and a minimum height of ____ inches. The top of the curb shall be constructed in such a manner as to guarantee a uniform rolled effect throughout the entire run.

B. Concrete Curbs

☒ All curbs or curb and gutter shall be constructed of Class A concrete (3,500 p.s.i. test) and shall be uniform in height, width, and alignment, true to grade, and satisfactory in finish and appearance as determined by the Department. All materials and methods of construction, including curing, shall be in accordance with Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

☐ All concrete curbs shall be 6 inches in width, extend ____ inches above finished grade and 12 inches below finished grade, with all visible edge rounded to 1/2 inch radii.

☐ All concrete curbs shall have expansion joints constructed at intervals of not more than 30 feet, and 1/2 inch premolded expansion joint material (cut to conform to the curb or to the curb and gutter section) shall be used in each expansion joint.

☐ The last ____ feet of all concrete curbs are to be tapered down to finished grade.

Kentucky Transportation Cabinet
Department of Highways
Permits Branch

EXHIBIT B
TC 99-10
Rev. 9/2004

TYPICAL HIGHWAY BORING CROSSING DETAIL

Permit No. 06-2014-00199
Route No. KY 9
Pavement Width 68'

1. Push Pit and Receiving Pit shall be backfilled and thoroughly compacted.
2. All ditch lines are to remain open at all times.
3. Seed and straw all disturbed areas immediately after completing the work.
4. Provide traffic control as required to insure the safety of the traveling public in accordance with the current edition of the "Manual on Uniform Traffic Control Devices".

ALL SERVICES OVER 2" IN DIAMETER SHALL REQUIRE ENCASEMENT.

IMPORTANT NOTICE

Federal law requires that High Visibility Class 2 or Class 3 retroreflective safety apparel that meets ANSI/ISEA 107-2004 Standards shall be worn at all times by anyone working within the KYTC R/W limits.

Class 3 apparel is required for flaggers after dark.

If any questions, please contact Laura Mitchell at (859) 341-2700.

IMPORTANT NOTICE

Federal law requires that traffic control shall be implemented in accordance with MUTCD Standards and KYTC Specifications under the supervision of a Work Zone Traffic Control Supervisor.

A Work Zone Traffic Control Technician shall be available on the jobsite to ensure that the work zone is in compliance with the applicable standards.

If any questions, please contact Laura Mitchell at (859) 341-2700.

Northern Kentucky
Water District

February 25, 2014

Ms. Laura Mitchell
KDOT District 6
421 Buttermilk Pike
Ft. Mitchell, KY 41017

RE: Encroachment Permit Applications

Dear Ms. Mitchell,

Please find the attached encroachment permit application and corresponding drawings for the 36" Licking River Crossing Project in Wilder, Campbell County, Kentucky.

If you have any questions concerning these applications, please feel free to contact me at 859-578-4893.

Regards,

Brendan O'Bryan
Staff Engineer

2835 Crescent Springs Road P.O. Box 18640 Erlanger, KY 41018
(859) 578-9898 Fax (859) 578-5456

From: Cox, Brian R (KYTC-D06)
To: Steve Broering
Cc: Brefeld, Linzy M (KYTC-D06)
Subject: FW: 36" Licking River Crossing Permit 06-2014-00199
Date: Wednesday, November 18, 2020 7:37:28 AM
Attachments: 06-2014-00199.pdf

Steve,
This has been extended to 12/31/2021
Thanks
B

Brian R. Cox, PLS
D-6 Permits
Office: 859-426-6944
Cell: 859-888-7722
Transportation Engineering Tech.
Kentucky Department of Highways, D-6
421 Buttermilk Pike
Covington, KY 41017

From: Brefeld, Linzy M (KYTC-D06) <Linzy.Brefeld@ky.gov>
Sent: Wednesday, November 18, 2020 5:39 AM
To: Cox, Brian R (KYTC-D06) <Brian.Cox@ky.gov>
Subject: Fwd: 36" Licking River Crossing Permit 06-2014-00199

Please extend the permit and let Steve know.

Linzy Brefeld, P.E.
Transportation Engineer Supervisor
KYTC District 6
Traffic and Permits Section
Linzy.Brefeld@ky.gov
Get Outlook for iOS

From: Steve Broering <sbroering@nkywater.org>
Sent: Friday, November 13, 2020 3:44:00 PM
To: Brefeld, Linzy M (KYTC-D06) <Linzy.Brefeld@ky.gov>
Subject: 36" Licking River Crossing Permit 06-2014-00199

Linzy,
The Northern Kentucky Water District would like to update you on our 36" water main Licking River Crossing Project. The District has plans to install approximately 3,100 feet of 36" water main from the intersection of Licking Pike and South Street in Campbell County in westerly direction across the Licking River to Kenton County. The project has incurred many delays since the District contacted KTC about the project back in 2014 per the attached original approved permit. The plans have not changed. It has been a long process but at this point we anticipate bidding the project in January 2021. The project will have to be sent to the Public Service Commission for approval which could take up to 90 days after receiving the bids. It is anticipated that the project will start construction in mid to late spring of 2021 and be completed in the fall of 2021.

The District is requesting that Permit 06-2014-00199 be renewed and extended to the fall of 2021.

If you have questions about the project or need another set of plans please contact me via email or at 859-426-2728.

Regards,
Steve Broering
Northern Kentucky Water District

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, LOUISVILLE DISTRICT
600 DR. MARTIN LUTHER KING JR PL
LOUISVILLE, KY 40202

March 28, 2022

Regulatory Division
North Branch
ID No. LRL-2022-88-cat

Mr. Steve Broering
Northern Kentucky Water District
3835 Crescent Spring Road
Erlanger, Kentucky 41018
sbroering@nkywater.org

Dear Mr. Broering:

This is in response to your request for authorization to install a 36-inch water main under the Licking River via directional drilling/boring in Campbell and Kenton Counties, Kentucky (Lat. 39.051304, Long. -84.494537). The information supplied by you was reviewed to determine whether a Department of the Army (DA) permit will be required under the provisions of Section 10 of the Rivers and Harbors Act.

Your project includes structures or work in navigable waters for crossings of those waters associated with the construction, maintenance, repair, and removal of utility lines for water and other substances. The project is authorized under the provisions of 33 CFR 330 Nationwide Permit (NWP) No. 58, Utility Line Activities for Water and Other Substances, as published in the Federal Register January 13, 2021. Under the provisions of this authorization, you must comply with the enclosed Terms and General Conditions for NWP No. 58.

This verification is valid until the NWP is modified, reissued, or revoked. NWP No. 58 will be modified, reissued, or revoked on March 14, 2026. It is incumbent upon the Northern Kentucky Water District to remain informed of changes to the NWPs. If the Northern Kentucky Water District commence or are under contract to commence this activity before the date that the relevant NWP is modified or revoked, you will have 12 months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP. The enclosed Compliance Certification must be submitted to the District Engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later. Please note that we also perform periodic inspections to ensure compliance with our permit conditions and applicable Federal laws.

If you have any questions, please contact us by writing to the District Regulatory Office at the above address, ATTN: CELRL-RDN, or contact me directly at 502-315-6690 or Cody.a.Thayer@usace.army.mil. Any correspondence on this matter should refer to our ID Number LRL-2022-88-cat.

Sincerely,

Cody Thayer
Project Manager, North Branch
Regulatory Division

Enclosures

Compliance Certification:

Permit Number: LRL-2022-88-cat

Name of Permittee: Northern Kentucky Water District: Mr. Steve Broering

Date of Issuance: March 28, 2022

Upon completion of the activity authorized by this permit and any mitigation required by this permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers
CELRL-RDN
P.O. Box 59
Louisville, Kentucky 40201

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____ _____

Signature of Permittee Date

2021 Nationwide Permit Summary

US Army Corps of Engineers
Louisville District ®

Issued: **March 15, 2021**
Expires: **March 14, 2026**

No. 58. Utility Line Activities for Water and Other Substances

(NWP Final Rule, 86 FR 2744)

Activities required for the construction, maintenance, repair, and removal of utility lines for water and other substances, excluding oil, natural gas, products derived from oil or natural gas, and electricity. Oil or natural gas pipeline activities or electric utility line and telecommunications activities may be authorized by NWPs 12 or 57, respectively. This NWP also authorizes associated utility line facilities in waters of the United States, provided the activity does not result in the loss of greater than 1/2-acre of waters of the United States for each single and complete project.

Utility lines: This NWP authorizes discharges of dredged or fill material into waters of the United States and structures or work in navigable waters for crossings of those waters associated with the construction, maintenance, or repair of utility lines for water and other substances, including outfall and intake structures. There must be no change in pre-construction contours of waters of the United States. A "utility line" is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose that is not oil, natural gas, or petrochemicals. Examples of activities authorized by this NWP include utility lines that convey water, sewage, stormwater, wastewater, brine, irrigation water, and industrial products that are not petrochemicals. The term "utility line" does not include activities that drain a water of the United States, such as drainage tile or french drains, but it does apply to pipes conveying drainage from another area.

Material resulting from trench excavation may be temporarily sidecast into waters of the United States for no more than three months, provided the material is not placed in such a manner that it is dispersed by currents or other forces. The district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain waters of the United States (e.g., backfilling with extensive gravel layers, creating a french drain effect). Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

Utility line substations: This NWP authorizes the construction, maintenance, or expansion of substation facilities associated with a utility line in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not result in the loss of greater than 1/2-acre of waters of the United States. This NWP does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters of the United States to construct, maintain, or expand substation facilities.

Foundations for above-ground utility lines: This NWP authorizes the construction or maintenance of foundations for above-ground utility lines in all waters of the United States, provided the foundations are the minimum size necessary.

Access roads: This NWP authorizes the construction of access roads for the construction and maintenance of utility lines, including utility line substations, in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters for access roads. Access roads must be the minimum width necessary (see Note 2, below). Access roads must be constructed so that the length of the road minimizes any adverse effects on waters of the United States and must be as near as possible to pre-construction contours and elevations (e.g., at grade corduroy roads or geotextile/gravel roads). Access roads constructed above pre-construction contours and elevations in waters of the United States must be properly bridged or culverted to maintain surface flows.

This NWP may authorize utility lines in or affecting navigable waters of the United States even if there is no associated discharge of dredged or fill material (see 33 CFR part 322). Overhead utility lines constructed over section 10 waters and utility lines that are routed in or under section 10 waters without a discharge of dredged or fill material require a section 10 permit.

This NWP authorizes, to the extent that Department of the Army authorization is required, temporary structures, fills, and work necessary for the remediation of inadvertent returns of drilling fluids to waters of the United States through sub-soil fissures or fractures that might occur during horizontal directional drilling activities conducted for the purpose of installing or replacing utility lines. These remediation activities must be done as soon as practicable, to restore the affected waterbody. District engineers may add special conditions to this NWP to require a remediation plan for addressing inadvertent returns of drilling fluids to waters of the United States during horizontal directional drilling activities conducted for the purpose of installing or replacing utility lines.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the utility line activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. After construction, temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) a section 10 permit is required; or (2) the discharge will result in the loss of greater than 1/10-acre of waters of the United States. (See general condition 32.) (Authorities: Sections 10 and 404)

Note 1: Where the utility line is constructed, installed, or maintained in navigable waters of the United States (i.e., section 10 waters) within the coastal United States, the Great Lakes, and United States territories, a copy of the NWP verification will be sent by the Corps to the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), for charting the utility line to protect navigation.

Note 2: For utility line activities crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Utility line activities must comply with 33 CFR 330.6(d).

Note 3: Access roads used for both construction and maintenance may be authorized, provided they meet the terms and conditions of this NWP. Access roads used solely for construction of the utility line must be removed upon completion of the work, in accordance with the requirements for temporary fills.

Note 4: Pipes or pipelines used to transport gaseous, liquid, liquescent, or slurry substances over navigable waters of the United States are considered to be bridges, not utility lines, and may require a permit from the U.S. Coast Guard pursuant to the General Bridge Act of 1946. However, any discharges of dredged or fill material into waters of the United States associated with such pipelines will require a section 404 permit (see NWP 15).

Note 5: This NWP authorizes utility line maintenance and repair activities that do not qualify for the Clean Water Act section 404(f) exemption for maintenance of currently serviceable fills or fill structures.

Note 6: For activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b)(4) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, "District Engineer's Decision." The district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed

and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed

for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are

necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine

monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be

sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of

a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____
(Transferee)

_____
(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) *Timing*. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the

information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification*: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize

the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification*: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination*: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

2021 District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they

individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

2021 Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

2021 Nationwide Permit Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the

purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: 1) held in trust by the United States for the benefit of any Indian tribe or individual; or 2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a "water of the United States." If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).

2021 KENTUCKY REGIONAL GENERAL CONDITIONS

These regional conditions are in addition to, but do not supersede, the requirements in the Federal Register (See volume 86, date January 13, 2021, pp 2867-2874 for the text of Section C, General Conditions).

Notifications for all Nationwide Permits (NWPs) shall be in accordance with General Condition No. 32.

1. For activities that would result in a loss of Outstanding State or National Resource Waters (OSNRWs), Exceptional Waters (EWs), Coldwater Aquatic Habitat Waters (CAHs) and waters with Designated Critical Habitat (DCH) under the Endangered Species Act for the NWPs listed below, a Pre-Construction Notification (PCN) will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWPs for impacts to these waters.

   NWP 3 (Maintenance)
   NWP 4 (Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities)
   NWP 5 (Scientific Measurement Devices)
   NWP 6 (Survey Activities)
   NWP 12 (Oil or Natural Gas Pipeline Activities)
   NWP 13 (Bank Stabilization)
   NWP 14 (Linear Transportation Projects)
   NWP 15 (U.S. Coast Guard Approved Bridges)
   NWP 16 (Return Water from Upland Contained Disposal Areas)
   NWP 17 (Hydropower Projects)
   NWP 18 (Minor Discharges)
   NWP 19 (Minor Dredging)
   NWP 20 (Response Operations for Oil or Hazardous Substances)
   NWP 22 (Removal of Vessels)
   NWP 23 (Approved Categorical Exclusions)
   NWP 25 (Structural Discharges)
   NWP 30 (Moist Soil Management for Wildlife)
   NWP 32 (Completed Enforcement Actions)
   NWP 33 (Temporary Construction, Access, and Dewatering)
   NWP 36 (Boat Ramps)
   NWP 41 (Reshaping Existing Drainage Ditches)
   NWP 51 (Land-Based Renewable Energy Generation Facilities)
   NWP 57 (Electric Utility Line and Telecommunications Activities)
   NWP 58 (Utility Line Activities for Water and Other Substances)

2. In addition to the notification and agency coordination requirements in the NWPs, for impacts greater than 0.25 acres in all "waters of the U.S." for the NWPs listed below, a PCN will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWPs:

NWP 3 (Maintenance)
NWP 14 (Linear Transportation Projects)

3. Nationwide Permit No. 14 – Linear Transportation Projects.

(a) New road alignments or realignments are limited to a permanent loss of 500 linear feet of intermittent or perennial stream length or the stream bed acreages listed in the table below at each crossing. Road crossings with permanent losses greater than 500 linear feet of intermittent or perennial stream or the stream bed acreages listed in the table below associated with new alignments or realignments will be evaluated as an individual permit (i.e., a Letter of Permission or Standard Permit).

Table of Acreages at Varying Stream Widths for 500 Linear Feet of Impact	
Stream Width (Feet)	Acres of Stream at Varying Widths for 500 Linear Feet of Stream
1	0.011
2	0.023
3	0.034
4	0.046
5	0.057
6	0.069
7	0.080
8	0.092
9	0.103
10	0.115

(b) In addition to the notification requirements contained in NWP 14, the permittee must submit a PCN to the district engineer prior to commencing the activity for the permanent loss of greater than 300 linear feet of stream bed or the stream bed acreages listed in the table below. (See General Condition 32 and the definition of "loss of waters of the United States" in the Nationwide Permits for further information.)

Table of Acreages at Varying Stream Widths for 300 Linear Feet of Impact	
Stream Width (Feet)	Acres of Stream at Varying Widths for 300 Linear Feet of Stream
1	0.007
2	0.014
3	0.021
4	0.028
5	0.034
6	0.041
7	0.048
8	0.055
9	0.062
10	0.069

4. Notification in accordance with General Condition 32 is required to the Corps for all activities located in the following Section 10 waterways, to include the portion of their tributaries below the Ordinary High Water Mark or navigation pool, or otherwise subject to inundation, by the Section 10 waterway:

- Mississippi River
- Ohio River
- Licking River
- Kentucky River
- Salt River
- Green River
- Cumberland River
- Tennessee River
- Big Sandy River (from mouth to Louisa, KY)

5. All applications and requests should be submitted electronically. To submit applications or other requests electronically, all documents should be saved as a PDF document, and then submitted as an attachment in an email to the following email address:

CELRL.Door.To.The.Corps@usace.army.mil

Your email should include the following:
a) Subject Line with the name of the applicant, type of request, and location (County and State). Example: RE: Doe, John, DA Permit Application, Jefferson County, KY
b) Brief description of the request and contact information (phone number, mailing address, and email address) for the applicant and/or their agent.

c) Project Location: Address and Latitude/Longitude in decimal degrees (e.g. 42.927883, -88.362576).

All forms that require signature must be digitally signed or signed manually, scanned and then sent electronically.

Electronic documents must have sufficient resolution to show project details. In order to have the highest quality documents, the original digital documents should be converted to PDF rather than providing scanned copies of original documents.

The electronic application and attached documents must not exceed 10 megabytes (10MB).

6. For all activities, the applicant shall review the U.S. Fish and Wildlife Service's IPaC website: http://ecos.fws.gov/ipac to determine if the activity might affect threatened and/or endangered species or designated critical habitat. If federally-listed species or designated critical habitat are identified, a PCN in accordance with General Condition 18 and 32 would be triggered and the official species list generated from the IPaC website must be submitted with the PCN.

Further information:

Outstanding State or National Resource Water (OSNRWs), Exceptional Waters (EWs), and Coldwater Aquatic Habitat Waters (CAHs) are waters designated by the Commonwealth of Kentucky, Natural Resources and Environmental Protection Cabinet. The list can be found at the following link: http://eppcapp.ky.gov/spwaters/

Designated Critical Habitat (DCH) under the Endangered Species Act is determined within the Commonwealth of Kentucky by the U.S. Fish and Wildlife Service. The current list of Kentucky's Threatened, Endangered, and Federal Candidate Species can be found at the following link: http://www.fws.gov/frankfort/EndangeredSpecies.html

Information on Pre-Construction Notification (PCN) can be found at NWP General Condition No. 32 in the Federal Register (See volume 86, date January 13, 2021, pp 2867-2874 for the text of Section C, General Conditions).

COORDINATING RESOURCE AGENCIES

Chief, Wetlands Regulatory Section
U.S. Environmental Protection Agency
Region IV
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303

Supervisor
U.S. Fish & Wildlife Service
JC Watts Federal Building, Room 265
330 West Broadway
Frankfort, Kentucky 40601

Supervisor
401 Water Quality Certification
Kentucky Division of Water
300 Sower Boulevard, 3rd Floor
Frankfort, KY 40601

Commissioner
Department of Fish and Wildlife Resources
#1 Sportsman's Lane
Frankfort, KY 40601

Executive Director and State Historic Preservation Officer
Kentucky Heritage Council
410 High Street
Frankfort, KY 40601

SD1
GRADING PERMIT

Date:	12/3/2020
Permit No.:	GRP-0359-0514
Project Name:	NKWD Licking River Waterline Crossing
Permittee:	Steve Broering 2835 Cresent Springs Erlanger, KY 41018
Location:	101 ANDREWS WAY Wilder
Permit Use:	Perform Grading & Erosion Control Work

The permittee named above has agreed to comply with all applicable SD1 Rules and Regulations. This permit must be retained by the permittee and made available for review upon request.

This permit shall remain valid for two years from the date of the approval letter. Once work begins, appropriate and timely progress towards completion of work must occur. If this site becomes inactive for more than one year, this permit becomes void.

YOU MUST NOTIFY JASON BURLAGE AT LEAST 72 HOURS BEFORE COMMENCING WORK.

Jason Burlage
Email: jburlage@sd1.org

12/3/2020

Steve Broering
Northern Kentucky Water District
2835 Cresent Springs
Erlanger, KY 41018

RE: NKWD Licking River Waterline Crossing
Grading Permit - GRP-0359-0514

Steve Broering:

Your application for a Grading Permit for the NKWD Licking River Waterline Crossing Project has been reviewed and approved by SD1 under Permit number GRP-0359-0514.

In no event shall SD1's issuance of this permit be construed as relieving you from obtaining all other applicable local, state or federal permits and/or licenses prior to performing any land disturbing activities. It is your responsibility to ensure all land disturbing construction and associated activities pertaining to this permit shall be accomplished pursuant to the approved plans. Any hydrologic issue(s), flooding, property damage, etc. that may result from the approved plans or failure to construct the approved plans is not the responsibility of SD1.

The person named on the permit (permittee) has agreed to comply with all applicable SD1 Rules and Regulations. This permit must be retained by the permittee and made available for review upon request.

Upon completion of this project a Notice of Termination must be submitted to SD1. All erosion protection and sediment control best management practices (e.g., silt fence, sediment basins, etc.) installed on the site must be removed and permanent vegetation established before SD1 will approve any Notice of Termination.

Please be advised that record drawings of storm sewers and storm water control facilities for this permitted project must be submitted at the completion of construction in accordance with Section 1005 of the SD1 Storm Water Rules and Regulations. Please see the last page of this approval letter for the record drawing requirements.

Please contact SD1's Plan Review Administrator, Jason Burlage, at 859-578-6892 at least 72 hours prior to beginning any land disturbing activities to schedule a pre-construction meeting.

This permit shall remain valid for two years from the date of this approval letter. Once work begins, appropriate and timely progress towards completion of work must occur. If the site becomes inactive for one year, this permit becomes void.

If you have any questions or comments regarding this notice, please contact me at

Regards,

Andy Aman
Plan Review Manager
Engineering Services

cc: Ross Guffey - HDR Engineering (*via email only)*

Record Drawing Requirements (02/07/20)

In accordance with the Northern Kentucky Regional Storm Water Management Program Rules and Regulations - Section 1005 Installation Certifications, record drawings for all storm sewers and storm water control measures shall be submitted to SD1 to verify storm water regulations were achieved.

Record drawings shall be submitted in electronic PDF format and in a geodatabase or shapefile with attribute data in the coordinate system, “NAD 1983 HARN StatePlane Kentucky North FIPS 1601 Feet WKID: 2891” or another specified coordinate system. If a GIS file cannot be submitted, an electronic CAD file shall be submitted in standard format (.dwg, .dxf, .dgn). The electronic file shall contain survey information on the structures in the KY HARN NAD 83 coordinate system, tied to USGS Survey Monumentation or another specified coordinate system.

Record drawings shall include the following minimum information:

A. Public and Private Storm Water Control Measures

All the following required information associated with the storm water control measures shall be submitted as Record Drawings and signed and stamped by a Kentucky licensed Professional Engineer.

1. Site plan showing all added impervious areas with quantity listed in either square feet or acres.

2. Topographic survey of the detention/retention basin(s) with no more than (2) foot contours, including the location and ground elevation of any spillways as well as the ground elevation at the bottom of the basin.

3. Final construction survey of the outlet control structure to include:
   - Elevations, sizes and number of all orifices or windows associated with the outlet control structure.
   - All components of any low-flow system for extended detention, including orifice elevation and size, as well as the length and size associated with the underdrain pipe(s).

4. Final constructed stage-storage volume table for each detention/retention basin(s).

5. A storage volume capacity comparison of the final constructed detention/retention basin(s) versus the design.

6. Rain gardens, bioswales and other post-construction storm water control measures with amended soils must be field verified by an SD1 inspector at the time of installation or a completed SD1 Storm Water Control Measure Installation Certification must be submitted by the contractor. The Installation Certification is available on SD1’s website.

If the constructed storm water control measure(s) does not meet the storm water regulations, SD1 may require final construction calculations to support the constructed storm water control measure(s) as well as applicable field changes and updated information to meet the regulations. SD1 understands there may be some variations from the approved plan, which will be accepted if the storm water control measure still meets the regulations.

B. Public Storm Sewers

All the following required information associated with public storm sewers (i.e., pipes and structures) shall be submitted as Record Drawings signed and stamped by a Professional Engineer.

1. Inverts, lengths, slopes, pipe size and material of all storm sewers.

2. Elevations of all storm structures.

C. Private Storm Sewers

All the following required information associated with private storm sewers (i.e., pipes and structures) shall be submitted from the final construction survey or from the contractor's field mark-ups in electronic PDF format.

1. Inverts, lengths, slopes, pipe size and material of all storm sewers.

2. Elevations of all storm structures.

From: Andy Aman
To: Steve Broering
Cc: Jason Burlage
Subject: RE: NKWD Licking River Waterline Crossing, Grading Permit
Date: Friday, December 10, 2021 9:30:42 AM

Hello Steve.

With this email as documentation, this storm water grading permit will remain on "Will Call".

Thank you for the project update.

Regards,

Andy Aman
Plan Review Manager
SD1
1045 Eaton Dr
Ft. Wright, KY 41017
859-578-6880
aaman@sd1.org
www.sd1.org

From: Steve Broering <sbroering@nkywater.org>
Sent: Thursday, December 9, 2021 3:15 PM
To: Andy Aman <aaman@sd1.org>
Cc: Jason Burlage <jburlage@sd1.org>
Subject: FW: NKWD Licking River Waterline Crossing, Grading Permit

Andy,
This email message pertains to Licking River Crossing Grading Permit GRP-0359-0514.
The Northern Kentucky Water District could not bid the project out in 2021 due supply chain issues with the proposed pipe material. Though the current permit expires on December 3, 2022 no activity has taken place. My assumption is that the permit must be renewed. The District anticipates construction to commence in mid-summer of 2022 with the approval of the bid from the Public Service Commission.
The Northern Kentucky Water District is requesting that the Grading Permit be renewed or extended as needed to cover the anticipated 2022 construction activities.
If you have any questions I can be reached via this email or at 859-426-2728.

Regards,
Steve Broering
NKWD

From: Andy Aman <aaman@sd1.org>
Sent: Thursday, December 3, 2020 9:25 AM
To: Steve Broering <sbroering@nkywater.org>
Cc: ross.guffey@hdrinc.com; Minter, Cindy <cminter@campbellcountyky.org>; Jason Burlage <jburlage@sd1.org>
Subject: NKWD Licking River Waterline Crossing, Grading Permit

Everyone,

SD1 has reviewed and approved the Grading Permit application for the above-referenced project.

Please contact SD1's Plan Review Administrator, Jason Burlage, at 859-578-6892 at least 72 hours prior to beginning any land disturbing activities to schedule a pre-construction meeting.

If you have any questions or comments regarding this notice, please feel free to contact me at the number listed below.

Regards,

Cut the clutter. Sign up for e-bills today through our customer portal run by Paymentus, SD1's secure electronic billing provider. Learn more at www.sd1.org.

Public Records Notice: I am not the Official Custodian of Public Records at SD1. All requests for public records must be sent to SD1's Official Custodian of Records at: 1045 Eaton Dr. Ft. Wright, KY 41017, Attention: Official Custodian of Records; facsimile at (859) 331-2436 or via email to records@sd1.org. Your request will not be forwarded.

500 Water Street, J180
Jacksonville, FL 32202
904.279.3806
Eric_Horton@csx.com

Eric Horton
Real Estate Analyst

February 27, 2020

John Scheben, Jr.
Northern Kentucky Water District
2835 Crescent Springs Road
Erlanger, KY 41018

Agreement No.: CSX893460 Dated: September 26, 2019

Dear John Scheben, Jr.,

Attached is the fully-executed Agreement of the above reference file.

In accordance with this Agreement, Agreement Holder is responsible for paying the actual cost of CSXT protection services and/or support services, including all applicable surcharges (collectively "Fees").

No work is to be performed on CSXT property without Roadmaster's authorization.

It is your responsibility to schedule any work on CSXT property with CSXT Outside Services. Please visit the CSX Property Portal to complete the Outside Party (OP) Application in order to have your work scheduled.

It was a pleasure assisting you with this project and we look forward to working with you in the future.

Should there be any questions, please feel free to give us a call at the above referenced number.

Sincerely,

E. Hort

Eric Horton

Attachment

FACILITY ENCROACHMENT AGREEMENT

THIS AGREEMENT, Made and effective as of September 26, 2019, by and between CSX TRANSPORTATION, INC., a Virginia corporation, whose mailing address is 500 Water Street, Jacksonville, Florida 32202, hereinafter called "Licensor," and NORTHERN KENTUCKY WATER DISTRICT, a municipal corporation, political subdivision or state agency, under the laws of the Commonwealth of Kentucky, whose mailing address is 2835 Crescent Springs Road, Po Box 18640, Erlanger, Kentucky 41018, hereinafter called "Licensee," WITNESSETH:

WHEREAS, Licensee desires to construct (unless previously constructed and designated as existing herein), use and maintain the below described facility(ies), hereinafter called "Facilities," over, under or across property owned or controlled by Licensor, at the below described location(s):

1. One (1) twenty-four inch (24") diameter sub-grade pipeline parallel, solely for the conveyance of potable water, located at or near Covington, Kenton County, Kentucky, Louisville Zone Division, Cincinnati Terminal Subdivision, beginning at Milepost 00T-105.6, Latitude N39:03:01.00, Longitude W84:29:49.00, and ending at Milepost 00T-105.8, Latitude N39:03:04.00, Longitude W84:29:42.00;

2. One (1) twenty-four inch (24") diameter pipeline installation, solely for the conveyance of potable water, located at or near Covington, Kenton County, Kentucky, Louisville Zone Division, Cincinnati Terminal Subdivision, at Milepost 00T-105.6, Latitude N39:03:01.00, Longitude W84:29:49.00;

hereinafter, called the "Encroachment," as shown on print(s) labeled Exhibit "A," attached hereto and made a part hereof;

NOW, THEREFORE, in consideration of the mutual covenants, conditions, terms and agreements herein contained, the parties hereto agree and covenant as follows:

1. LICENSE:

1.1 Subject to Article 17, Licensor, insofar as it has the legal right, power and authority to do so, and its present title permits, and subject to:

(A) Licensor's present and future right to occupy, possess and use its property within the area of the Encroachment for any and all purposes;

(B) All encumbrances, conditions, covenants, easements, and limitations applicable to Licensor's title to or rights in the subject property; and

(C) Compliance by Licensee with the terms and conditions herein contained;

does hereby license and permit Licensee to construct, maintain, repair, renew, operate, use, alter or change the Facilities at the Encroachment above for the term herein stated, and to remove same upon termination.

1.2 The term Facilities, as used herein, shall include only those structures and ancillary facilities devoted exclusively to the transmission usage above within the Encroachment, and as shown on attached Exhibit A.

1.3 No additional structures or other facilities shall be placed, allowed, or maintained by Licensee in, upon or on the Encroachment except upon prior separate written consent of Licensor.

2. ENCROACHMENT FEE; TERM:

2.1 Licensee shall pay Licensor a one-time nonrefundable Encroachment Fee of THIRTY-SIX THOUSAND NINE HUNDRED SEVENTY-FIVE AND 00/100 U.S. DOLLARS ($36,975.00) upon execution of this Agreement. Licensee agrees that the Encroachment Fee applies only to the original Licensee under this Agreement. In the event of a successor (by merger, consolidation, reorganization and/or assignment) or if the original Licensee changes its name, then Licensee shall be subject to payment of Licensor's current administrative and document preparation fees for the cost incurred by Licensor in preparing and maintaining this Agreement on a current basis.

2.2 However, Licensee assumes sole responsibility for, and shall pay directly (or reimburse Licensor), any additional annual taxes and/or periodic assessments levied against Licensor or Licensor's property solely on account of said Facilities or Encroachment.

2.3 This Agreement shall terminate as herein provided, but shall also terminate upon: (a) Licensee's cessation of use of the Facilities or Encroachment for the purpose(s) above; (b) removal of the Facilities; (c) subsequent mutual consent; and/or (d) failure of Licensee to complete installation within five (5) years from the effective date of this Agreement.

2.4 In further consideration for the license or right hereby granted, Licensee hereby agrees that Licensor shall not be charged or assessed, directly or indirectly, with any part of the cost of the installation of said Facilities and appurtenances, and/or maintenance thereof, or for any public works project of which said Facilities is a part.

3. CONSTRUCTION, MAINTENANCE AND REPAIRS:

3.1 Licensee shall construct, maintain, relocate, repair, renew, alter, and/or remove the Facilities, in a prudent, workmanlike manner, using quality materials and complying with any applicable standard(s) or regulation(s) of Licensor (CSXT Specifications), or Licensee's particular industry, National Electrical Safety Code, or any governmental or regulatory body having jurisdiction over the Encroachment.

3.2 Location and construction of Facilities shall be made strictly in accordance with design(s) and specifications furnished to and approved by Licensor and of material(s) and size(s) appropriate for the purpose(s) above recited.

3.3 All of Licensee's work, and exercise of rights hereunder, shall be undertaken at time(s) satisfactory to Licensor, and so as to eliminate or minimize any impact on or interference with the safe use and operation of Licensor's property and appurtenances thereto.

3.4 In the installation, maintenance, repair and/or removal of said Facilities, Licensee shall not use explosives of any type or perform or cause any blasting without the separate express written consent of Licensor. As a condition to such consent, a representative will be assigned by Licensor to monitor blasting, and Licensee shall reimburse Licensor for the entire cost and/or expense of furnishing said monitor.

3.5 Any repairs or maintenance to the Facilities, whether resulting from acts of Licensee, or natural or weather events, which are necessary to protect or facilitate Licensor's use of its property, shall be made by Licensee promptly, but in no event later than thirty (30) days after Licensee has notice as to the need for such repairs or maintenance.

3.6 Licensor, in order to protect or safeguard its property, rail operations, equipment and/or employees from damage or injury, may request immediate repair or renewal of the Facilities, and if the same is not performed, may make or contract to make such repairs or renewals, at the sole risk, cost and expense of Licensee.

3.7 Neither the failure of Licensor to object to any work done, material used, or method of construction or maintenance of said Encroachment, nor any approval given or supervision exercised by Licensor, shall be construed as an admission of liability or responsibility by Licensor, or as a waiver by Licensor of any of the obligations, liability and/or responsibility of Licensee under this Agreement.

3.8 All work on the Encroachment shall be conducted in accordance with Licensor's safety rules and regulations.

3.9 Licensee hereby agrees to reimburse Licensor any loss, cost or expense (including losses resulting from train delays and/or inability to meet train schedules) arising from any failure of Licensee to make repairs or conduct maintenance as required by Section 3.5 above or from improper or incomplete repairs or maintenance to the Facilities or Encroachment.

3.10 In the event it becomes necessary for the Licensee to deviate from the approved Exhibit, Licensee shall seek prior approval from Licensor, or when applicable, an official field representative of Licensor permitted to approve changes, authorizing the necessary field changes and Licensee shall provide Licensor with complete As-Built Drawings of the completed work. As-Built Drawings shall be submitted to Licensor in either electronic or hard copy form upon the substantial completion of the project and upon Licensor's request.

3.11 In the event of large scale maintenance/construction work to railroad bridges Licensee is required to protect power lines with insulated covers or comparable safety devices at their costs during construction/maintenance for safety of railroad employees.

4. PERMITS, LICENSES:

4.1 Before any work hereunder is performed, or before use of the Encroachment for the contracted purpose, Licensee, at its sole cost and expense, shall obtain all necessary permit(s) (including but not limited to zoning, building, construction, health, safety or environmental matters), letter(s) or certificate(s) of approval. Licensee expressly agrees and warrants that it shall conform and limit its activities to the terms of such permit(s), approval(s) and authorization(s), and shall comply with all applicable ordinances, rules, regulations, requirements and laws of any governmental authority (State, Federal or Local) having jurisdiction over Licensee's activities, including the location, contact, excavation and protection regulations of the Occupational Safety and Health Act (OSHA) (29 CFR 1926.651(b)), et al., and State "One Call" - "Call Before You Dig" requirements.

4.2 Licensee assumes sole responsibility for failure to obtain such permit(s) or approval(s), for any violations thereof, or for costs or expenses of compliance or remedy.

5. MARKING AND SUPPORT:

5.1 With respect to any subsurface installation or maintenance upon Licensor's property, Licensee, at its sole cost and expense, shall:

(A) support track(s) and roadbed in a manner satisfactory to Licensor;

(B) backfill with satisfactory material and thoroughly tamp all trenches to prevent settling of surface of land and roadbed of Licensor; and

(C) either remove any surplus earth or material from Licensor's property or cause said surplus earth or material to be placed and distributed at location(s) and in such manner Licensor may approve.

5.2 After construction or maintenance of the Facilities, Licensee shall:

(A) Restore any track(s), roadbed and other disturbed property; and

(B) Erect, maintain and periodically verify the accuracy of aboveground markers, in a form approved by Licensor, indicating the location, depth and ownership of any underground Facilities or related facilities.

5.3 Licensee shall be solely responsible for any subsidence or failure of lateral or subjacent support in the Encroachment area for a period of three (3) years after completion of installation.

6. TRACK CHANGES:

6.1 In the event that rail operations and/or track maintenance result in changes in grade or alignment of, additions to, or relocation of track(s) or other facilities, or in the event future use of Licensor's rail corridor or property necessitate any change of location, height or depth in the Facilities or Encroachment, Licensee, at its sole cost and expense and within thirty (30) days after notice in writing from Licensor, shall make changes in the Facilities or Encroachment to accommodate such track(s) or operations.

6.2 If Licensor determines that any portion of Licensee's Facilities or System should be changed, altered or relocated after initial construction, Licensor shall promptly give written notice thereof to Licensee. Within sixty (60) days of receipt of such notice, Licensee shall protect or move such Facilities or System, at Licensee's sole cost and expense, and in a manner satisfactory to Railroad.

6.3 In the event of any relocation of Licensee's System or Facilities under this Article, Licensor shall not be required to purchase for Licensee any replacement land or right-of-way or to pay Licensee the cost to secure same if there is not available Rail Corridor. However, Licensor agrees to allow Licensee to relocate to any other available adjacent or nearby Rail Corridor or other land owned by Licensor at Licensee's sole cost; provided, however, that Licensor shall not be entitled to any additional payment for such replacement Licensor land or Rail Corridor.

6.4 If Licensee fails to do so, Licensor may make or contract to make such changes at Licensee's cost.

7. FACILITY CHANGES:

7.1 Licensee shall periodically monitor and verify the depth or height of the Facilities or Encroachment in relation to the existing tracks and facilities, and shall relocate the Facilities or change the Encroachment, at Licensee's expense, should such relocation or change be necessary to comply with the minimum clearance requirements of Licensor.

7.2 If Licensee undertakes to revise, renew, relocate or change in any manner whatsoever all or any part of the Facilities (including any change in voltage or gauge of wire or any change in circumference, diameter or radius of pipe or change in materials transmitted in and through said pipe), or is required by any public agency or court order to do so, plans therefor shall be submitted to Licensor for approval before such change. After approval, the terms and conditions of this Agreement shall apply thereto.

8. INTERFERENCE WITH RAIL FACILITIES:

8.1 Although the Facilities/Encroachment herein permitted may not presently interfere with Licensor's railroad or facilities, in the event that the operation, existence or maintenance of said Facilities, in the sole judgment of Licensor, causes: (a) interference (including, but not limited to, physical or interference from an electromagnetic induction, or

interference from stray or other currents) with Licensor's power lines, communication, signal or other wires, train control system, or electrical or electronic apparatus; or (b) interference in any manner, with the operation, maintenance or use of the rail corridor, track(s), structures, pole line(s), devices, other property, or any appurtenances thereto; then and in either event, Licensee, upon receipt of written notice from Licensor of any such interference, and at Licensee's sole risk, cost and expense, shall promptly make such changes in its Facilities or installation, as may be required in the reasonable judgment of the Licensor to eliminate all such interference. Upon Licensee's failure to remedy or change, Licensor may do so or contract to do so at Licensee's sole cost.

8.2 Without assuming any duty hereunder to inspect the Facilities, Licensor hereby reserves the right to inspect same and to require Licensee to undertake repairs, maintenance or adjustments to the Facilities, which Licensee hereby agrees to make promptly, at Licensee's sole cost and expense.

9. RISK, LIABILITY, INDEMNITY:

With respect to the relative risk and liabilities of the parties, it is hereby agreed that:

9.1 To the fullest extent permitted by State law (constitutional or statutory, as amended), Licensee hereby agrees to, defend, indemnify, and hold Licensor harmless from and against any and all liability, loss, claim, suit, damage, charge or expense which Licensor may suffer, sustain, incur or in any way be subjected to, on account of death of or injury to any person whomsoever (including officers, agents, employees or invitees of Licensor), and for damage to or loss of or destruction of any property whatsoever, arising out of, resulting from, or in any way connected with the construction, repair, maintenance, replacement, presence, existence, operations, use or removal of the Facilities or any structure in connection therewith, or restoration of premises of Licensor to good order or condition after removal, EXCEPT when proven to have been caused solely by the willful misconduct or gross negligence of Licensor. HOWEVER, to the fullest extent permitted by State law, during any period of actual construction, repair, maintenance, replacement or removal of the Facilities, wherein agents, equipment or personnel of Licensee are on the railroad rail corridor, Licensee's liability hereunder shall be absolute, irrespective of any joint, sole or contributory fault or negligence of Licensor.

9.2 Use of Licensor's rail corridor involves certain risks of loss or damage as a result of the rail operations. Notwithstanding Section 9.1, Licensee expressly assumes all risk of loss and damage to Licensee's Property or the Facilities in, on, over or under the Encroachment, including loss of or any interference with use or service thereof, regardless of cause, including electrical field creation, fire or derailment resulting from rail operations. For this Section, the term "Licensee's Property" shall include property of third parties situated or placed upon Licensor's rail corridor by Licensee or by such third parties at request of or for benefit of Licensee.

9.3 To the fullest extent permitted by State law, as above, Licensee assumes all responsibility for, and agrees to defend, indemnify and hold Licensor harmless from: (a) all claims, costs and expenses, including reasonable attorneys' fees, as a consequence of any sudden or nonsudden pollution of air, water, land and/or ground water on or off the Encroachment area, arising from or in connection with the use of this Encroachment or resulting from leaking, bursting, spilling, or any escape of the material transmitted in or through the Facilities; (b) any claim or liability arising under federal or state law dealing with either such sudden or nonsudden pollution of air, water, land and/or ground water arising therefrom or the remedy thereof; and (c) any subsidence or failure of lateral or subjacent support of the tracks arising from such Facilities leakage.

9.4 Notwithstanding Section 9.1, Licensee also expressly assumes all risk of loss which in any way may result from Licensee's failure to maintain either required clearances for any overhead Facilities or the required depth and encasement for any underground Facilities, whether or not such loss(es) result(s) in whole or part from Licensor's contributory negligence or joint fault.

9.5 Obligations of Licensee hereunder to release, indemnify and hold Licensor harmless shall also extend to companies and other legal entities that control, are controlled by, subsidiaries of, or are affiliated with Licensor, as well as any railroad that operates over the rail corridor on which the Encroachment is located, and the officers, employees and agents of each.

9.6 If a claim is made or action is brought against Licensor, and/or its operating lessee, for which Licensee may be responsible hereunder, in whole or in part, Licensee shall be notified to assume the handling or defense of such claim or action; but Licensor may participate in such handling or defense.

9.7 Notwithstanding anything contained in this Agreement, the limitation of liability contained in the state statutes, as amended from time to time, shall not limit Licensor's ability to collect under the insurance policies required to be maintained under this Agreement.

10. INSURANCE:

10.1 Prior to commencement of surveys, installation or occupation of premises pursuant to this Agreement, Licensee shall procure and shall maintain during the continuance of this Agreement, at its sole cost and expense, a policy of

(i) Statutory Worker's Compensation and Employers Liability Insurance with available limits of not less than ONE MILLION AND 00/100 U.S. DOLLARS ($1,000,000.00).

(ii) Commercial General Liability coverage (inclusive of contractual liability) with available limits of not less than FIVE MILLION AND 00/100 U.S. DOLLARS ($5,000,000.00) in combined single limits for bodily injury and property damage and covering the contractual liabilities assumed under this Agreement and naming Licensor, and/or its designee, as additional insured. The evidence of insurance coverage shall be

endorsed to provide for thirty (30) days' notice to Licensor, or its designee, prior to cancellation or modification of any policy. Mail CGL certificate, along with agreement, to CSX Transportation, Inc., Speed Code J180, 500 Water Street, Jacksonville, FL 32202. On each successive year, send certificate to RenewalCOI@csx.com.

(iii) Business automobile liability insurance with available limits of not less than ONE MILLION AND 00/100 U.S. DOLLARS ($1,000,000.00) combined single limit for bodily injury and/or property damage per occurrence naming Licensor, and/or its designee, as additional insured.

(iv) The insurance policies must contain a waiver of subrogation against CSXT and its Affiliates, except where prohibited by law. All insurance companies must be A. M. Best rated A- and Class VII or better.

(v) Such other insurance as Licensor may reasonably require.

10.2 If Licensee's existing CGL policy(ies) do(es) not automatically cover Licensee's contractual liability during periods of survey, installation, maintenance and continued occupation, a specific endorsement adding such coverage shall be purchased by Licensee. If said CGL policy is written on a "claims made" basis instead of a "per occurrence" basis, Licensee shall arrange for adequate time for reporting losses. Failure to do so shall be at Licensee's sole risk.

10.3 Licensor, or its designee, may at any time request evidence of insurance purchased by Licensee to comply with this Agreement. Failure of Licensee to comply with Licensor's request shall be considered a default by Licensee.

10.4 Securing such insurance shall not limit Licensee's liability under this Agreement, but shall be security therefor.

10.5 (A) In the event Licensee finds it necessary to perform construction or demolition operations within fifty feet (50') of any operated railroad track(s) or affecting any railroad bridge, trestle, tunnel, track(s), roadbed, overpass or underpass, Licensee shall: (a) notify Licensor; and (b) require its contractor(s) performing such operations to procure and maintain during the period of construction or demolition operations, at no cost to Licensor,

i) Railroad Protective Liability (RPL) Insurance, naming Licensor, and/or its designee, as Named Insured, written on the current ISO/RIMA Form (ISO Form No. CG 00 35 04 13) with limits of FIVE MILLION AND 00/100 U.S. DOLLARS ($5,000,000.00) per occurrence for bodily injury and property damage, with at least TEN MILLION AND 00/100 U.S. DOLLARS ($10,000,000.00) aggregate limit per annual policy period. The original of such RPL policy shall be sent to and approved by Licensor prior to commencement of such construction or demolition. Licensor reserves the right to demand higher limits.

OR

ii) The CGL policy shall include endorsement ISO CG 24 17 and the Auto Liability Policy shall include endorsement ISO CA 20 70 evidencing that coverage is provided for work within 50 feet of a railroad. If such endorsements are not included, RPL insurance must be provided.

(B) At Licensor's option, in lieu of purchasing RPL insurance or the 50 foot endorsements from an insurance company (but not CGL insurance), Licensee may pay Licensor, at Licensor's current rate at time of request, the cost of adding this Encroachment, or additional construction and/or demolition activities, to Licensor's Railroad Protective Liability (RPL) Policy for the period of actual construction. This coverage is offered at Licensor's discretion and may not be available under all circumstances.

11. GRADE CROSSINGS; PROTECTION SERVICES:

11.1 Nothing herein contained shall be construed to permit Licensee or Licensee's contractor to move any vehicles or equipment over the track(s), except at public road crossing(s), without separate prior written approval of Licensor.

11.2 If Licensor deems it advisable, during any construction, maintenance, repair, renewal, alteration, change or removal of said Facilities, to place watchmen, flagmen, or field construction managers for protection of operations of Licensor or others on Licensor's rail corridor at the Encroachment, and to keep persons, equipment or materials away from the track(s), Licensor shall have the right to do so at the expense of Licensee, but Licensor shall not be liable for failure to do so.

12. LICENSOR'S COSTS:

12.1 Any additional or alternative costs or expenses incurred by Licensor to accommodate Licensee's continued use of Licensor's property as a result of track changes or wire changes shall also be paid by Licensee.

12.2 Licensor's expense for wages ("force account" charges) and materials for any work performed at the expense of Licensee pursuant hereto shall be paid by Licensee within thirty (30) days after receipt of Licensor's bill therefor. Licensor may, at its discretion, request an advance deposit for estimated Licensor costs and expenses.

12.3 Such expense shall include, but not be limited to, cost of railroad labor and supervision under "force account" rules, plus current applicable overhead percentages, the actual cost of materials, and insurance, freight and handling charges on all material used. Equipment rentals shall be in accordance with Licensor's applicable fixed rate. Licensor may, at its discretion, require advance deposits for estimated costs of such expenses and costs.

13. DEFAULT, BREACH, WAIVER:

13.1 The proper and complete performance of each covenant of this Agreement shall be deemed of the essence thereof, and in the event Licensee fails or refuses to fully and completely perform any of said covenants or remedy any breach within thirty (30) days after receiving written notice from Licensor to do so (or within forty-eight (48) hours in the event of notice of a railroad emergency), Licensor shall have the option of immediately revoking this Agreement and the privileges and powers hereby conferred, regardless of encroachment fee(s) having been paid in advance for any annual or other period. Upon such revocation, Licensee shall make removal in accordance with Article 14.

13.2 No waiver by Licensor of its rights as to any breach of covenant or condition herein contained shall be construed as a permanent waiver of such covenant or condition, or any subsequent breach thereof, unless such covenant or condition is permanently waived in writing by Licensor.

13.3 Neither the failure of Licensor to object to any work done, material used, or method of construction or maintenance of said Encroachment, nor any approval given or supervision exercised by Licensor, shall be construed as an admission of liability or responsibility by Licensor, or as a waiver by Licensor of any of the obligations, liability and/or responsibility of Licensee under this Agreement.

14. TERMINATION, REMOVAL:

14.1 All rights which Licensee may have hereunder shall cease upon the date of (a) termination, (b) revocation, or (c) subsequent agreement, or (d) Licensee's removal of the Facility from the Encroachment. However, neither termination nor revocation of this Agreement shall affect any claims and liabilities which have arisen or accrued hereunder, and which at the time of termination or revocation have not been satisfied; neither party, however, waiving any third party defenses or actions.

14.2 Within thirty (30) days after revocation or termination, Licensee, at its sole risk and expense, shall (a) remove the Facilities from the rail corridor of Licensor, unless the parties hereto agree otherwise, (b) restore the rail corridor of Licensor in a manner satisfactory to Licensor, and (c) reimburse Licensor any loss, cost or expense of Licensor resulting from such removal.

15. NOTICE:

15.1 Licensee shall give Licensor at least thirty (30) days written notice before doing <u>any</u> work on Licensor's rail corridor, except that in cases of emergency shorter notice may be given. Licensee shall provide proper notification as follows:

a. For non-emergencies, Licensee shall submit online via the CSX Property Portal from Licensor's web site, via web link: https://propertyportal.csx.com/pub_ps_res/ps_res/jsf/public/index.faces

b. For emergencies, Licensee shall complete all of the steps outlined in Section 15.1 a. above, and shall also include detailed information of the emergency. Licensee shall also call and report details of the emergency to Licensor's Rail Operations Emergency Telephone Number: 1-800-232-0144. In the event Licensor needs to contact Licensee concerning an emergency involving Licensee's Facility(ies), the emergency phone number for Licensee is: 513-244-9016.

15.2 All other notices and communications concerning this Agreement shall be addressed to Licensee at the address above, and to Licensor at the address shown on Page 1, c/o CSXT Contract Management, J180; or at such other address as either party may designate in writing to the other.

15.3 Unless otherwise expressly stated herein, all such notices shall be in writing and sent via Certified or Registered Mail, Return Receipt Requested, or by courier, and shall be considered delivered upon: (a) actual receipt, or (b) date of refusal of such delivery.

16. ASSIGNMENT:

16.1 The rights herein conferred are the privileges of Licensee only, and Licensee shall obtain Licensor's prior written consent to any assignment of Licensee's interest herein; said consent shall not be unreasonably withheld.

16.2 Subject to Sections 2 and 16.1, this Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors or assigns.

16.3 Licensee shall give Licensor written notice of any legal succession (by merger, consolidation, reorganization, etc.) or other change of legal existence or status of Licensee, with a copy of all documents attesting to such change or legal succession, within thirty (30) days thereof.

16.4 Licensor expressly reserves the right to assign this Agreement, in whole or in part, to any grantee, lessee, or vendee of Licensor's underlying property interests in the Encroachment, upon written notice thereof to Licensee.

16.5 In the event of any unauthorized sale, transfer, assignment, sublicense or encumbrance of this Agreement, or any of the rights and privileges hereunder, Licensor, at its option, may revoke this Agreement by giving Licensee or any such assignee written notice of such revocation; and Licensee shall reimburse Licensor for any loss, cost or expense Licensor may incur as a result of Licensee's failure to obtain said consent.

17. TITLE:

17.1 Licensee understands that Licensor occupies, uses and possesses lands, rights-of-way and rail corridors under all forms and qualities of ownership rights or facts, from full fee simple absolute to bare occupation. Accordingly, nothing in this Agreement shall act as or be deemed to act as any warranty, guaranty or representation of the quality of Licensor's title for any particular Encroachment or segment of Rail Corridor occupied, used or enjoyed in any manner by Licensee under any rights created in this Agreement. It is expressly understood that Licensor does not warrant title to any Rail Corridor and Licensee will accept the grants and privileges contained herein, subject to all lawful outstanding existing liens, mortgages and superior rights in and to the Rail Corridor, and all leases, licenses and easements or other interests previously granted to others therein.

17.2 The term "license," as used herein, shall mean with regard to any portion of the Rail Corridor which is owned by Licensor in fee simple absolute, or where the applicable law of the State where the Encroachment is located otherwise permits Licensor to make such grants to Licensee, a "permission to use" the Rail Corridor, with dominion and control over such portion of the Rail Corridor remaining with Licensor, and no interest in or exclusive right to possess being otherwise granted to Licensee. With regard to any other portion of Rail Corridor occupied, used or controlled by Licensor under any other facts or rights, Licensor merely waives its exclusive right to occupy the Rail Corridor and grants no other rights whatsoever under this Agreement, such waiver continuing only so long as Licensor continues its own occupation, use or control. Licensor does not warrant or guarantee that the license granted hereunder provides Licensee with all of the rights necessary to occupy any portion of the Rail Corridor. Licensee further acknowledges that it does not have the right to occupy any portion of the Rail Corridor held by Licensor in less than fee simple absolute without also receiving the consent of the owner(s) of the fee simple absolute estate. Further, Licensee shall not obtain, exercise or claim any interest in the Rail Corridor that would impair Licensor's existing rights therein.

17.3 Licensee agrees it shall not have nor shall it make, and hereby completely and absolutely waives its right to, any claim against Licensor for damages on account of any deficiencies in title to the Rail Corridor in the event of failure or insufficiency of Licensor's title to any portion thereof arising from Licensee's use or occupancy thereof.

17.4 Licensee agrees to fully and completely indemnify and defend all claims or litigation for slander of title, overburden of easement, or similar claims arising out of or based upon the Facilities placement, or the presence of the Facilities in, on or along any Encroachment(s), including claims for punitive or special damages.

17.5 Licensee shall not at any time own or claim any right, title or interest in or to Licensor's property occupied by the Encroachments, nor shall the exercise of this Agreement for any length of time give rise to any right, title or interest in Licensee to said property other than the license herein created.

17.6 Nothing in this Agreement shall be deemed to give, and Licensor hereby expressly waives, any claim of ownership in and to any part of the Facilities.

17.7 Licensee shall not create or permit any mortgage, pledge, security, interest, lien or encumbrances, including without limitation, tax liens and liens or encumbrances with respect to work performed or equipment furnished in connection with the construction, installation, repair, maintenance or operation of the Facilities in or on any portion of the Encroachment (collectively, "Liens or Encumbrances"), to be established or remain against the Encroachment or any portion thereof or any other Licensor property.

17.8 In the event that any property of Licensor becomes subject to such Liens or Encumbrances, Licensee agrees to pay, discharge or remove the same promptly upon Licensee's receipt of notice that such Liens or Encumbrances have been filed or docketed against the Encroachment or any other property of Licensor; however, Licensee reserves the right to challenge, at its sole expense, the validity and/or enforceability of any such Liens or Encumbrances.

18. GENERAL PROVISIONS:

18.1 This Agreement, and the attached specifications, contains the entire understanding between the parties hereto.

18.2 Neither this Agreement, any provision hereof, nor any agreement or provision included herein by reference, shall operate or be construed as being for the benefit of any third person.

18.3 Except as otherwise provided herein, or in any Rider attached hereto, neither the form of this Agreement, nor any language herein, shall be interpreted or construed in favor of or against either party hereto as the sole drafter thereof.

18.4 This Agreement is executed under current interpretation of applicable Federal, State, County, Municipal or other local statute, ordinance or law(s). However, each separate division (paragraph, clause, item, term, condition, covenant or agreement) herein shall have independent and severable status for the determination of legality, so that if any separate division is determined to be void or unenforceable for any reason, such determination shall have no effect upon the validity or enforceability of each other separate division, or any combination thereof.

18.5 This Agreement shall be construed and governed by the laws of the state in which the Facilities and Encroachment are located.

18.6 If any amount due pursuant to the terms of this Agreement is not paid by the due date, it will be subject to Licensor's standard late charge and will also accrue interest at eighteen percent (18%) per annum, unless limited by local law, and then at the highest rate so permitted.

18.7 Licensee agrees to reimburse Licensor for all reasonable costs (including attorney's fees) incurred by Licensor for collecting any amount due under the Agreement.

18.8 The provisions of this License are considered confidential and may not be disclosed to a third party without the consent of the other party(s), except: (a) as required by statute, regulation or court order, (b) to a parent, affiliate or subsidiary company, (c) to an auditing firm or legal counsel that are agreeable to the confidentiality provisions, or (d) to Lessees of Licensor's land and/or track who are affected by the terms and conditions of this Agreement and will maintain the confidentiality of this Agreement.

18.9 Within thirty (30) days of an overpayment in a cumulative total amount of One Hundred Dollars ($100.00) or more by Licensee to Licensor, Licensee shall notify Licensor in writing with documentation evidencing such overpayment. Licensor shall refund the actual amount of Licensee's overpayment within 120 days of Licensor's verification of such overpayment.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in duplicate (each of which shall constitute an original) as of the effective date of this Agreement.

Witness for Licensor:

_____

CSX TRANSPORTATION, INC.

By: _____

Print/Type Name: Dona Jadwin
Sr. Manager Real Estate Services

Print/Type Title: _____

Witness for Licensee:

_____

NORTHERN KENTUCKY WATER DISTRICT

By: _____

Who, by the execution hereof, affirms that he/she has the authority to do so and to bind the Licensee to the terms and conditions of this Agreement.

Print/Type Name: Amy Kramer

Print/Type Title: VP Engineering, Production & Distribution

Tax ID No.: 61-1311695

Authority under Ordinance or

Resolution No. 015-101719,

Dated October 17, 2019.

CSX-893460 EXHIBIT A

Wilder, Kenton Co., KY
Midwest Region / Louisville Zone / Cincinnati Terminal (CT) Subdivision
From MP 00T-105.6 To MP 00T-105.8 (CP Latonia)
Total Length of Occupancy Along CSX ROW: 725-LF
From N39:03:01.00 / W84:29:49.00 To N39:03:04.00 / W84:29:42.00

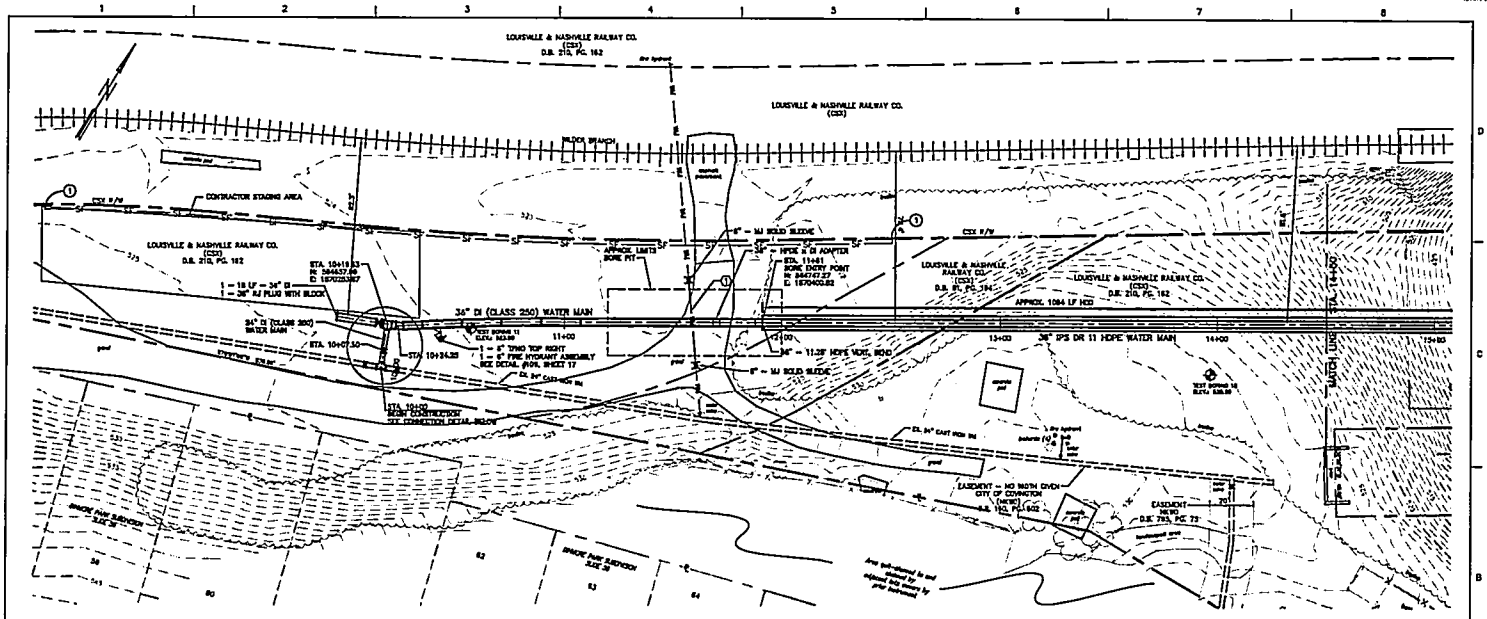
CSX PROPERTY SERVICES REVIEW
☐ No Exceptions ☒ Exceptions Noted
This review is for the general conformance with CSX utility design specifications only. Sole responsibility for all aspects of the overall design shall remain with the facility owner. This review does not constitute approval to proceed without meeting all of CSX's safety and contractual requirements.
By:

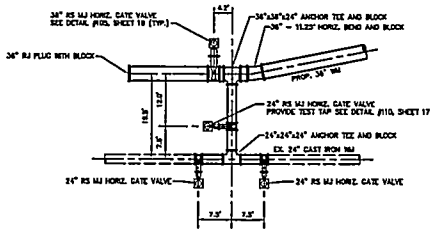
CSX GENERAL NOTES:

1. REFER TO THE CSX PIPELINE DESIGN & CONSTRUCTION SPECIFICATIONS AND THE CSX INTERIM HDD GUIDELINES FOR ADDITIONAL INFORMATION.
2. DRILLING FLUID WITH BENTONITE ADDITIVE IS REQUIRED.
3. ONCE THE BORE ENTERS CSX PROPERTY, THE WORK MUST BE CONTINUOUS UNTIL DRILLING IS COMPLETE AND THE PIPE IS PULLED IN PLACE.
4. THE BORE MUST BE TRACKED CONSTANTLY, WITH THE LOCATION AND DEPTH MARKED EVERY 10 FEET.
5. PIPELINE SHALL BE PROMINENTLY MARKED AT BOTH SIDES OF THE CSX PROPERTY LINES BY DURABLE, WEATHERPROOF SIGNS LOCATED OVER THE CENTERLINE OF THE PIPE IN ACCORDANCE WITH CSX SPECIFICATIONS.
6. DRY AND WET BORES (JETTING) ARE NOT ALLOWED.
7. TRAILING RODS MUST BE UTILIZE FOR ALL BACK REAMING.
8. IF REQUIRED, A DEWATERING PLAN IN ACCORDANCE WITH CSX SPECIFICATIONS WILL BE SUBMITTED TO THE CSX REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO ANY DEWATERING OPERATIONS.
9. BLASTING IS NOT PERMITTED UNDER OR ON CSX PROPERTY.
10. ALL PERSONNEL SHALL RECEIVE SAFETY BRIEFINGS BY A CSXT FLAGMAN OR DESIGNATED CSXT REPRESENTATIVE EACH DAY BEFORE BEGINNING WORK ON THE RIGHT OF WAY. ADDITIONAL SAFETY BRIEFINGS MAY BE REQUIRED WHEN CONDITIONS AND/OR WORK SITES ARE CHANGED.
11. AGENCY OR ITS CONTRACTOR SHALL ARRANGE AND CONDUCT ITS WORK SO THAT THERE WILL BE NO INTERFERENCE WITH CSXT OPERATIONS, INCLUDING TRAIN, SIGNAL, TELEPHONE AND TELEGRAPHIC SERVICES, OR DAMAGES TO CSXT'S PROPERTY, OR TO POLES, WIRES, AND OTHER FACILITIES OF TENANTS OF CSXT'S PROPERTY OR RIGHT-OF-WAY.
12. CONTRACTOR ACCESS WILL BE LIMITED TO THE IMMEDIATE PROJECT AREA ONLY. THE CSXT RIGHT-OF-WAY OUTSIDE THE PROJECT AREA MAY NOT BE USED FOR CONTRACTOR ACCESS TO THE PROJECT SITE AND NO TEMPORARY AT-GRADE CROSSINGS WILL BE ALLOWED.
13. DURING CONSTRUCTION, THE CONTRACTOR SHALL PROTECT ALL ACTIVE RAILROAD FACILITIES, INCLUDING ELECTRICAL, WATER LINES, SEWER LINES, COMMUNICATION AND SIGNAL LINES AS WELL AS UNDERGROUND PIPING. THE CONTRACTOR SHALL BE REQUIRED TO KEEP ALL EQUIPMENT AND MATERIAL A MINIMUM OF SIX (6) FEET FROM AFOREMENTIONED ELEVATED COMMUNICATION AND SIGNAL FACILITIES.
14. CONTRACTOR MUST CONDUCT ALL OF ITS WORK IN A SAFE MANNER. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH RULES, REGULATIONS, PROCEDURES AND SAFE PRACTICES OF CSXT, OSHA, THE FRA AND ALL OTHER GOVERNMENT AGENCIES HAVING JURISDICTION OVER THE PROJECT.
15. OWNER SHALL REIMBURSE CSXT DIRECTLY FOR ALL COSTS OF FLAGGING AND INSPECTION SERVICE THAT ARE REQUIRED ON ACCOUNT OF CONSTRUCTION WITHIN CSXT PROPERTY SHOWN IN THE PLANS, OR COVERED BY AN APPROVED PLAN REVISION, SUPPLEMENTAL AGREEMENT OR CHANGE ORDER. INSPECTION SERVICE SHALL NOT RELIEVE CONTRACTOR FROM LIABILITY FOR ITS WORK.
16. OWNER OR CONTRACTOR SHALL GIVE A MINIMUM OF 30 DAYS' ADVANCE NOTICE TO CSXT REPRESENTATIVE FOR ANTICIPATED NEED FOR FLAGGING AND INSPECTION SERVICE. NO WORK SHALL BE UNDERTAKEN UNTIL THE FLAG PERSON(S) AND INSPECTOR(S) IS/ARE AT THE JOB SITE. IF IT IS NECESSARY FOR CSXT TO ADVERTISE A FLAGGING JOB FOR BID, CSXT SHALL NOT BE LIABLE FOR THE COST OF DELAYS ATTRIBUTABLE TO OBTAINING SUCH SERVICE.
17. THE RIGHT OF WAY SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE CONDITION PRIOR TO BEGINNING THE PROJECT BEFORE FINAL ACCEPTANCE WILL BE PROVIDED. PUNCH LISTS SHALL BE RESPONDED TO PRIOR TO ISSUANCE OF AN ACCEPTANCE MEMORANDUM SIGNED BY THE CSXT REPRESENTATIVE.
18. CONTRACTOR ALSO HAS THE SOLE RESPONSIBILITY OF ASCERTAINING THAT ALL OTHER UTILITIES HAVE BEEN PROPERLY LOCATED BY COMPLYING WITH THE LOCAL "CALL BEFORE YOU DIG" REGULATION(S). CONTRACTOR SHALL SOLELY BE RESPONSIBLE FOR NOTIFYING OWNERS OF ADJACENT PROPERTIES AND OF UNDERGROUND FACILITIES AND UTILITY OWNERS WHEN PROSECUTION OF THE WORK MAY AFFECT THEM, AND SHALL COOPERATE WITH THEM IN THE PROTECTION, REMOVAL, RELOCATION AND REPLACEMENT OF THEIR PROPERTY.
19. CONTRACTOR SHALL CONDUCT "PRE-DIG" MEETING PRIOR TO CONSTRUCTION WORK, WITH ALL SUBCONTRACTORS AND WORKERS TO REVIEW THE LOCATION OF ALL UTILITIES AS MARKED OUT, EXCAVATION PROCEDURES, AND TO CONFIRM THE "ONE CALL" REQUEST. ALL EXISTING UTILITIES ARE REQUIRED TO BE POTHOLED PRIOR TO COMMENCEMENT OF CONSTRUCTION AND SHALL BE PERFORMED IN ACCORDANCE WITH CSX SPECIFICATIONS.
20. BEFORE EXCAVATING, ALL SIGNAL CABLES AND OTHER UTILITIES MUST BE LOCATED AND MARKED/FLAGGED. CONTRACTOR SHALL BE HELD LIABLE FOR ANY DAMAGES TO CSX SIGNAL FACILITIES.
21. PROJECTS THAT GENERATE SOILS FROM CSXT PROPERTY MUST ADHERE TO CSXT'S SOIL MANAGEMENT POLICIES. CSXT REQUIRES SOILS GENERATED FROM ITS PROPERTY TO EITHER BE REUSED ON CSXT PROPERTY OR PROPERLY DISPOSED IN A CSXT APPROVED DISPOSAL FACILITY. THE MANAGEMENT OF SOILS GENERATED FROM CSXT PROPERTY SHOULD BE PLANNED FOR AND PROPERLY PERMITTED (IF APPLICABLE) PRIOR TO INITIATING ANY WORK ON CSXT PROPERTY.

CSX ADDITIONAL NOTES (EXCEPTIONS):

1. CSX BORE PLAN TEMPLATE AND FRACTION MITIGATION PLAN WILL BE SUBMITTED TO CSX REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
2. Contractor shall be governed by CSXT SR 1300-01 Excavation and Trenching Guidelines.
3. Contractor shall be governed by CSXT Section 020105 Clearing and Grubbing Specification.
3. Trench excavation shall be of such dimensions as to provide ample room for construction. Trench widths shall be at least 12 inches wider than the outside diameter of the pipe (6-inches either side of the pipe). The bottom of the trench, in so far as is practical, shall be excavated to permit proper placement of the pipe. The excavation for the pipeline shall include the removal of any obstructions encountered. The trench shall be excavated to a depth at least 3 inches below the outside bottom elevation of the planned pipeline. When necessary, all excavations should be dewatered prior to and during installation and backfilling of the system.
4. For pipelines running longitudinally on CSX R/W, signs shall be placed over the pipe (or offset and appropriately marked) at all changes in direction of the pipeline. In no event shall they be placed more than 500 feet apart.
5. All pressure pipelines installed by the trench method, without a casing, shall have a warning tape placed directly above the pipeline, 2 feet below the ground surface.





CONNECTION DETAIL STA. 10+00
1" = 10'

SHEET NOTES:

① CUT AND REMOVE EXISTING 6" WATER MAIN AS NECESSARY TO EXCAVATE FOR BORE PIT AND INSTALL NEW 36" WATER MAIN. REPLACE SECTION OF REMOVED PIPE WITH NEW 6" DI WATER MAIN AFTER THE INSTALLATION OF NEW 36" WATER MAIN.

BMP KEYNOTES:

① INSTALL SILT FENCE PER SANITATION DISTRICT NO. 1 STANDARD DRAWING DPSC-13.1 AND DPSC-13.2, SHEET 19.

Call 811 Before You Dig
www.kentucky811.org

HDR

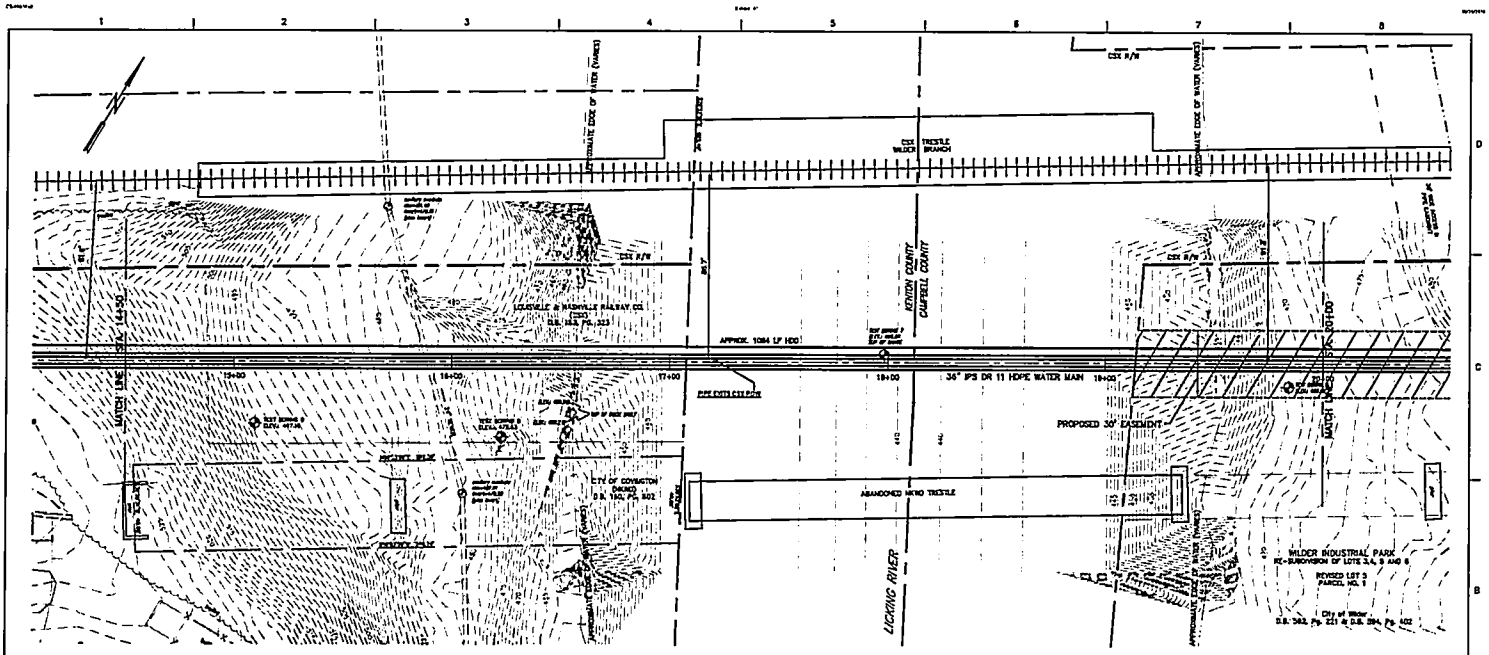
ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	SCOTT A. TIPPEY
DESIGNED	KJW
DRAWN	SAS
CHECKED	
QA / QC	
PROJECT NUMBER	197476

LICKING RIVER CROSSING

PLAN
STA 10+00 TO 14+50

FILENAME	Sheet.dwg
SCALE	1" = 20'
SHEET	04



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ISSUE	DATE	DESCRIPTION

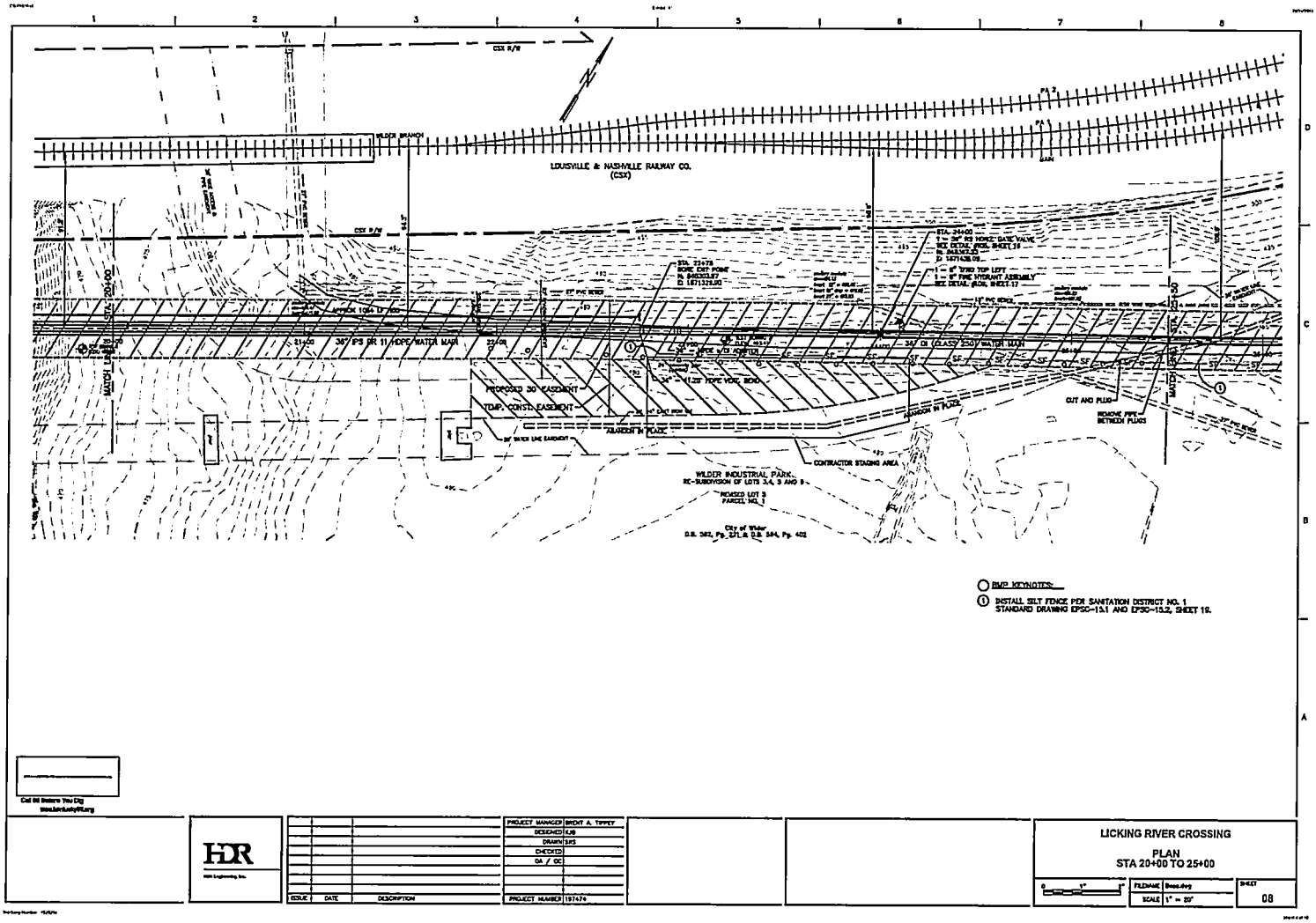
PROJECT MANAGER	BRENT A. TIPPEY
DESIGNED	KJB
DRAWN	SAS
CHECKED	
QA / QC	
PROJECT NUMBER	197476

LICKING RIVER CROSSING

PLAN
STA 14+50 TO 20+00

FILENAME	Base.dwg
SCALE	1" = 20'

SHEET 06



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HDR

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	BRENT A. TIPPEY
DESIGNED	KJB
DRAWN	SWS
CHECKED	
QA / QC	
PROJECT NUMBER	197476

LICKING RIVER CROSSING

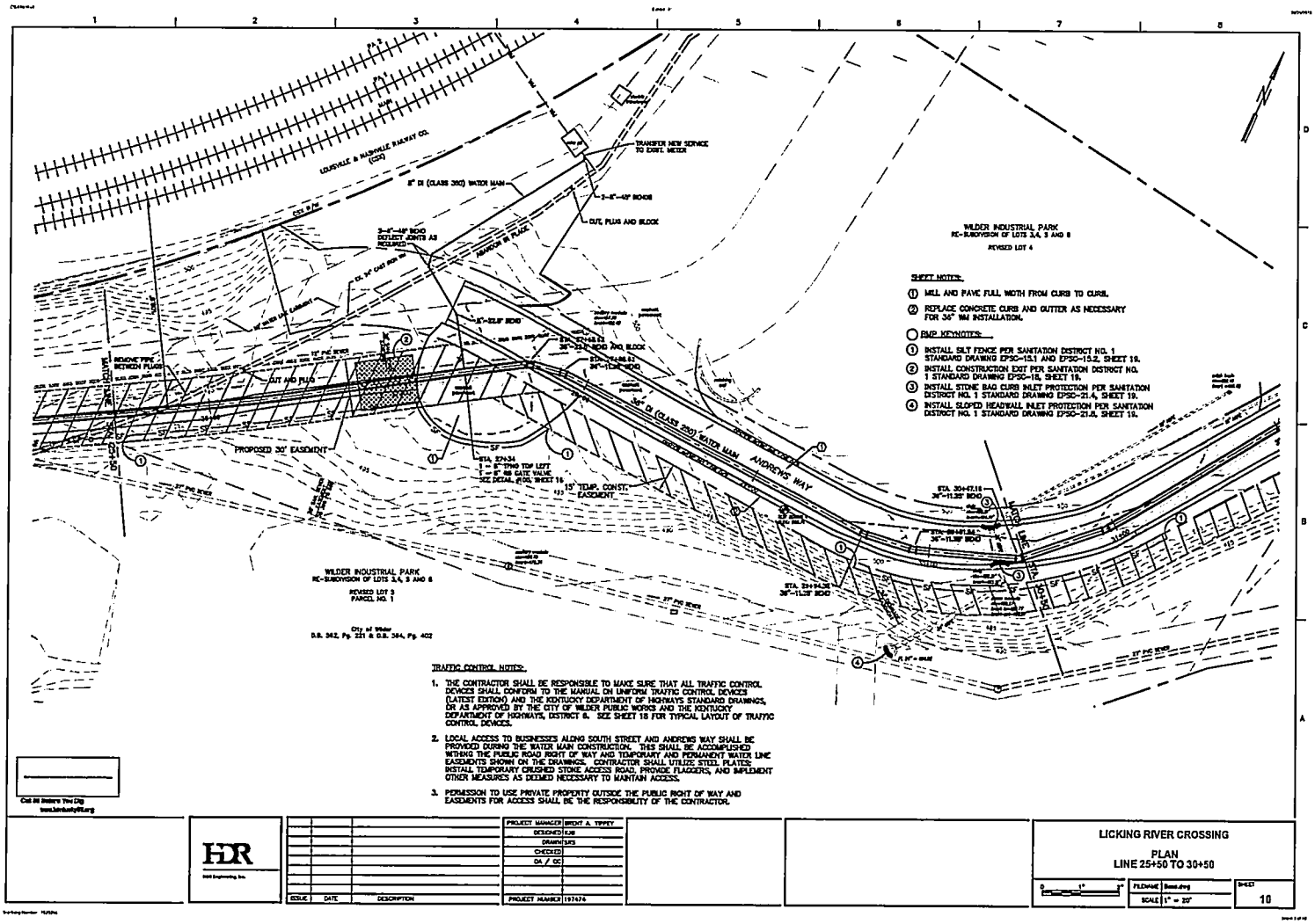
PLAN
STA 20+00 TO 25+00

0 1" 2"

FILENAME: Boss.dwg

SCALE: 1" = 20'

SHEET: 08



TRAFFIC CONTROL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE SURE THAT ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION) AND THE KENTUCKY DEPARTMENT OF HIGHWAYS STANDARD DRAWINGS, OR AS APPROVED BY THE CITY OF WILDER PUBLIC WORKS AND THE KENTUCKY DEPARTMENT OF HIGHWAYS, DISTRICT 6. SEE SHEET 18 FOR TYPICAL LAYOUT OF TRAFFIC CONTROL DEVICES.
2. LOCAL ACCESS TO BUSINESSES ALONG SOUTH STREET AND ANDREWS WAY SHALL BE PROVIDED DURING THE WATER MAIN CONSTRUCTION. THIS SHALL BE ACCOMPLISHED WITHIN THE PUBLIC ROAD RIGHT OF WAY AND TEMPORARY AND PERMANENT WATER LINE EASEMENTS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL UTILIZE STEEL PLATES; INSTALL TEMPORARY CRUSHED STONE ACCESS ROAD, PROVIDE FLAGGERS, AND IMPLEMENT OTHER MEASURES AS DEEMED NECESSARY TO MAINTAIN ACCESS.
3. PERMISSION TO USE PRIVATE PROPERTY OUTSIDE THE PUBLIC RIGHT OF WAY AND EASEMENTS FOR ACCESS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

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HDR

ISSUE	DATE	DESCRIPTION

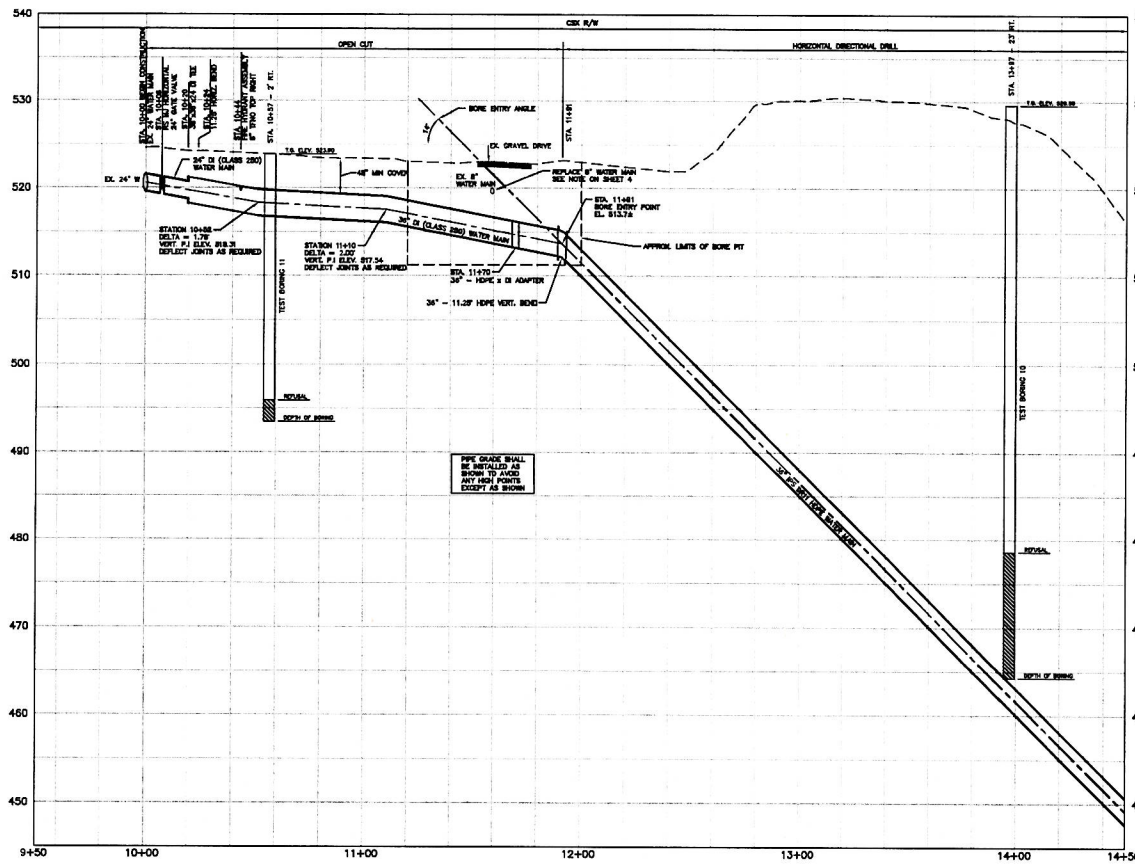
PROJECT MANAGER	BRENT A. TIPPEY
DESIGNED	KJB
DRAWN	SJS
CHECKED	
QA / QC	
PROJECT NUMBER	197476

LICKING RIVER CROSSING

PLAN
LINE 25+50 TO 30+50

0 1" 2"

FILENAME: Base.dwg
SCALE: 1" = 20'
SHEET: 10



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HDR
HDR Engineering, Inc.

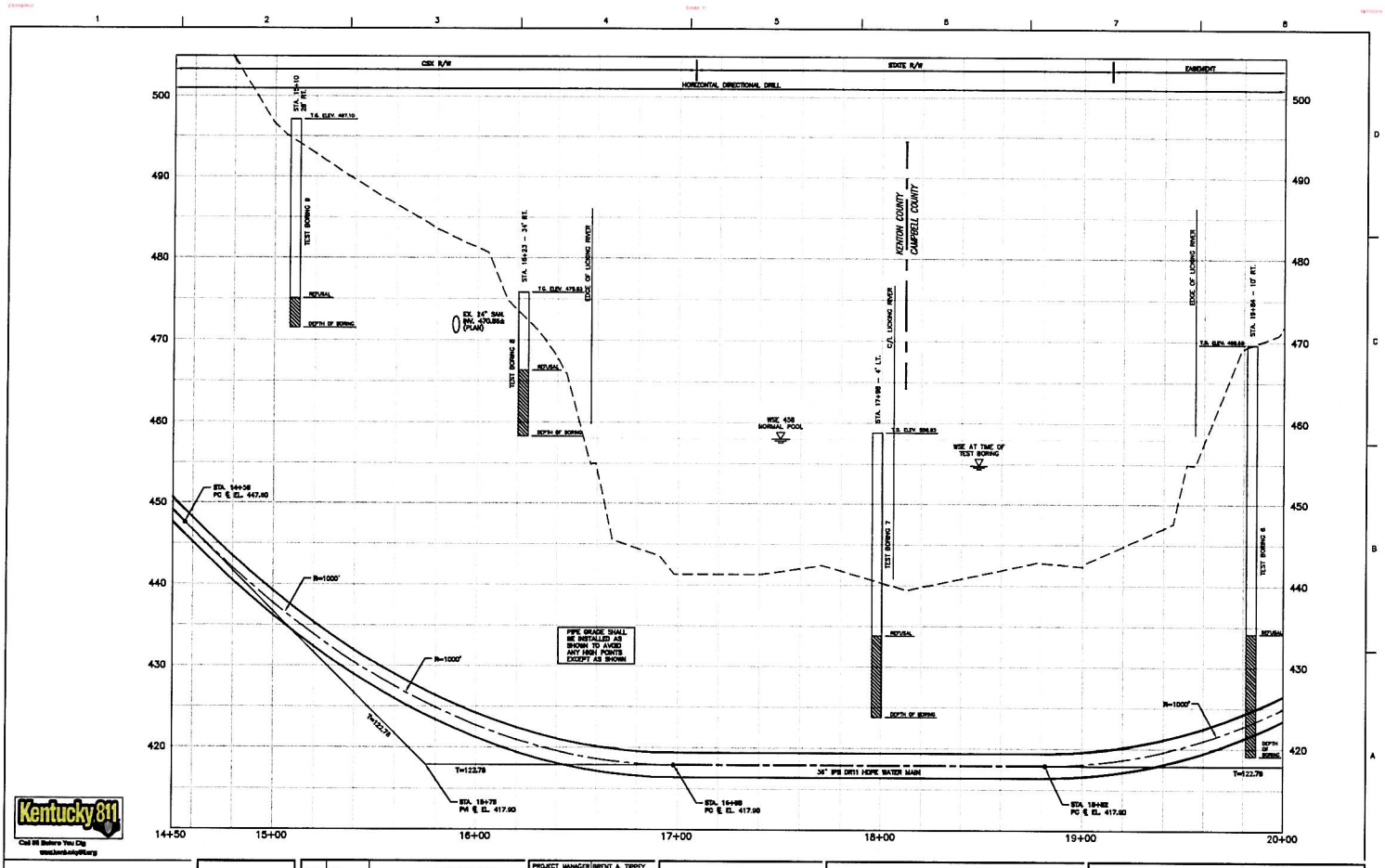
ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	BRENT A. TIPPEY
DESIGNED	KJB
DRAWN	SRS
CHECKED	
QA / QC	
PROJECT NUMBER	197474

LICKING RIVER CROSSING

PROFILE
STA 10+00 TO 14+50

FILENAME	Base.dwg
SCALE	H:1"=20' V:1"=5'
SHEET	05



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HDR
HDR Engineering, Inc.

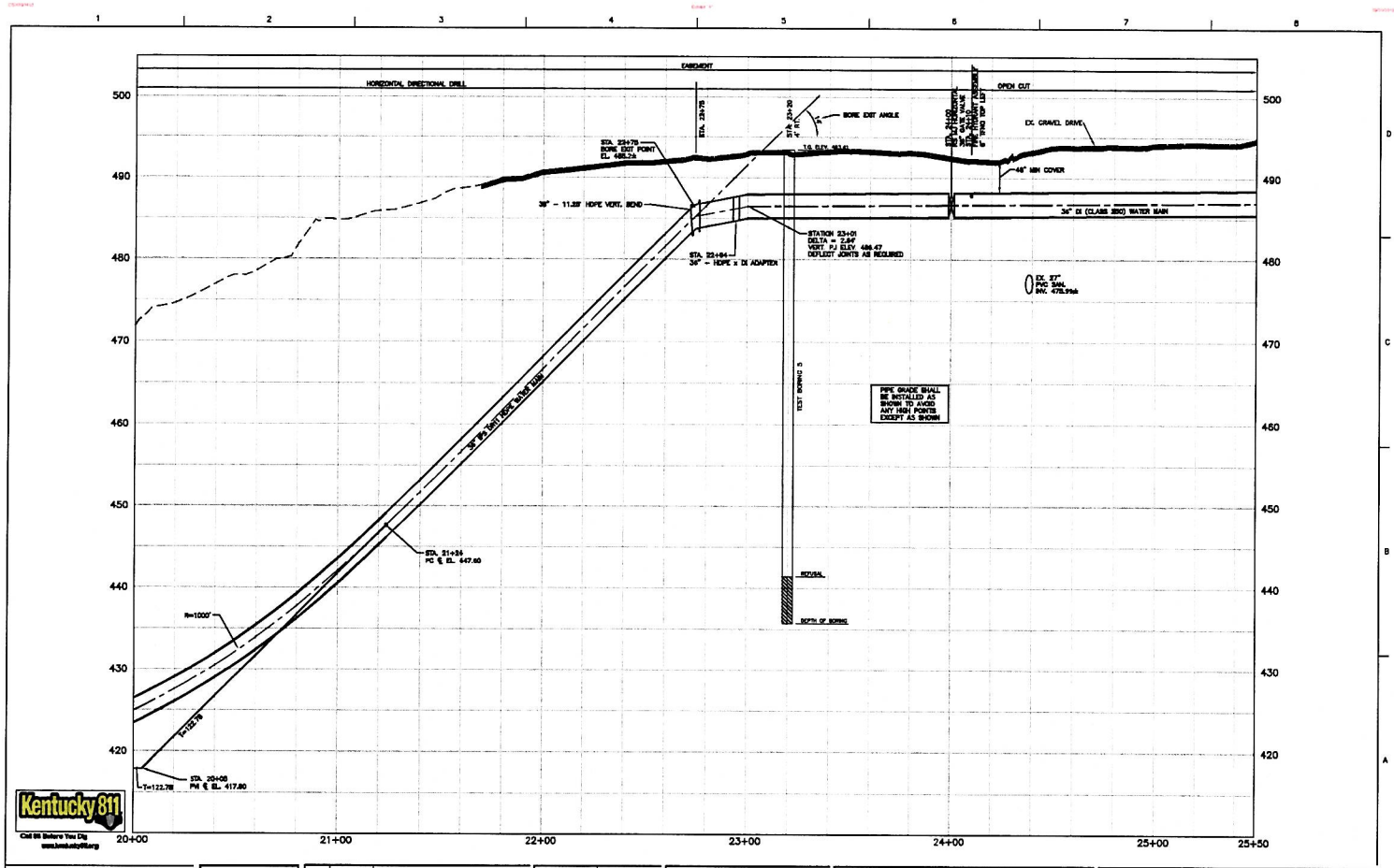
ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	BRENT A. TIPPEY
DESIGNED	KJB
DRAWN	SRS
CHECKED	
QA / QC	
PROJECT NUMBER	197474

LICKING RIVER CROSSING

PROFILE
STA 14+50 TO 20+00

FILENAME	Base.dwg
SCALE	H:1"=20' V:1"=5'
SHEET	07



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HDR
HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	BRENT A. TIPPEY
DESIGNED	KJB
DRAWN	SRS
CHECKED	
QA / QC	
PROJECT NUMBER	197474

LICKING RIVER CROSSING

PROFILE
STA 20+00 TO 25+00

0 1" 2"

FILENAME	Bore-prof
SCALE	H:1"=20' V:1"=5'
SHEET	09

CSX File Number: 893460

PIPE DATA AND SPECIFICATIONS *(Use F11 Key to tab from cell to cell)*			
	Specification	**Carrier Pipe**	**Casing Pipe**
(1)	Pipe material	Ductile Iron	N/A
(2)	Material specifications and grade	Class 350	N/A
(3)	Specified minimum yield strength	42,000	N/A
(4)	Nominal size in inches	36"	N/A
(5)	Wall thickness in inches	0.43"	N/A
(6)	Type of seam		N/A
(7)	Type of joints	Push-on	N/A
	Check Yes or No		
(8)	Are tunnel liner plates required	~~Yes~~ No	
(9)	Protective coating	~~Yes~~ No	
(10)	Cathodic protection	~~Yes~~ No	
(11)	Cathodic protection type	N/A	
(12)	Commodity Description:	Finished Potable Water	
(13)	Maximum Operating Pressure:	200 psi	
(14)	Is Commodity Flammable:	No	

Notes / Comments:

The portion of the project installed via open trench will be ductile iron and the horizontal direction drill will be HDPE.

CSX File Number: 893460

PIPE DATA AND SPECIFICATIONS *(Use F11 Key to tab from cell to cell)*			
	Specification	**Carrier Pipe**	**Casing Pipe**
(1)	Pipe material	HDPE	N/A
(2)	Material specifications and grade	IPS, DR 11	N/A
(3)	Specified minimum yield strength	2,800	N/A
(4)	Nominal size in inches	36"	N/A
(5)	Wall thickness in inches	3.273"	N/A
(6)	Type of seam		N/A
(7)	Type of joints	Fused	N/A
	Check Yes or No		
(8)	Are tunnel liner plates required	~~Yes~~ No	
(9)	Protective coating	~~Yes~~ No	
(10)	Cathodic protection	~~Yes~~ No	
(11)	Cathodic protection type	N/A	
(12)	Commodity Description:	Finished Potable Water	
(13)	Maximum Operating Pressure:	200 psi	
(14)	Is Commodity Flammable:	No	

Notes / Comments:

The portion of the project installed via open trench will be ductile iron and the horizontal direction drill will be HDPE.

EXHIBIT C

BID INFORMATION AND BOARD APPROVAL

Northern Kentucky Water District

EXHIBIT C-1

BID TABULATION

Licking River Crossing (#8201311)
Owner: Northern Kentucky Water District
Solicitor: Northern Kentucky Water District
06/16/2022 10:00 AM EDT

Line Item	Item Description	U of M	Quantity	MAC Construction & Excavating, Inc.		Larry Smith, Inc.		BRACKNEY, INC.	
				Unit Price	Extension	Unit Price	Extension	Unit Price	Extension
BASE BID TOTAL (NON SRF COSTS)					**$5,111,000.00**		**$5,820,660.00**		**$6,055,875.00**
1	6.01 - 8" Ductile Iron Pipe – Internal Restrained Joint	LF	80	$100.00	$8,000.00	$200.00	$16,000.00	$200.00	$16,000.00
2	6.02 – 24" Ductile Iron Pipe – Internal Restrained Joint	LF	20	$250.00	$5,000.00	$500.00	$10,000.00	$845.00	$16,900.00
3	6.02 – 36" Ductile Iron Pipe – Internal Restrained Joint	LF	1920	$1,122.00	$2,154,240.00	$1,315.00	$2,524,800.00	$1,260.00	$2,419,200.00
4	6.03 – 48" Casing Pipe – Bore & Jack	LF	120	$1,330.00	$159,600.00	$2,500.00	$300,000.00	$3,500.00	$420,000.00
5	6.04 – 36" DIPS DR11 HDPE (Open-Cut)	LF	50	$2,400.00	$120,000.00	$1,000.00	$50,000.00	$850.00	$42,500.00
6	6.05 – 36" DIPS DR11 HDPE HDD	LF	1170	$1,625.00	$1,901,250.00	$2,000.00	$2,340,000.00	$1,800.00	$2,106,000.00
7	7.01 – Tie into Existing 8" Waterline	EA	3	$2,300.00	$6,900.00	$2,000.00	$6,000.00	$15,000.00	$45,000.00
8	7.01 – Tie into Existing 24" Gate Valve	EA	1	$8,400.00	$8,400.00	$10,000.00	$10,000.00	$29,500.00	$29,500.00
9	7.01 – Tie into Existing 36" Gate Valve	EA	1	$10,000.00	$10,000.00	$15,000.00	$15,000.00	$29,500.00	$29,500.00
10	8.01 – Install Fire Hydrant Assembly	EA	2	$15,000.00	$30,000.00	$6,500.00	$13,000.00	$15,500.00	$31,000.00
11	9.01 – 8" Ductile Iron Resilient Seated Gate Valve	EA	1	$4,800.00	$4,800.00	$2,250.00	$2,250.00	$6,000.00	$6,000.00
12	9.02 – 36" RS Horizontal Gate Valve	EA	2	$82,500.00	$165,000.00	$90,000.00	$180,000.00	$115,000.00	$230,000.00
13	10.01 – Water Meter Setting (River Leak Detection)	EA	1	$2,700.00	$2,700.00	$1,500.00	$1,500.00	$6,500.00	$6,500.00
14	11.01 – 8" Plug and Block (Pressure Main)	EA	1	$4,200.00	$4,200.00	$575.00	$575.00	$4,500.00	$4,500.00
15	11.01 – 36" Plug and Block (Pressure Main)	EA	1	$10,900.00	$10,900.00	$10,000.00	$10,000.00	$17,000.00	$17,000.00
16	11.01 – 24" Plug and Block (Existing Pressure Main)	EA	1	$8,800.00	$8,800.00	$5,000.00	$5,000.00	$15,000.00	$15,000.00
17	11.02 – 24" Cut & Plug (Abandoned Main)	EA	3	$8,100.00	$24,300.00	$5,000.00	$15,000.00	$15,000.00	$45,000.00
18	11.03 – Air Release Valve	EA	3	$2,300.00	$6,900.00	$250.00	$750.00	$12,500.00	$37,500.00
19	11.04 – 36" x 24" Anchoring Tee and Block	EA	1	$22,000.00	$22,000.00	$17,500.00	$17,500.00	$26,675.00	$26,675.00
20	11.05 – Test Tap	EA	1	$1,500.00	$1,500.00	$500.00	$500.00	$5,000.00	$5,000.00
21	11.06 – Corrosion Test Station	EA	13	$1,555.00	$20,215.00	$1,000.00	$13,000.00	$2,000.00	$26,000.00
22	11.07 – Magnesium Anodes	EA	42	$3,100.00	$130,200.00	$1,000.00	$42,000.00	$2,000.00	$84,000.00
23	12.05 – Asphaltic Concrete Milling and Paving	SY	2725	$21.00	$57,225.00	$32.00	$87,200.00	$36.00	$98,100.00
24	12.06 – Concrete Sidewalk	SY	15	$225.00	$3,375.00	$54.00	$810.00	$670.00	$10,050.00
25	12.07 - Gravel Driveway	SY	260	$23.00	$5,980.00	$15.00	$3,900.00	$50.00	$13,000.00
26	12.08 – Best Management Practice	LS	1	$55,000.00	$55,000.00	$22,000.00	$22,000.00	$40,000.00	$40,000.00
27	12.09 - Asphaltic Concrete (11")	SY	950	$105.00	$99,750.00	$75.00	$71,250.00	$135.00	$128,250.00
28	12.10 Asphaltic Concrete (5.5") – PARKING AREA	SY	535	$79.00	$42,265.00	$75.00	$40,125.00	$120.00	$64,200.00
29	12.11 Concrete Curbing	LF	500	$85.00	$42,500.00	$45.00	$22,500.00	$87.00	$43,500.00

Line Item	Item Description	U of M	Quantity	MAC Construction & Excavating, Inc.		Larry Smith, Inc.		BRACKNEY, INC.	
				Unit Price	Extension	Unit Price	Extension	Unit Price	Extension
ALTERNATE 1 TOTAL (SRF COST)					**$5,787,000.00**	**No Bid**			**$7,569,843.75**
1a	6.01 - 8" Ductile Iron Pipe – Internal Restrained Joint	LF	80	$120.00	$9,600.00	-	-	$250.00	$20,000.00
2a	6.02 – 24" Ductile Iron Pipe – Internal Restrained Joint	LF	20	$270.00	$5,400.00	-	-	$1,056.25	$21,125.00
3a	6.02 – 36" Ductile Iron Pipe – Internal Restrained Joint	LF	1920	$1,192.00	$2,288,640.00	-	-	$1,575.00	$3,024,000.00
4a	6.03 – 48" Casing Pipe – Bore & Jack	LF	120	$1,375.00	$165,000.00	-	-	$4,375.00	$525,000.00
5a	6.04 – 36" DIPS DR11 HDPE (Open-Cut)	LF	50	$2,400.00	$120,000.00	-	-	$1,062.50	$53,125.00
6a	6.05 – 36" DIPS DR11 HDPE HDD	LF	1170	$1,960.00	$2,293,200.00	-	-	$2,250.00	$2,632,500.00
7a	7.01 – Tie into Existing 8" Waterline	EA	3	$2,400.00	$7,200.00	-	-	$18,750.00	$56,250.00
8a	7.01 – Tie into Existing 24" Gate Valve	EA	1	$10,000.00	$10,000.00	-	-	$36,875.00	$36,875.00
9a	7.01 – Tie into Existing 36" Gate Valve	EA	1	$13,000.00	$13,000.00	-	-	$36,875.00	$36,875.00

10a	8.01 – Install Fire Hydrant Assembly	EA	2	$16,400.00	$32,800.00	-	-	$19,375.00	$38,750.00
11a	9.01 – 8" Ductile Iron Resilient Seated Gate Valve	EA	1	$4,800.00	$4,800.00	-	-	$7,500.00	$7,500.00
12a	9.02 – 36" RS Horizontal Gate Valve	EA	2	$116,000.00	$232,000.00	-	-	$143,750.00	$287,500.00
13a	10.01 – Water Meter Setting (River Leak Detection)	EA	1	$3,200.00	$3,200.00	-	-	$8,125.00	$8,125.00
14a	11.01 – 8" Plug and Block (Pressure Main)	EA	1	$4,900.00	$4,900.00	-	-	$5,625.00	$5,625.00
15a	11.01 – 36" Plug and Block (Pressure Main)	EA	1	$15,000.00	$15,000.00	-	-	$21,250.00	$21,250.00
16a	11.01 – 24" Plug and Block (Existing Pressure Main)	EA	1	$11,000.00	$11,000.00	-	-	$18,750.00	$18,750.00
17a	11.02 – 24" Cut & Plug (Abandoned Main)	EA	3	$10,000.00	$30,000.00	-	-	$18,750.00	$56,250.00
18a	11.03 – Air Release Valve	EA	3	$2,700.00	$8,100.00	-	-	$15,625.00	$46,875.00
19a	11.04 – 36" x 24" Anchoring Tee and Block	EA	1	$32,000.00	$32,000.00	-	-	$33,343.75	$33,343.75
20a	11.05 – Test Tap	EA	1	$1,800.00	$1,800.00	-	-	$6,250.00	$6,250.00
21a	11.06 – Corrosion Test Station	EA	13	$1,700.00	$22,100.00	-	-	$2,500.00	$32,500.00
22a	11.07 – Magnesium Anodes	EA	42	$3,250.00	$136,500.00	-	-	$2,500.00	$105,000.00
23a	12.05 – Asphaltic Concrete Milling and Paving	SY	2725	$23.00	$62,675.00	-	-	$45.00	$122,625.00
24a	12.06 – Concrete Sidewalk	SY	15	$280.00	$4,200.00	-	-	$837.50	$12,562.50
25a	12.07 - Gravel Driveway	SY	260	$24.00	$6,240.00	-	-	$62.50	$16,250.00
26a	12.08 – Best Management Practice	LS	1	$68,215.00	$68,215.00	-	-	$50,000.00	$50,000.00
27a	12.09 - Asphaltic Concrete (11")	SY	950	$113.00	$107,350.00	-	-	$168.75	$160,312.50
28a	12.10 Asphaltic Concrete (5.5") – PARKING AREA	SY	535	$88.00	$47,080.00	-	-	$150.00	$80,250.00
29a	12.11 Concrete Curbing	LF	500	$90.00	$45,000.00	-	-	$108.75	$54,375.00

Line Item	Item Description	U of M	Quantity	MAC Construction & Excavating, Inc.		Larry Smith, Inc.		BRACKNEY, INC.	
				Unit Price	Extension	Unit Price	Extension	Unit Price	Extension
ALTERNATE 2 TOTAL (NON-SRF COST FOR FUSIBLE PVC)				**No Bid**		**No Bid**			**$6,787,875.00**
6b	6.06 – 36" DIPS DR21 FUSIBLE PVC (Open-Cut)	LF	50	-	-	-	-	$1,450.00	$72,500.00
7b	6.07 – 36" DIPS DR21 FUSIBLE PVC HDD	LF	1170	-	-	-	-	$2,400.00	$2,808,000.00
	Remaining Bid Item Costs			-	-	-	-		$3,907,375.00

Line Item	Item Description	U of M	Quantity	MAC Construction & Excavating, Inc.		Larry Smith, Inc.		BRACKNEY, INC.	
				Unit Price	Extension	Unit Price	Extension	Unit Price	Extension
ALTERNATE 3 TOTAL (SRF COST FOR FUSIBLE PVC)				**No Bid**		**No Bid**			**$8,484,968.75**
6c	6.06 – 36" DIPS DR21 FUSIBLE PVC (Open-Cut)	LF	50	-	-	-	-	$1,815.00	$90,750.00
7c	6.07 – 36" DIPS DR21 FUSIBLE PVC HDD	LF	1170	-	-	-	-	$3,000.00	$3,510,000.00
	Remaining Bid Item Costs			-	-	-	-		$4,884,218.75

EXHIBIT C-2

ENGINEER'S RECOMMENDATION OF AWARD

June 23, 2022

Mr. Kyle Ryan, PE
Northern Kentucky Water District
2835 Crescent Springs Road
Erlanger, KY 41018

Re: Licking River Crossing (WX21037003 – Contract 2)

Dear Mr. Ryan,

This letter forwards NKWD's bid tabulation and recommendation for contract award for the above referenced project. The scope of work includes 1,920 LF of 36-inch ductile iron water main, 1,170 LF of 36-inch HDPE HDD, and appurtenances.

Three (3) bids were received and opened on June 16, 2022. The base bids ranged from $5,111,000.00 to $6,055,875.00. Two of the three bidders provided bids for Alternative 1 (SRF Cost) and ranged from $5,787,000.00 to $7,569,843.75. Only one bidder submitted on Alternative 2 (Non-SRF Cost for Fusible PVC) and Alternative 3 (SRF Cost for Fusible PVC).

MAC Construction & Excavating, Inc was the low bidder for both the base bid and Alternative 1 (SRF Cost). HDR has worked with MAC on multiple projects in the past. They have performed well on past HDR projects and appear to be capable of completing the work included in this project.

The base bid received is above the Engineer's Opinion of Probable Construction Cost for the project from October 2021. Market changes over the last 9 months have resulted in higher pricing, particularly associated with metal materials. MAC's bid in less than 10% higher than the OPCC from 9 months earlier.

NKWD has conducted a financial review between the base bid and Alternative 1 (SFR Funded) to determine the preferred financing mechanism. NKWD's finance department has decided to include SRF. Based on the qualifications of the low Bidder and the bid amount, HDR recommends the NKWD award the contract to MAC Construction & Excavating, Inc for $5,787,000.00 (Alternative 1).

If you concur with this recommendation, we will proceed toward contract award. If you have questions, please contact me at (859) 629-4825.

Sincerely,

Ross Guffey, PE
Water/Wastewater Section Manager

Enclosure: Certified Bid Tabulation

2517 Sir Barton Way Lexington , KY 40509-2275 **hdrinc.com**
(859) 629-4800

Northern Kentucky Water District

EXHIBIT C-3

BOARD MEETING MINUTES

Northern Kentucky Water District
Board of Commissioners
Special Meeting
June 30, 2022

A special meeting of the Board of Commissioners of the Northern Kentucky Water District was held on June 30, 2022, at the District's facility located at 2835 Crescent Springs Road in Erlanger, Kentucky and via video teleconference in accordance with KRS 61.826. All Commissioners were present, except for Commissioner Wagner. Also present were Ron Lovan, Lindsey Rechtin, Amy Stoffer, Tom Edge, Kim Clemons, Chris Bryant, Stacey Kampsen, Johnathan Moor, Matt Piccirillo, Barry Miller, Kyle Ryan, and Kristen Leadingham and Tim Furbush with VonLehman CPA and Advisory Firm.

Commissioner Koester called the meeting to order at 12:04 p.m. and led the pledge of allegiance.

The Commissioners reviewed correspondence received and articles published since the last regular Board meeting on May 19, 2022.

On motion of Commissioner Winnike, seconded by Commissioner Macke, the Board unanimously approved the minutes for the regular Board meeting held on May 19, 2022.

The Board was provided a copy of the District's check registers, which included the check number, check date, payee, check amount and description of the reason for each payment, detailing the District's expenditures for the period May 1, 2022 through May 31, 2022. On motion of Commissioner Lange, seconded by Commissioner Cunningham, and after discussion, the Board unanimously approved the expenditures of the District for the month of May 2022.

On motion of Commissioner Winnike, seconded by Commissioner Lange, the Board unanimously accepted the bid of and awarded a contract to Univar Solutions USA, Inc. for the purchase of sodium hypochlorite, and authorized the execution of the applicable contract documents.

On motion of Commissioner Lange, seconded by Commissioner Winnike, the Board unanimously accepted the bid of $5,787,000 and awarded a contract to MAC Construction & Excavating, Inc. for the Licking River Crossing Project with a total project budget of $6,800,000, and authorized staff to execute the applicable contract documents, and authorized up to $90,000 of inspection from CSX Transportation, Inc.

On motion of Commissioner Lange, seconded by Commissioner Macke, the Board unanimously authorized staff to execute an engineering services agreement, and any related documents, with Bayer Becker to design Phases 1 & 3 of the Newport 2022 Water Main Replacement Project.

On motion of Commissioner Macke, seconded by Commissioner Cunningham, the Board unanimously authorized staff to execute an engineering services agreement, and any related documents, with Cardinal Engineering to design Phases 2 & 4 of the Newport 2022 Water Main Replacement Project.

On motion of Commissioner Winnike, seconded by Commissioner Lange, the Board unanimously approved Resolution 027-063022 which accepts the grant, approves the grant Assistance Agreement, authorizes the amendment of the Northern Kentucky Water District's Annual Budget, and authorizes a representative to sign all related documents.

On motion of Commissioner Cunningham, seconded by Commissioner Lange, the Board unanimously approved Resolution 028-063022 which accepts the grant, approves the grant Assistance Agreement, authorizes the amendment of the Northern Kentucky Water District's Annual Budget, and authorizes a representative to sign all related documents.

On motion of Commissioner Lange, seconded by Commissioner Winnike, the Board unanimously authorized staff to file an application for adjustment of rates, issuance of bonds, financing, and tariff revisions to the Public Service Commission to produce total additional annual revenues not to exceed $9,200,000 and an estimated percentage increase not to exceed 16% to be phased in over a two-year period.

The Board reviewed the District's financial reports and Department reports.

Finance Manager Stacey Kampsen updated the Board on revenues and expenses.

Director of Human Resources, Safety, Facilities & Fleet Kim Clemons provided the Board with an update on the District's workers compensation coverage renewal.

Chris Bryant, Director of Technology, Innovation and Business Intelligence provided the Board an updated on revisions to the NKWD website.

Vice President of Engineering, Production & Water Quality Amy Stoffer reviewed with the Board the status of on-going projects within the 5-Year Capital Budget, including highlighting 6 change orders and expenses incurred to date and provide an update on the EPA Health Advisories issued June 15, 2022.

On motion of Commissioner Macke, seconded by Commissioner Cunningham, the Board unanimously accepted the December 31, 2021, audit report as presented.

The meeting was adjourned at 3:01 p.m.

_____ _____

CHAIRMAN SECRETARY

Northern Kentucky Water District

EXHIBIT D

PROJECT FINANCE INFORMATION

Exhibit D

Customers Added and Revenue Effect: There are no new customers anticipated.

Debt Issuance and Source of Debt: The project will be funded by $2,220,000 from Operational Capital Budget (OCB) Line Number 13-975 "Licking River Crossing" and $3,477,000.01 from SRF 2013. An additional $1,102,999.99 will be budgeted for Line Number 13-975 in next year's budget. The total budget of $6,800,000 includes design, contingencies, and miscellaneous costs. The District will have some labor expense to inspect the project. A summary of the project costs is provided below:

o Engineering	$ 201,177.00
o Contractor Bid	$ 5,787,000.00
o Easements & CSX Encroachment Permit	$ 70,048.00
o Materials for NKWD to cut in 2 tees	$ 137,940.00
o Misc. & Contingencies	$ 603,835.00
Total Project Cost	**$ 6,800,000.00**

USoA Accounts: The anticipated amounts for the project cost of $6,800,000 will fall under the following Uniform System of Accounts Codes:

Code 331 "Transmission & Distribution Mains"	$ 6,767,200
Code 335 "Hydrants"	$ 32,800

Additional Costs and O&M: No additional operating and maintenance costs are anticipated from the project.

Depreciation and Debt Service: Annual depreciation and debt service after construction are as follows:

Depreciation: $108,275.20/year over 62.5 years for Code 331 "Transmission & Distribution Mains"
$656.00/year over 50 years for Code 335 "Hydrants"

Annual Debt Service: $211,788.23 over 20 years for 2.0% State Revolving Fund Loan

Northern Kentucky Water District

EXHIBIT E

MORTGAGES, BONDS, NOTES, AND OTHER INDEBTEDNESS

EXHIBIT E-1

SCHEDULE OF MORTGAGES, BONDS, NOTES, AND OTHER INDEBTEDNESS

Northern Kentucky Water District	
Bonds & Notes	
4/30/2022	
Bonds	
Series 2013A	$20,055,000
Series 2013B	$10,055,000
Series 2014A	$1,651,500
Series 2014B	$3,745,000
Series 2016	$28,380,000
Series 2019	$16,385,000
Series 2020	$19,945,000
Series 2021B	$22,915,000
	$123,131,500
Bond Anticipation Notes Payable	
BAN 2021A	$24,685,000
KIA Notes Currently Servicing	
F08-07	$2,298,344
F9-02	$14,951,862
F13-012	$4,523,000
F-14-015	$3,011,088
F-15-011	$3,001,904
B-15-003	$1,131,429
F16-027	$1,304,928
Total KIA	**$30,222,556**
Other Notes	
Deferred Note Kenton County	$100,000

EXHIBIT E-2

CONDITIONAL COMMITMENT LETTER AND ASSISTANCE AGREEMENT

Northern Kentucky
Water District

August 1, 2014

Ms. Brandi M. Armstrong
Financial Analyst
Kentucky Infrastructure Authority
1024 Capital Center Drive, Suite 340
Frankfort, KY 40601

Dear Ms. Armstrong,

Please find enclosed the executed Conditional Commitment Letter for the Drinking Water State Revolving Fund F13-012 for $8 million.

If you have any questions or need additional documentation, please do not hesitate to contact me at (859) 426-2734.

Sincerely,

Amy K. Kramer

Amy K. Kramer, P.E.
Engineering & Distribution Manager

akk

KENTUCKY INFRASTRUCTURE AUTHORITY
1024 Capital Center Drive, Suite 340
Frankfort, Kentucky 40601
Phone (502) 573-0260
Fax (502) 573-0157
http://kia.ky.gov

Steven L. Beshear
Governor

John E. Covington III
Executive Director

July 14, 2014

The Honorable Jack Bragg, V.P. of Finance
Northern Kentucky Water District
2835 Crescent Springs Road
Erlanger, KY 41018

KENTUCKY INFRASTRUCTURE AUTHORITY
FEDERALLY ASSISTED DRINKING WATER REVOLVING LOAN FUND
CONDITIONAL COMMITMENT LETTER (F13-012 (Increase))

Dear Mr. Bragg:

The Kentucky Infrastructure Authority ("the Authority") commends your efforts to improve public service facilities in your community. On June 26, 2014, the Authority approved your loan for thr Kenton and Campbell County Water Main Projects subject to the conditions stated below. The total cost of the project shall not exceed $9,824,000 of which the Authority loan shall provide $8,000,000 of the funding. Other anticipated funding for the project is reflected in Attachment A. The final loan amount will be equal to the Authority's portion of estimated project cost applied to the actual project cost. Attachment A incorporated herein by reference fully describes the project.

An Assistance Agreement will be executed between the Authority and the Northern Kentucky Water District upon satisfactory performance of the conditions set forth in this letter. A period of twelve months from the date of this letter (7/14/2015) will be allowed for you to meet the conditions set forth in this letter and enter into an Assistance Agreement. A one-time extension of up to six months may be granted for applicants that experience extenuating circumstances. Funds will be available for disbursement only after execution of the Assistance Agreement.

The Assistance Agreement and this commitment shall be subject, but not limited to, the following terms:

1. The Authority project loan shall not exceed $8,000,000.

3. The loan shall bear interest at the rate of 1.75% per annum commencing with the first draw of funds.

4. The loan shall be repaid over a period not to exceed 20 years from the date the loan is closed.

5. Interest shall be payable on the amount of actual funds received. The first payment shall be due on June 1 or December 1 immediately succeeding the date of the initial draw of funds, provided that if such June 1 or December 1 shall be less than three months since the date of the initial draw of funds, then the first interest payment date shall be the June 1 or December 1 which is at least six months from the date of the initial draw of funds. Interest payments will be due each six months thereafter until the loan is repaid.

6. Full principal payments will commence on the appropriate June 1 or December 1 within twelve months from initiation of operation. Full payments will be due each six months thereafter until the loan is repaid.

7. A loan servicing fee of 0.25% of the annual outstanding loan balance shall be payable to the Authority as a part of each interest payment.

8. Loan funds will be disbursed after execution of the Assistance Agreement as project costs are incurred.

9. The Authority loan funds must be expended within six months of the official date of initiation of operation.

10. Fund "F" loan funds may be considered to be federal funds. OMB Circular A-133, "Audits of States, Local Governments and Non-Profit Organizations, requires that all recipients and subrecipients **expending $500,000 or more in a year in federal awards must have a single or program-specific audit conducted for that year** in accordance with the Circular. If the federal amount expended plus all other federal funds expended exceeds the threshold, you are required to arrange for an A-133 audit to be performed by an independent, licensed CPA, or in special cases, the Auditor of Public Accounts of the Commonwealth of Kentucky. Please note that the guidance for single audit requirements will change for calendar or fiscal years beginning after December 26, 2014. Please consult with your independent auditor as soon as possible to understand how the changes will affect you.

11. The Authority requires an annual financial audit to be performed for the life of the loan.

The following is a list of the standard conditions to be satisfied prior to execution of the Assistance Agreement or incorporated in the Assistance Agreement. Any required documentation must be submitted to the party designated.

1. The Authority to Award (bid) package must be submitted to the Division of Water for approval within 14 days of bid opening.

2. The Assistance Agreement must be executed within six (6) months from bid opening.

3. Documentation of final funding commitments from all parties other than the Authority as reflected in the credit analysis shall be provided prior to preparation of the Assistance Agreement and disbursement of the loan monies. Rejections of any anticipated project funding shall be immediately reported and may cause this loan to be subject to further consideration.

4. The loan must undergo review by the Capital Projects and Bond Oversight Committee of the Kentucky Legislature prior to the state's execution of the Assistance Agreement. The committee meets monthly on the third Tuesday. At this time we know of no further submission required for their review; however, they may request information as needed.

5. Any required adjustment in utility service rates shall be adopted by ordinance, municipal order or resolution by the appropriate governing body of the Borrower. Public hearings as required by law shall be held prior to the adoption of the service rate ordinance, order, or resolution. Any required approvals by the Kentucky Public Service Commission shall be obtained.

6. The Borrower must complete and return to the Authority the attached "Authorization For Electronic Deposit of Vendor Payment" Form.

7. An environmental review shall be conducted by the Division of Water for all construction projects receiving DWSRF funds, within the term of this binding commitment and prior to project bid.

8. Technical plans and specifications and a complete DWSRF specifications checklist shall be approved by the Division of Water prior to project bid.

9. All easements or purchases of land shall be completed prior to

commencement of construction. Clear Site Certification of all land or easement acquisitions shall be provided to the Division of Water. DOW representatives shall be notified for attendance of the pre-construction conference.

10. Project changes or additions shall require a complete environmental and change order review before they can be included in the DWSRF loan project.

11. Applicant must provide certification from their legal counsel stating that they have prepared construction specifications in accordance with all applicable state or federal wage rate laws, and that the procurement procedures, including those for construction, land, equipment and professional services that are a part of the project, are in compliance with applicable federal, state and local procurement laws.

12. The Borrower shall comply with all Davis Bacon related monitoring and reporting and require all contractors to pay wages pursuant to applicable prevailing wage rates (federal or state) for all work relating to the subject Project.

13. The project shall comply with the reporting requirements of the Transparency Act, and shall complete the attached Transparency Act Reporting Information Form and provide to the Authority no later than 30 days after the KIA Board approval date of your loan.

14. If the project has a "Green Reserve" component, the Borrower must submit a Business Case, if required.

15. The project shall comply with American Iron and Steel requirements of The Consolidated Appropriations Act of 2014 (H.R. 3547), which became effective January 17, 2014, unless engineering plans and specifications were approved by the Division of Water prior to the effective date.

Any special conditions stated in Attachment A must be resolved.

Please inform the Authority of any changes in your financing plan as soon as possible. We wish you every success for this project which will benefit both your community and the Commonwealth as a whole.

Sincerely,

Brandi M. Armstrong

Brandi M. Armstrong
Financial Analyst

Attachments

cc: Richard Harrison, P.E., Northern Kentucky Water District
Division of Water
Dirk Bedarff, Peck, Shaffer & Williams LLP
State Local Debt Office, DLG
Borrower File - Northern Kentucky Water District - F13-012 (Increase)

Please sign and return a copy of this letter indicating your acceptance of this commitment and its terms. Also attach the completed "Authorization For Electronic Deposit of Vendor Payment" Form.

Accepted

8/1/14
Date

ATTACHMENT A

Northern Kentucky Water District
F13-012 (Increase)

EXECUTIVE SUMMARY
KENTUCKY INFRASTRUCTURE AUTHORITY
FUND F, FEDERALLY ASSISTED DRINKING WATER REVOLVING LOAN FUND

Reviewer	Jeff Abshire
Date	June 26, 2014
KIA Loan Number	F13-012 (Increase)
WRIS Number	WX21037003

BORROWER: NORTHERN KENTUCKY WATER DISTRICT
KENTON COUNTY

BRIEF DESCRIPTION

The Northern Kentucky Water District is requesting an increase in loan funding of $4,000,000 for the Kenton and Campbell County Water Main Project. The increase will fund additional costs that were identified during the geotechnical evaluation process. Also, additional improvements were identified for the Taylor Mill treatment plant which will permit the deferral of approximately $6.4 million in other capital spending requirements by ten years and will reduce electric consumption by about $70,000 per year.

This project includes the installation of new raw and finished water transmission mains along with equipment upgrades at the Taylor Mill treatment plant. The project will provide a more reliable water supply to wholesale customers and give the District flexibility in conveying raw water between reservoirs which will facilitate the temporary removal of the north reservoir from service for maintenance and a more even distribution of water storage between the north and south reservoirs.

PROJECT FINANCING		PROJECT BUDGET	RD Fee %	Actual %	
Fund F Loan	$8,000,000	Administrative Expenses			$6,000
Local Funds	1,824,000	Legal Expenses			5,000
		Land, Easements			50,000
		Eng - Design / Const	6.4%	4.9%	450,000
		Eng - Constr / Insp	3.0%	1.1%	105,000
		Construction			8,421,514
		Contingency			786,486
TOTAL	$9,824,000	TOTAL			$9,824,000

REPAYMENT	Rate	1.75%	Est. Annual Payment	$495,805
	Term	20 Years	1st Payment	6 Mo. after first draw
PROFESSIONAL SERVICES	Engineer	N/A		
	Bond Counsel	Peck, Shaffer, & Williams, a division of Dinsmore & Shohl, LLP		
PROJECT SCHEDULE	Bid Opening	Feb-14		
	Construction Start	Jul-14		
	Construction Stop	Jul-15		
DEBT PER CUSTOMER	Existing	$2,951		
	Proposed	$3,051		
OTHER DEBT		See Attached		
OTHER STATE-FUNDED PROJECTS LAST 5 YRS		See Attached		

RESIDENTIAL RATES		Users	Avg. Bill	
	Current	80,833	$32.19	(for 4,000 gallons)
	Additional	0	$32.19	(for 4,000 gallons)

REGIONAL COORDINATION: This project is consistent with regional planning recommendations.

CASHFLOW	Cash Flow Before Debt Service	Debt Service	Cash Flow After Debt Service	Coverage Ratio
Audited 2011	24,901,248	14,986,158	9,915,090	1.7
Audited 2012	28,151,693	17,076,648	11,075,045	1.6
Audited 2013	28,341,354	17,310,103	11,031,251	1.6
Projected 2014	29,867,820	20,782,130	9,085,690	1.4
Projected 2015	31,171,773	20,777,742	10,394,031	1.5
Projected 2016	32,535,062	21,527,811	11,007,251	1.5
Projected 2017	33,960,276	21,521,706	12,438,570	1.6
Projected 2018	35,450,113	21,384,229	14,065,884	1.7

Reviewer: Jeff Abshire
Date: June 26, 2014
Loan Number: F13-012 Increase

KENTUCKY INFRASTRUCTURE AUTHORITY
DRINKING WATER STATE REVOLVING FUND (FUND "F")
NORTHERN KENTUCKY WATER DISTRICT, KENTON COUNTY
PROJECT REVIEW
WX21037003

I. PROJECT DESCRIPTION

The Northern Kentucky Water District is requesting an increase of $4,000,000 to their originally approved $4,000,000 Drinking Water SRF loan for the Kenton and Campbell County Water Main Projects. The increase will fund additional costs that were identified during the geotechnical evaluation process and other miscellaneous cost increases. Also, additional improvements were identified for the Taylor Mill treatment plant which will permit the deferral of approximately $6.4 million in other capital spending requirements by ten years and will reduce electric consumption by about $70,000 per year.

Licking River Crossing - During the geotechnical evaluation the District determined that the location of rock beneath the river would increase the length of required horizontal directional drilling by 660 feet. Additionally, the requirement for restrained joint pipe increased by 1,600 feet, site restoration costs increased, and the American Iron and Steel provisions of P.L. 113-76, Consolidated Appropriations Act, 2014 became applicable to the project. The items in aggregate increased the project cost by $1.5 million.

Taylor Mill Treatment Plant Improvements - The cost of these improvements increased by approximately $2.1 million. Additional concrete repairs were recommended that will extend the life of the pretreatment basins by approximately ten years and permit deferral of construction of a new $6.4 million basin. Other electrical and structural improvements will reduce electric consumption, increase operating efficiency and reduce wear on components.

Other project costs increased in aggregate by about $250,000.

Original Project Description

The project includes the installation of new finished and raw water transmission mains and improvements to the Taylor Mill treatment plant. A thirty six inch water transmission main will provide a redundant transmission main across the Licking River to provide a more reliable supply of water from Campbell to Kenton County. The raw water transmission main at the Fort Thomas Treatment plant in Campbell County will allow a higher percentage of raw water to be conveyed to the south raw water reservoir, facilitating the District's plan to temporarily remove the north reservoir from service for

maintenance and for providing a more even distribution of water storage between the two reservoirs. The motor control centers for six pumps that convey water to the distribution system located at the Taylor Mill treatment plant in Kenton County will be moved to an indoor location which will improve reliability (three cabinets are currently outdoors). Improvements to the flocculation and sedimentation basis including replacement of tube settlers, replacement of concrete water stops and miscellaneous repairs will also be made.

The District provides service to Campbell and Kenton counties and portions of Boone, Grant and Pendleton counties and is regulated by the Public Service Commission. Wholesale service is provided to the City of Walton and the Bullock Pen and Pendleton County Water Districts.

II. PROJECT BUDGET

	Total
Administrative Expenses	$ 6,000
Legal Expenses	5,000
Land, Easements	50,000
Engineering Fees - Design	450,000
Engineering Fees - Const / Inspection	105,000
Construction	8,421,514
Contingency	786,486
Total	**$ 9,824,000**

III. PROJECT FUNDING

	Amount	%
Fund F Loan	$ 8,000,000	81%
Local Funds	1,824,000	19%
Total	**$ 9,824,000**	**100%**

IV. KIA DEBT SERVICE

Construction Loan	$ 8,000,000
Interest Rate	1.75%
Loan Term (Years)	20
Estimated Annual Debt Service	$ 475,805
Administrative Fee (0.25%)	20,000
Total Estimated Annual Debt Service	**$ 495,805**

V. PROJECT SCHEDULE

Bid Opening	February 2014
Construction Start	July 2014
Construction Stop	July 2015

VI. CUSTOMER COMPOSITION AND RATE STRUCTURE

A) Customers

Customers	Current
Residential	75,988
Commercial	4,734
Industrial	111
Total	80,833

B) Rates

	Prior	Prior	Current
Date of Last Rate Increase	01/01/12	01/01/13	01/01/14
Fixed Service Charge (Monthly Billing)	$13.00	$13.60	$14.20
Fixed Service Charge (Quarterly Billing)	26.00	27.20	28.40
First 1,500 Cubic Feet (per hundred CF)	4.02	4.14	4.25
Next 163,500 Cubic Feet (per hundred CF)	3.27	3.40	3.53
Over 165,000 Cubic Feet (per hundred CF)	2.58	2.65	2.72
Cost for 4,000 gallons - Monthly Billing	$34.50	$35.74	$36.93
Percent Increase	6.5%	3.6%	3.3%
Affordability Index (Rate/MHI)	0.7%	0.8%	0.8%
Cost for 4,000 gallons - Quarterly Billing	$30.16	$31.20	$32.19
Percent Increase	11.2%	3.4%	3.2%
Affordability Index (Rate/MHI)	0.7%	0.7%	0.7%
Wholesale Rate	$3.13	$3.20	$3.26
Percent Increase	2.6%	2.1%	2.0%

The district also has a Subdistrict Monthly Surcharge that ranges from $8.55 to $36.22 depending on location.

VII. DEMOGRAPHICS

Census data was taken from the American Community Survey 5-Year Estimate 2007-2011. The District provides service to Campbell and Kenton counties and portions of Boone, Grant and Pendleton counties.

County	Population	MHI
Kenton	159,008	53,375
Campbell	89,598	53,018
Boone	114,723	66,549
Grant	24,720	43,755
Pendleton	14,840	48,354
Total / Weighted MHI	402,889	$56,272

The median household income for the Commonwealth is $42,248. The District is a regional provider and the project will qualify for a 1.75% interest rate.

Population			Weighted Average Unemployment	
Year	Counties	% Change	Date	Rate
1980	290,514		June 2003	5.8%
1990	311,259	7.1%	June 2008	6.0%
2000	362,845	16.6%	June 2012	7.7%
2010	408,406	12.6%	June 2013	7.3%
Current	411,547	0.8%		
Cumulative %		41.7%		

VIII. 2012 CAPITALIZATION GRANT EQUIVALENCIES

1) Green Project Reserve - The 2012 Drinking Water capitalization grant does not contain a "green" requirement.

2) Additional Subsidization – This project does not qualify for additional subsidization.

IX. FINANCIAL ANALYSIS (See Exhibit 1)

Financial information was obtained from the audited financial statements for the years ended December 31, 2011 through 2013. Interim financing balances were reclassified to long term debt for presentation since the amounts were replaced by the issuance of bonds.

HISTORY

Revenues increased 9% from $44.5 million in 2011 to $48.6 million in 2013 with the bulk of the increase being due to rate increases. Operating expenses averaged $23.5 million each year during the same period. The debt coverage ratio was consistent at

1.7, 1.6, and 1.6 for 2011, 2012 and 2013, respectively.

The balance sheet reflects a current ratio of 2.5 and a debt to equity ratio of 1.5. Months of operating expenses in unrestricted cash is 11.0. The District maintains various restricted accounts, primarily related to its bond covenants, and an Improvement, Repair and Replacement Reserve account. This account had a balance of $12.8 million, or 3% of in service fixed assets, at the end of 2013. Capital spending from 2011 through 2013 was $64 million.

PROJECTIONS

Projections are based on the following assumptions:

1) Revenues will increase 4% for inflation (rates) and volume each year
2) Expenses will increase 3% for inflation and volume.
3) Debt service coverage is 1.5 in 2016 when principal and interest repayments begin.

Based on the proforma assumptions, the utility shows adequate cash flow to repay the KIA Fund F loan.

REPLACEMENT RESERVE

The District maintains an "Improvement, Repair and Replacement account to make major repairs and replacements and to pay the cost of construction of additions, extensions and improvements to the water system. During the past three years the balance has averaged $11.6 million. As a percentage of in service fixed assets the balance has increased from .9% in 2008 to 3.0% in 2011, 2012 and 2013. Based on the District's current reserve funding practice a reserve will not be required for the proposed loan.

X. DEBT OBLIGATIONS

	Outstanding	Maturity
Series 2003C Revenue Bonds	10,805,000	2020
Series 2004 Revenue Bonds	7,760,000	2029
Series 2006 Revenue Bonds	23,945,000	2031
Series 2009 Revenue Bonds	25,560,000	2033
Series 2011 Revenue Bonds	29,155,000	2035
Series 2012 Revenue Bonds	53,115,000	2039
Series 2013A Revenue Bonds	26,400,000	2038
Series 2013B Revenue Bonds	24,120,000	2028
Rural Development Loan	1,951,000	2039
Taylor Mill Purchase Financing	750,000	2018
KIA Fund F Loan (F06-03)	3,134,219	2028
KIA Fund F Loan (F08-07)	3,818,383	2032
KIA Fund C Loan (C08-01)	4,384,707	2020
KIA Fund F Loan (F09-02, i/a/o $24M)	23,509,066	2033
KIA (F13-012, i/a/o $4.0M)	0	TBD
KIA (F14-015, i/a/o $4.0M)	0	TBD
Deferred Note Payable	100,000	TBD
Total	**$238,507,375**	

XI. OTHER STATE OR FEDERAL FUNDING IN PAST FIVE YEARS

Project Title	Funding Source	Amount
Unserved and Underserved Projects	HB 608	$500,000
Pike Street – Bromley	HB 608	300,000
Robbins Street Water Project	HB 608	300,000
Campbell Co. Unserved/Underserved Improvements	HB 608	1,000,000
Campbell Co. System Improvements	HB 608	1,200,000
Campbell Co. Unserved/Underserved Improvements	HB 608	750,000

XII. CONTACTS

Legal Applicant	
Name	Northern Kentucky Water District
Address	2835 Crescent Springs Road
	Erlanger, KY 41018
County	Kenton
Authorized Official	Jack Bragg (V.P. of Finance)
Phone	(859) 426-2758
Email	jbragg@nkwater.org

Project Administrator	
Name	Northern Kentucky Water District
Address	2835 Crescent Springs Road
	Erlanger, KY 41018
Contact	Richard Harrison, P.E.
Phone	(859) 578-5458
Email	rharr@nkwater.org

XIII. RECOMMENDATIONS

KIA staff recommends approval of the loan with the standard conditions.

NORTHERN KENTUCKY WATER DISTRICT
BALANCE SHEETS (DECEMBER YEAR END)

ASSETS	Audited 2011	Audited 2012	Audited 2013	Upon Completion 2015
Current Assets				
Cash and Cash Equivalents	14,822,171	18,846,682	21,351,218	22,596,939
Accounts Receivable	10,370,535	10,854,735	10,892,552	11,781,400
Assessments Receivable	98,760	104,778	110,953	110,000
Inventory	1,198,490	1,241,516	1,537,704	1,500,000
Prepaid Items	280,028	231,973	382,334	350,000
Total Current Assets	26,769,984	31,279,684	34,274,761	36,338,339
Restricted Assets				
Boone Florence Settlement	1,613,621	743,592	307,729	307,700
Bond Proceeds Fund	26,460,229	14,761,474	8,728,696	8,728,700
Debt Service Reserve Account	17,557,818	16,727,770	18,403,286	18,403,300
Debt Service Account	12,768,211	13,258,210	14,751,172	14,751,200
Improvement, Repair & Replacement	10,278,024	11,618,535	12,826,064	13,306,100
Total Restricted Assets	68,677,903	57,109,581	55,016,947	55,497,000
Utility Plant				
Property, Plant and Equipment	412,280,824	432,348,757	443,020,051	473,254,051
Less Accumulated Depreciation ( )	(92,727,220)	(101,451,833)	(111,130,615)	(134,833,867)
Net Fixed Assets	319,553,604	330,896,924	331,889,436	338,420,184
Deferred Charges	6,684,376	0	0	0
Total Assets	421,685,867	419,286,189	421,181,144	430,255,523
LIABILITIES				
Current Liabilities				
Bonded Indebtedness	7,974,000	7,926,000	8,828,000	9,392,000
Notes Payable	878,563	1,081,548	2,102,031	2,192,255
Accounts Payable	1,959,482	1,813,604	1,806,803	1,916,800
Accrued Payroll and Taxes	347,903	366,801	366,970	389,300
Other Accrued Liabilities	212,381	225,469	230,196	244,200
Customer Deposits	0	0	404,228	435,000
Total Current Liabilities	11,372,329	11,413,422	13,738,228	14,569,555
Liabilities Payable - Restricted Assets				
Accounts Payable	5,846,148	1,084,940	1,176,843	1,248,500
Accrued Interest Payable	3,994,015	3,703,241	3,814,960	4,047,300
Total Liabilities Payable - Restricted Assets	9,840,163	4,788,181	4,991,803	5,295,800
Long Term Liabilities				
Bonded Indebtedness	194,412,000	177,976,000	193,983,000	175,581,000
Notes Payable	54,659,908	35,687,309	33,594,344	59,489,501
Notes Payable (Interim Financing)	0	25,615,000	0	0
Miscellaneous Deferred Charges	0	2,371,462	4,382,753	3,750,000
Total Long Term Liabilities	249,071,908	241,649,771	231,960,097	238,820,501
Total Liabilities	270,284,400	257,851,374	250,690,128	258,685,856
Total Retained Earnings	151,401,467	161,434,815	170,491,016	171,569,667
Total Liabilities and Equities	421,685,867	419,286,189	421,181,144	430,255,523
Balance Sheet Analysis				
Current Ratio	2.4	2.7	2.5	2.5
Debt to Equity	1.8	1.6	1.5	1.5
Days Sales in Accounts Receivable	85.1	80.8	81.8	81.8
Months Operating Expenses in Unrestricted Cash	7.7	9.3	11.0	11.0

EXHIBIT 1
NORTHERN KENTUCKY WATER DISTRICT
CASH FLOW ANALYSIS (DECEMBER YEAR END)

	Audited 2011	% Change	Audited 2012	% Change	Audited 2013	Projected 2014	Projected 2015	Projected 2016	Projected 2017	Projected 2018
Operating Revenues										
Total Revenues	44,471,055	10%	49,009,681	-1%	48,598,030	50,541,951	52,563,628	54,666,173	56,852,820	59,126,933
Operating Expenses										
Operating Expenses	23,003,045	6%	24,384,581	-5%	23,227,312	23,924,131	24,641,855	25,381,111	26,142,544	26,926,820
Depreciation	9,498,005	5%	10,010,201	11%	11,101,626	11,601,626	12,101,626	12,601,626	13,101,626	13,601,626
Total Expenses	32,501,050	6%	34,394,782	0%	34,328,938	35,525,757	36,743,481	37,982,737	39,244,170	40,528,446
Net Operating Income	11,970,005	22%	14,614,899	-2%	14,269,092	15,016,194	15,820,147	16,683,436	17,608,650	18,598,487
Non-Operating Income and Expenses										
Investment Income	811,145		831,929		807,778	800,000	800,000	800,000	800,000	800,000
Miscellaneous Non-Operating Income	(239,673)		(384,846)		(256,650)	(300,000)	(300,000)	(300,000)	(300,000)	(300,000)
Capital Contributions	2,861,766		3,079,510		2,419,508	2,750,000	2,750,000	2,750,000	2,750,000	2,750,000
Total Non-Operating Income & Expenses	3,433,238	3%	3,526,593	-16%	2,970,636	3,250,000	3,250,000	3,250,000	3,250,000	3,250,000
Add Non-Cash Expenses										
Depreciation	9,498,005	5%	10,010,201	11%	11,101,626	11,601,626	12,101,626	12,601,626	13,101,626	13,601,626
Cash Available for Debt Service- Water	**24,901,248**	**13%**	**28,151,693**	**1%**	**28,341,354**	**29,867,820**	**31,171,773**	**32,535,062**	**33,960,276**	**35,450,113**
Total Debt Service	14,986,158		17,076,648		17,310,103	20,782,130	20,777,742	21,527,811	21,521,706	21,384,229
Income After Debt Service	9,915,090		11,075,045		11,031,251	9,085,690	10,394,031	11,007,251	12,438,570	14,065,884
Debt Coverage Ratio	1.7		1.6		1.6	1.4	1.5	1.5	1.6	1.7

KENTUCKY INFRASTRUCTURE AUTHORITY

ASSISTANCE AGREEMENT

FUND F

PROJECT NUMBER:	F13-012
BORROWER:	Northern Kentucky Water District
BORROWER'S ADDRESS:	2835 Crescent Springs Road Erlanger, Kentucky 41018
DATE OF ASSISTANCE AGREEMENT:	August 1, 2014
CFDA NO.:	~~66.458~~ 66.468 per Denise Pitts

ASSISTANCE AGREEMENT

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ASSISTANCE AGREEMENT

This Assistance Agreement made and entered into as of the date set forth on the cover page hereof (the "Assistance Agreement") by and between the KENTUCKY INFRASTRUCTURE AUTHORITY, a body corporate and politic, constituting a public corporation and governmental agency and instrumentality of the Commonwealth of Kentucky (the "Authority") and the Governmental Agency identified on the cover of this Assistance Agreement (the "Governmental Agency"):

W I T N E S S E T H

WHEREAS, the General Assembly of the Commonwealth of Kentucky, being the duly and legally constituted legislature of Kentucky at its 1988 Regular Session, enacted House Bill 217 amending Chapter 224A of the Kentucky Revised Statutes (the "Act"), creating the "Kentucky Infrastructure Authority" to serve the public purposes identified in the Act; and

WHEREAS, the Authority has established its Program as hereinafter defined, for the purpose of providing financial assistance to Governmental Agencies, as defined in the Act, in connection with the acquisition and construction of Projects, as defined in the Act, in order to preserve, protect, upgrade, conserve, develop, utilize and manage the resources of the Commonwealth of Kentucky (the "Commonwealth") for the protection and preservation of the health, safety, convenience, and welfare of the Commonwealth and its citizens, and in that respect to assist and cooperate with Governmental Agencies in achieving such purposes; and

WHEREAS, the Program is funded in part, pursuant to the Capitalization Grant Operating Agreement between the Authority and the U.S. Environmental Protection Agency dated as of November 1, 1998, as amended, supplemented or restated from time to time (the "Federal Agreement") under which the Authority is responsible for providing certain "match funding" described in the Federal Agreement; and

WHEREAS, the Authority has issued, and will issue from time to time, its revenue bonds pursuant to a General Trust Indenture dated as of February 1, 2000 (the "Indenture") between the Authority and U.S. Bank, National Association, as lawful successor in interest to National City Bank of Kentucky (the "Trustee"), in order to provide the "match funding" for the Program; and

WHEREAS, the Governmental Agency has determined that it is necessary and desirable to finance the acquisition and construction of the Project, as hereinafter defined, and the Authority has determined that the Project is a Project within the meaning of the Act and the Indenture, thereby qualifying for financial assistance from the Authority; and

WHEREAS, the Governmental Agency desires to enter into this Assistance Agreement with the Authority for the purpose of securing from the Authority the repayable Loan hereinafter identified; and

WHEREAS, the Authority is willing to cooperate with the Governmental Agency in making available the Loan pursuant to the Act and the Indenture to be applied to the Project upon the conditions hereinafter enumerated and the covenants by the Governmental Agency herein contained to repay the Loan and the interest thereon from the sources herein provided, all as hereinafter more specifically provided; and

WHEREAS, the Authority and the Governmental Agency have determined to enter into this Assistance Agreement pursuant to the terms of the Act and the Indenture and to set forth their respective duties, rights, covenants, and obligations with respect to the acquisition, construction and financing of the Project and the repayment of the Loan and the interest thereon;

NOW, THEREFORE, FOR AND IN CONSIDERATION OF THE MUTUAL COVENANTS HEREIN SET FORTH, THE LOAN HEREBY EFFECTED AND OTHER GOOD AND VALUABLE CONSIDERATION, THE RECEIPT OF WHICH IS HEREBY ACKNOWLEDGED BY EACH PARTY, THE PARTIES HERETO MUTUALLY COVENANT AND AGREE, EACH WITH THE OTHER AS FOLLOWS:

ARTICLE I

DEFINITIONS

All of the terms utilized in this Assistance Agreement will have the same definitions and meaning as ascribed to them in the Act and the Indenture, which Act and Indenture are hereby incorporated in this Assistance Agreement by reference, the same as if set forth hereby verbatim; provided, however, that those definitions utilized in the Act and the Indenture having general application are hereby modified in certain instances to apply specifically to the Governmental Agency and its Project.

"*Act*" shall mean Chapter 224A of the Kentucky Revised Statutes, as amended.

"*Administrative Fee*" means the charge of the Authority for the servicing of the Loan, which is the annual percentage charged against the unpaid principal balance of the Loan as identified in the Project Specifics.

"*Architects*" means the firm of consulting architects employed by the Governmental Agency in connection with the Project identified in the Project Specifics.

"*Assistance Agreement*" shall mean this agreement made and entered into by and between a Governmental Agency and the Authority, as authorized by the Act, providing for a Loan to the Governmental Agency by the Authority, and for the repayment thereof to the Authority by the Governmental Agency.

"*Authority*" shall mean the Kentucky Infrastructure Authority created by the Act, a body corporate and politic, constituting a public corporation and a governmental agency and instrumentality of the Commonwealth of Kentucky, or such other designation as may be effected by future amendments to the Act.

"*Bond*" or "*Bonds*" or "*Revenue Bonds*" shall mean any Kentucky Infrastructure Authority Bond or Bonds, or the issue of such Bonds, as the case may be, authenticated and delivered under the Indenture.

"*Business Day*" shall mean any day other than a Saturday, Sunday or other legal holiday on which the general offices of the Commonwealth are closed.

"*Cabinet*" means the Energy and Environment Cabinet of the Commonwealth.

"*Code*" shall mean the Internal Revenue Code of 1986, as amended, and shall include the Regulations of the United States Department of the Treasury promulgated thereunder.

"*Commonwealth*" shall mean the Commonwealth of Kentucky.

"*Construction*" shall mean construction as defined in the Act.

"*Debt Obligations*" shall mean those outstanding obligations of the Governmental Agency identified in the Project Specifics outstanding as of the date of this Assistance Agreement or issued in the future in accordance with the terms hereof, payable from the income and revenues of the System.

"*Drinking Water Supply Project*" shall mean the planning, design and construction of drinking water treatment and distribution systems, including expenditures to address Federal Act health goals, or to address situations where compliance standards have been exceeded or to prevent future violations of rules, and may further include drinking water treatment plants, including basins for rapid mix, flocculation, coagulation, filtration, pre-treatment disinfection, and disinfection prior to entry to the distribution system; distribution systems; storage tanks; intake lines and short-term water storage; clearwells; drilled wells and wellhead areas; and any other structure or facility considered necessary by the Cabinet to the efficient and sanitary operation of a public water system and complies with the requirements of the Federal Act.

"*Engineers*" means the firm of consulting engineers employed by the Governmental Agency in connection with the Project identified in the Project Specifics.

"*Federal Act*" shall mean the Federal Safe Drinking Water Act, as amended, 42 U.S.C. Section 1401, et seq.

"*Governmental Agency*" shall mean any incorporated city or municipal corporation, or other agency or unit of government within the Commonwealth, now having or hereafter granted the authority and power to finance, acquire, construct, and operate infrastructure projects, including specifically but not by way of limitation, incorporated cities, counties, including any counties containing a metropolitan sewer district, sanitation districts, water districts, sewer construction districts, metropolitan sewer districts, sanitation taxing districts, and any other agencies, commissions, districts, or authorities (either acting alone, or in combination with one another pursuant to any regional or area compact, or multi-municipal agreement), now or hereafter established pursuant to the laws of the Commonwealth having and possessing such described powers; and for the purposes of this Assistance Agreement shall mean the Governmental Agency identified in the Project Specifics.

"*Indenture*" shall mean the General Trust Indenture dated as of February 1, 2000 between the Authority and the Trustee.

"*Interagency Agreement*" means the Memorandum of Understanding dated as of July 1, 1999 between the Authority and the Cabinet, as the same may be amended or supplemented from time to time.

"*Loan*" shall mean the loan effected under this Assistance Agreement from the Authority to the Governmental Agency in the principal amount set forth in the Project Specifics, for the purpose of defraying the costs incidental to the Construction of the Project.

"*Loan Rate*" means the rate of interest identified in the Schedule of Payments.

"*Person*" shall mean any individual, firm, partnership, association, corporation or Governmental Agency.

"*Program*" shall mean the program authorized by KRS 224A.1115 and the Indenture as the "federally assisted drinking water revolving fund" for financing Projects through Loans by the Authority to Governmental Agencies and shall not be deemed to mean or include any other programs of the Authority.

"*Project*" shall mean, when used generally, a Drinking Water Supply Project, and when used in specific reference to the Governmental Agency, the Project described in the Project Specifics.

"*Project Specifics*" means those specific details of the Project identified in Exhibit A hereto, all of which are incorporated by reference in this Assistance Agreement.

"*Requisition for Funds*" means the form attached hereto as Exhibit B to be utilized by the Governmental Agency in obtaining disbursements of the Loan from the Authority as the Construction of the Project progresses.

"*Resolution*" means the resolution of the Governmental Agency attached hereto as Exhibit D authorizing the execution of this Assistance Agreement.

"*Schedule of Payments*" means the principal and interest requirements of the Loan as set forth in Exhibit F hereto, to be established and agreed to upon or prior to the completion of the Project.

"*Schedule of Service Charges*" shall mean those general charges to be imposed by the Governmental Agency for services provided by the System, as set forth in Exhibit C hereto, and such other revenues identified in Exhibit C hereto from which the Loan is to be repaid, which Schedule of Service Charges shall be in full force and effect to the satisfaction of the Authority prior to the disbursement of any portion of the Loan hereunder.

"*Service Charges*" shall mean any monthly, quarterly, semi-annual, or annual charges, surcharges or improvement benefit assessments to be imposed by a Governmental Agency, or by the Authority, in respect of the System, which Service Charges arise by reason of the existence of, and requirement of, any Assistance Agreement and for the purposes of this Assistance Agreement said Service Charges shall be no less than those set forth in the Schedule of Service Charges.

"*System*" shall mean the water system owned and operated by the Governmental Agency of which the Project shall become a part and from the earnings of which (represented by the Service Charges) the Governmental Agency shall repay the Authority the Loan hereunder.

ARTICLE II

REPRESENTATIONS AND WARRANTIES

Section 2.1. Representations and Warranties of Authority. The Authority represents and warrants for the benefit of the Governmental Agency as follows:

(A) The Authority is a body corporate and politic constituting a governmental agency and instrumentality of the Commonwealth, has all necessary power and Authority to enter into, and perform its obligations under, this Assistance Agreement, and has duly authorized the execution and delivery of this Assistance Agreement.

(B) Neither the execution and delivery hereof, nor the fulfillment of or compliance with the terms and conditions hereof, nor the consummation of the transactions contemplated hereby, conflicts with or results in a breach of the terms, conditions and provisions of any restriction or any agreement or instrument to which the Authority is now a party or by which the Authority is bound, or constitutes a default under any of the foregoing.

(C) To the knowledge of the Authority, there is no litigation or proceeding pending or threatened against the Authority or any other person affecting the right of the Authority to execute or deliver this Assistance Agreement or to comply with its obligations under this Assistance Agreement. Neither the execution and delivery of this Assistance Agreement by the Authority, nor compliance by the Authority with its obligations under this Assistance Agreement, require the approval of any regulatory body, or any other entity, which approval has not been obtained.

(D) The authorization, execution and delivery of this Assistance Agreement and all actions of the Authority with respect thereto, are in compliance with the Act and the Federal Act and any regulations issued thereunder.

Section 2.2. Representations and Warranties of the Governmental Agency. The Governmental Agency hereby represents and warrants for the benefit of the Authority as follows:

(A) The Governmental Agency is a duly organized and validly existing Governmental Agency, as described in the Act, with full power to own its properties, conduct its affairs, enter into this Assistance Agreement and consummate the transactions contemplated hereby.

(B) The negotiation, execution and delivery of this Assistance Agreement and the consummation of the transactions contemplated hereby have been duly authorized by all requisite action of the governing body of the Governmental Agency.

(C) This Assistance Agreement has been duly executed and delivered by the Governmental Agency and is a valid and binding obligation of the Governmental Agency enforceable in accordance with its terms, except to the extent that the enforceability hereof may be limited by equitable principles and by bankruptcy, reorganization, moratorium, insolvency or similar laws heretofore or hereafter enacted relating to or affecting the enforcement of creditors' rights or remedies generally.

(D) To the knowledge of the Governmental Agency, there is no controversy or litigation of any nature pending or threatened, in any court or before any board, tribunal or

administrative body, to challenge in any manner the authority of the Governmental Agency or its governing body to make payments under this Assistance Agreement or to proceed with the Project, or to challenge in any manner the authority of the Governmental Agency or its governing body to take any of the actions which have been taken in the authorization or delivery of this Assistance Agreement or the Construction of the Project, or in any way contesting or affecting the validity of this Assistance Agreement, or in any way questioning any proceedings taken with respect to the authorization or delivery by the Governmental Agency of this Assistance Agreement, or the application of the proceeds thereof or the pledge or application of any monies or security provided therefor, or in any way questioning the due existence or powers of the Governmental Agency, or otherwise wherein an unfavorable decision would have an adverse impact on the transactions authorized in connection with this Assistance Agreement.

(E) The authorization and delivery of this Assistance Agreement and the consummation of the transactions contemplated hereby will not constitute an event of default or violation or breach, nor an event which, with the giving of notice or the passage of time or both, would constitute an event of default or violation or breach, under any contract, agreement, instrument, indenture, lease, judicial or administrative order, decree, rule or regulation or other document or law affecting the Governmental Agency or its governing body.

(F) Attached hereto as Exhibit D is a true, accurate and complete copy of the resolution or ordinance of the governing body of the Governmental Agency approving and authorizing the execution and delivery of this Assistance Agreement. Such resolution or ordinance was duly enacted or adopted at a meeting of the governing body of the Governmental Agency at which a quorum was present and acting throughout; such resolution or ordinance is in full force and effect and has not been superseded, altered, amended or repealed as of the date hereof; and such meeting was duly called and held in accordance with law.

(G) All actions taken by the Governmental Agency in connection with this Assistance Agreement and the Loan described herein and the Project have been in full compliance with the provisions of the Kentucky Open Meeting Law, KRS 61.805 to 61.850.

(H) The Governmental Agency has all licenses, permits and other governmental approvals (including but not limited to all required approvals of the Kentucky Public Service Commission) required to own, occupy, operate and maintain the Project, to charge and collect the Service Charges and to enter into this Assistance Agreement, is not in violation of and has not received any notice of an alleged violation of any zoning or land use laws applicable to the Project, and has full right, power and authority to perform the acts and things as provided for in this Assistance Agreement.

(I) Legal counsel to the Governmental Agency has duly executed and delivered the opinion of legal counsel substantially in the form set forth in Exhibit E hereto.

(J) The Governmental Agency is in full compliance with all federal and state labor and procurement laws in connection with the planning, design, acquisition and construction of the Project.

(K) Project is consistent with the water supply plan developed pursuant to 401 KAR 4:220 for the county in which the Governmental Agency is located.

ARTICLE III

AUTHORITY'S AGREEMENT TO MAKE LOAN; TERMS

Section 3.1. Determination of Eligibility. Pursuant to the terms of the Act and the Indenture, the Authority has determined that the Governmental Agency's Project is a Drinking Water Supply Project under the Act and the Governmental Agency is entitled to financial assistance from the Authority in connection with financing the Construction of the Project.

Section 3.2. Principal Amount of Loan Established; Loan Payments; Disbursement of Funds. The principal amount of the Loan shall be the Loan Amount as identified in the Project Specifics, subject to such adjustments as may be set forth in the Schedule of Payments. Principal payments shall be made semiannually in the amounts and on the dates to be established by the Schedule of Payments, which Schedule of Payments shall provide for approximately level debt service payments over the Repayment Term set forth in the Project Specifics, commencing with the Amortization Commencement Date set forth in the Project Specifics.

The Loan shall bear interest, payable semiannually, at the Loan Rate identified in the Project Specifics, and after the Amortization Commencement Date, in the amounts (based on such Loan Rate) and on the dates set forth in the Schedule of Payments; provided that, should an Event of Default occur, such payments of interest shall be made on the first day of each month during the continuation of such Event of Default.

The Authority shall advance the proceeds of the Loan as Construction of the Project progresses upon the submission by the Governmental Agency of a Requisition for Funds in substantially the same form as Exhibit B hereto. Each disbursement under a Requisition for Funds representing a portion of the principal amount of the Loan shall bear interest at the Loan Rate from the date of the disbursement; and shall be subject to the further requirements set forth in Article IV hereof.

Payments of principal and interest on the Loan shall be made at the principal office of the Authority or the Trustee, as designated by the Authority.

Section 3.3. Governmental Agency's Right to Prepay Loan. The Governmental Agency shall have the right to prepay and retire the entire amount of the Loan at any time without penalty upon written notice to the Authority no less than five (5) Business Days in advance of said prepayment.

Notwithstanding the foregoing, upon the determination by the Authority that it intends to issue revenue bonds secured by a pledge of the payments on the Loan, the Authority shall advise the Governmental Agency (i) of its intention to proceed with the authorization of such bonds (ii) of the limitation on prepayments after such bonds are issued and (iii) that the Governmental Agency has thirty (30) days from its receipt of said notice to exercise its option to prepay the Loan. Upon the expiration of said thirty day period the Governmental Agency's right to prepay the Loan shall be limited to the terms described in such notice.

Section 3.4. Subordination of Loan. The Authority hereby agrees that the security interest and source of payment for the Loan shall be inferior and subordinate to the security interest and source of payment for the Debt Obligations of the Governmental Agency payable from the revenues of the System outstanding at the time this Assistance Agreement is executed

as identified in the Project Specifics; provided, however, the Authority shall receive notice of any additional financings in accordance with Section 5.5(D) hereof.

ARTICLE IV

CONDITIONS PRECEDENT TO DISBURSEMENT;
REQUISITION FOR FUNDS

Section 4.1. Covenants of Governmental Agency and Conditions of Loan. By the execution of this Assistance Agreement, the Governmental Agency agrees that prior to any requests for the disbursement of all or a portion of the Loan made hereunder, the Governmental Agency shall supply the Authority and the Cabinet appropriate documentation, satisfactory to the Authority indicating the following:

(A) That the Authority and the Cabinet and any appropriate regulatory agency of the Commonwealth as may be designated by the Authority or the Cabinet, and their respective duly authorized agents, shall have the right at all reasonable times, subject to prior notice to the Governmental Agency, to examine and inspect the Project.

(B) All real estate and interest in real estate and all personal property constituting the Project and the sites of the Project heretofore or hereafter acquired shall at all times be and remain the property of the Governmental Agency and constitute a part of the System.

(C) In the event the Governmental Agency is required to provide financing for the Project from sources other than the Authority (as described in the Project Specifics) the Authority shall have the right to receive such reasonable proofs as it may require of the ability of the Governmental Agency to finance the costs of the Construction of the Project over and above the Loan, prior to the disbursement by the Authority of any portion of the Loan.

(D) The Governmental Agency shall do all things necessary to acquire all proposed and necessary sites, easements and rights of way necessary or required in respect of the Project and demonstrate its ability to construct the Project in accordance with the plans, design and specifications prepared for the Governmental Agency by the Engineers.

(E) Actual construction and installation incident to the Project shall be performed by the lump-sum (fixed price) contract method, and adequate legal methods of obtaining public, competitive bidding will be employed prior to the awarding of the construction contract for the Project in accordance with Kentucky law.

(F) Unless construction of the Project has already been initiated as of the date of this Assistance Agreement, pursuant to due compliance with state law and applicable regulations, the Project will not be advertised or placed on the market for construction bidding by the Governmental Agency until the final plans, designs and specifications therefor have been approved by such state and federal agencies and authorities as may be legally required, and until written notification of such approvals has been received by the Governmental Agency and furnished to the Cabinet.

(G) Duly authorized representatives of the Cabinet and such other agencies of the Commonwealth and the United States Government as may be charged with responsibility will have reasonable access to the construction work whenever it is in preparation or progress, and the Governmental Agency will assure that the contractor or contractors will provide facilities for such access and inspection.

(H) The construction contract or contracts shall require the contractor to comply with all provisions of federal and state law legally applicable to such work, and any amendments or modifications thereto, together with all other applicable provisions of law, to cause appropriate provisions to be inserted in subcontracts to insure compliance therewith by all subcontractors subject thereto, and to be responsible for the submission of any statements required of subcontractors thereunder.

(I) A work progress schedule utilizing a method of standard acceptance in the engineering community shall be prepared prior to the institution of construction in connection with each construction contract, or, if construction has already been initiated as of the date of this Assistance Agreement, at the earliest practicable date, to indicate the proposed schedule as to completion of the Project, and same shall be maintained monthly thereafter to indicate the actual construction progress of the Project.

(J) Prior to the award of the construction contract and prior to the commencement of construction, the Governmental Agency will arrange and conduct a conference as to the Project said conference to include representatives of the Authority, the Governmental Agency, the Cabinet and any other participating federal or state agency, the Engineers, and all construction contractors, such conference to be held in accordance with guidelines established by the Authority and the Cabinet. A written brief of said conference summarizing the construction schedule, fund requirements schedule, payment authorizations, responsible parties for approval of all facets of the construction work and payment therefor, and other pertinent matters shall be prepared and distributed to each agency involved, and all construction contractors and Engineers. Provided, however, that in the event construction shall have been initiated as of the date of this Assistance Agreement, this provision may be waived.

(K) All construction contracts will be so prepared that federal participation costs, if any, and state participation costs may be readily segregated from local participation costs, if any, and from each other, and in such manner that all materials and equipment furnished to the Governmental Agency may be readily itemized.

(L) Any change or changes in a construction contract will be promptly submitted to the Cabinet and any state or federal agencies.

(M) The Construction, including the letting of contracts in connection therewith, will conform in all respects to applicable requirements of federal, state and local laws, ordinances, rules and regulations.

(N) The Governmental Agency will proceed expeditiously with and complete the Project in accordance with the approved surveys, plans specifications and designs or amendments thereto, prepared by the Engineers for the Governmental Agency and approved by state and federal agencies.

(O) If requested, the Governmental Agency will erect at the Project sites, signs satisfactory to the Authority and the United States Environmental Protection Agency noting the participation of the Authority and the U.S. Government, respectively, in the financing of the Project.

(P) Except as otherwise provided in this Assistance Agreement, the Governmental Agency shall have the sole and exclusive charge of all details of the Construction.

(Q) The Governmental Agency shall keep complete and accurate records of the costs of acquiring the Project sites and the costs of Construction. The Governmental Agency shall permit the Authority and the Cabinet, acting by and through their duly authorized representatives, and the duly authorized representatives of state and/or federal agencies to inspect all books, documents, papers and records relating to the Project at any and all reasonable times for the purpose of audit and examination, and the Governmental Agency shall submit to the Authority and the Cabinet such documents and information as such public bodies may reasonably require in connection with the administration of any federal or state assistance.

(R) The Governmental Agency shall require that each construction contractor or contractors furnish a performance and a payment bond in an amount at least equal to one hundred percent (100%) of the contract price or the portion of the Project covered by the particular contract as security for the faithful performance of such contract.

(S) The Governmental Agency shall require that each of its contractors and all subcontractors maintain during the life of the construction contract, worker's compensation insurance, public liability insurance, property damage insurance and vehicle liability insurance in amounts and on terms satisfactory to the Authority. Until the Project facilities are completed and accepted by the Governmental Agency, the contractor shall maintain builders risk insurance (fire and extended coverage) on a one hundred percent (100%) basis (completed value form) on the insurable portion of the Project, such insurance to be made payable to the order of the Authority, the Governmental Agency, the prime contractor, and all subcontractors, as their interests may appear.

(T) The Governmental Agency shall provide and maintain competent and adequate resident engineering services covering the supervision and inspection of the development and construction of the Project, and bearing the responsibility of assuring that Construction conforms to the approved plans, specifications and designs prepared by the Engineers. Such resident engineer shall certify to the Cabinet, any involved state or federal agencies, and the Governmental Agency at the completion of construction that construction is in accordance with the approved plans, specifications and designs, or, approved amendments thereto.

(U) The Governmental Agency shall demonstrate to the satisfaction of the Authority the legal capability of the Governmental Agency to enact, adopt, levy, charge, collect, enforce and remit to the Authority and the Cabinet the Service Charges of the Governmental Agency described in the Schedule of Service Charges attached to and made a part of this Assistance Agreement as Exhibit C and submit proof satisfactory to the Authority that the Service Charges are in full force and effect.

(V) The Governmental Agency shall require all laborers and mechanics employed by contractors and subcontractors on the Project shall be paid wages at rates not less than prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with subchapter IV of Chapter 31 of title 40, United States Code.

(W) The Governmental Agency shall comply with all federal requirements applicable to the Loan (including those imposed by P.L. 113-76, Consolidated Appropriations Act, 2014 (the "2014 Appropriations Act") and related Program policy guidelines) which the Governmental Agency understands includes, among other requirements, that all of the iron and steel products used in the Project are to be produced in the United States ("American Iron and Steel

Requirement") unless (i) the Governmental Agency has requested and obtained a waiver from the United States Environmental Protection Agency pertaining to the Project or (ii) the Authority has otherwise advised the Participant in writing that the American Iron and Steel Requirement is not applicable to the Project.

(X) The Governmental Agency shall comply with all record keeping and reporting requirements under the Federal Act, including any reports required by a Federal agency or the Authority such as performance indicators of program deliverables, information on costs and project progress. The Governmental Agency understands that (i) each contract and subcontract related to the Project is subject to audit by appropriate federal and state entities and (ii) failure to comply with the Federal Act and this Agreement may be a default hereunder that results in a repayment of the Loan in advance of the maturity of the Bonds and/or other remedial actions.

Section 4.2. Additional Conditions to Disbursement Required Under the Federal Agreement. The Governmental Agency, in order to comply with the terms and conditions of the Federal Agreement, further covenants and further agrees to additional conditions to disbursement, as follows:

(A) Notwithstanding any other agreements contained herein regarding the maintenance of books and records, that it shall maintain Project accounts in accordance with generally accepted governmental accounting standards, as required by the Federal Agreement. The Governmental Agency shall retain such records for no less than three (3) years following the final payment by the Governmental Agency under this Assistance Agreement or if any portion of the Project is disposed of, until at least three (3) years after such disposition; provided that if any litigation, claim, appeal or audit is commenced prior to the end of such period such records shall be maintained until the completion of such action or until three (3) years after such commencement, whichever is later.

(B) That it has not and will not apply any other federal funding to the Project in a manner that would cause it to receive "double benefits" as described in Section 603 of the Water Quality Act of 1987.

(C) That all property required for the completion of the Project shall be obtained, by easement, purchase or other means acceptable to the Authority, prior to commencement of construction and that the relocation of any Person resulting therefrom be in accordance with 49 CFR24 for Uniform Relocation Assistance and Real Property Acquisition Act of 1970.

(D) That all Project contractors shall be required to retain Project records for the periods established for the retention of the Governmental Agency's records in Section 4.2(A).

(E) That no more than fifty percent (50%) of the proceeds of the Loan shall be disbursed until approval by the Cabinet of the final plan for operation for the Project.

(F) That no more than ninety percent (90%) of the proceeds of the Loan shall be disbursed until approval by the Cabinet of the draft operations and maintenance manual.

(G) That final disbursement will not be allowed until approval by the Cabinet of a final operations and maintenance manual.

(H) That, as required by 40 CFR 35.2218, all engineering services regarding construction and regarding the first year of operation of the Project shall be provided for, including the following:

(1) The operation of the Project and the revision of the operations and maintenance manual as necessary to accommodate actual operating experience;

(2) The training of operating personnel, including preparation of curricula and training material for operating personnel; and

(3) Advice as to whether the Project is meeting the Project performance standards (including three quarterly reports and one project performance report).

(I) That it shall advise the Cabinet and the Authority in writing of the date for initiation of operation of the Project.

(J) That one year after operation is initiated, it shall certify to the Cabinet and the Authority that the Project is capable of meeting the Project performance standards.

(K) That it shall provide that qualified inspectors are present at the construction site. A summary of such inspector's qualifications and experience shall be submitted to the Cabinet and the Authority.

(L) That it shall notify the Authority and the Cabinet of the completion date of the Project.

(M) That it agrees to the terms and conditions of its application for assistance and the Authority's commitment to provide assistance, the terms of which are incorporated herein by reference.

(N) That all measures required to minimize water pollution to affected waters shall be employed in the Project including compliance with Section 404 of PL 92-500, as amended, it being understood that approval of the Project does not constitute sanction or approval of any changes or deviations from established water quality standards, criteria implementation dates, or dates established by enforcement proceedings.

Section 4.3. Disbursements of Loan; Requisition for Funds. The Governmental Agency shall submit to the Authority (or the Trustee acting on behalf of the Authority, if so designated) and the Cabinet a Requisition for Funds prior to the fifth day of each month (or such other designated period as is acceptable to the Authority), in substantially the same form as that attached to this Assistance Agreement as Exhibit B and made a part hereof, accompanied by, to the extent requested by the Authority, the following documentation:

(A) A full and complete accounting of the costs of the planning and design of the Project to be obligated by contract or otherwise during the month in question, or already obligated and not included in any previous accounting;

(B) A full and complete accounting of any costs of the planning and design of the Project paid by the Governmental Agency from its own funds with the approval of the Authority and not included in any previous accounting for which it seeks reimbursement;

(C) A full and complete accounting of any costs of the planning and design of the Project paid or requisitioned under any other financing, loan, bond, grant or similar agreement or paid from its own funds for which it does not seek reimbursement and which have not been identified in any previous requisition form.

(D) The Contractor's estimate of work performed during the preceding month pursuant to construction contracts for the Project and payment thereunder due, together with the Engineer's and Governmental Agency's approval thereof for disbursement by the Authority.

Upon the Authority's receipt of the Requisition for Funds, and such additional documentation as it may require, and subject to certification by the Cabinet, the Authority may direct the Trustee to remit the amount requested to the Governmental Agency as a draw upon the Loan.

ARTICLE V

CERTAIN COVENANTS OF THE GOVERNMENTAL AGENCY; PAYMENTS TO BE MADE BY GOVERNMENTAL AGENCY TO THE AUTHORITY

Section 5.1. Imposition of Service Charges. The Governmental Agency hereby irrevocably covenants and agrees to comply with all of the terms, conditions and requirements of this Assistance Agreement, pursuant to which the Loan is to be made by the Authority to the Governmental Agency as specified herein and in the Act and the Indenture. The Governmental Agency hereby further irrevocably covenants and agrees that it already has, or will, to the extent necessary, immediately impose Service Charges upon all persons, firms and entities to whom or which services are provided by the System, such Service Charges to be no less than as set forth in Exhibit C annexed hereto. If so required, such Service Charges shall be in addition to all other rates, rentals and service charges of a similar nature of the Governmental Agency now or hereafter authorized by law, and now or hereafter being levied and collected by the Governmental Agency and shall be levied and collected solely for the purpose of repaying to the Authority all sums received from the Authority as representing the Loan in respect of the Project.

Section 5.2. Governmental Agency's Obligation to Repay Loan. The obligation of the Governmental Agency to repay to the Authority the amount of the Loan from the Service Charges shall not be revocable, and in the event that services supplied by the Project shall cease, or be suspended for any reason, the Governmental Agency shall continue to be obligated to repay the Loan from the Services Charges. In the event the Governmental Agency defaults in the payment of any Service Charges to the Authority, the amount of such default shall bear interest at the per annum rate equal to the Default Rate set forth in the Project Specifics, from the date of the default until the date of the payment thereof.

Section 5.3. Covenant to Adjust Service Charges. In the event, for any reason, the Schedule of Service Charges shall prove to be insufficient to provide to the Authority the minimum sums set forth in the Schedule of Payments, to make the required deposits to the Maintenance and Replacement Reserve and to provide for the operation of the System, the Governmental Agency hereby covenants and agrees that it will, upon notice by the Authority, to the full extent authorized by law, both federal and state, immediately adjust and increase such Schedule of Service Charges, or immediately commence proceedings for a rate adjustment and increase with all applicable regulatory authorities, so as to provide funds sufficient to pay to the Authority the minimum sums set forth in the Schedule of Payments, to provide for the operation of the System as required under this Assistance Agreement and to make the required deposits to the Maintenance and Replacement Reserve.

Section 5.4. Adequacy of Service Charges. The Service Charges herein covenanted to be imposed by the Governmental Agency shall be fixed at such rate or rates (and it is represented that the Schedule set forth in Exhibit C hereto so qualifies), as shall be at least adequate to make the payments at the times and in the amounts set forth in the Schedule of Payments, to make the required deposits to the Maintenance and Replacement Reserve and to provide for the operation of the System, subject to necessary governmental and regulatory approvals.

The Service Charges imposed by the Governmental Agency shall be paid by the users of the System and accordingly the Project not less frequently than the Service Charge Payment period set forth in the Project Specifics, and shall be remitted to the Authority by the

Governmental Agency with a report showing collections and any delinquencies. A report of all collections and delinquencies shall be made at least semi-annually on or before each Payment Date identified in the Schedule of Payments.

Section 5.5. Covenant to Establish Maintenance and Replacement Reserve. The Governmental Agency shall establish a special account identified as a "Maintenance and Replacement Reserve". The Governmental Agency shall deposit into the Maintenance and Replacement Reserve an amount equal to the amount set forth in the Project Specifics at the times set forth in the Project Specifics. Amounts in the Maintenance and Replacement Reserve may be used for extraordinary maintenance expenses related to the Project or for the unbudgeted costs of replacing worn or obsolete portions of the Project.

Section 5.6. Covenant to Charge Sufficient Rates; Reports; Inspections. The Governmental Agency hereby irrevocably covenants and agrees with the Authority:

(A) That, as aforesaid, it will at all times impose, prescribed, charge and collect the Service Charges set forth in Exhibit C as shall result in net revenues to the Governmental Agency at least adequate to provide for the payments to the Authority required by this Assistance Agreement, to provide for the operation of the System and to make the required deposits to the Maintenance and Replacement Reserve.

(B) That it will furnish to the Authority and the Cabinet not less than annually reports of the operations and income and revenues of the System, and will permit authorized agents of the Authority to inspect all records, accounts and data of the System at all reasonable times.

(C) That it will collect, account for and promptly remit to the Authority those specific revenues, funds, income and proceeds derived from Service Charges incident to this Assistance Agreement.

(D) That it will notify the Authority in writing of its intention to issue bonds or notes payable from the revenues of the System not less than thirty (30) days prior to the sale of said obligations. It further covenants that it will not issue any notes, bonds or other obligations payable from the revenues of the System, if the pledge of the revenues of the System to the repayment of such obligations is to rank on a parity with, or superior to, the pledge of the revenues of the System for the repayment of the Loan granted under this Assistance Agreement, unless the Governmental Agency has secured the consent of the Authority not less than fifteen (15) days prior to the issuance of such obligations.

Section 5.7. Segregation of Funds. The Governmental Agency shall at all times account for the income and revenues of the System and distinguish same from all other revenues, moneys and funds of the Governmental Agency, if any.

ARTICLE VI

OTHER COVENANTS OF THE GOVERNMENTAL AGENCY

Section 6.1. Further Assurance. At any time and all times the Governmental Agency shall, so far as it may be authorized by law, pass, make, do, execute, acknowledge and deliver, all and every such further resolutions, acts, deeds, conveyances, assignments, transfers and assurances as may be necessary or desirable for the better assuring, conveying, granting, assigning and confirming all and singular the rights, assets and revenues herein pledged or assigned, or intended so to be, or which the Governmental Agency may hereafter become bound to pledge or assign.

Section 6.2. Completion of Project. The Governmental Agency hereby covenants and agrees to proceed expeditiously with and promptly complete the Project in accordance with the plans, designs and specifications prepared by the Engineers for the Governmental Agency.

Section 6.3. Establishment of Completion Date. The completion date for the Project shall be evidenced to the Authority by a certificate signed by the Engineer and an authorized representative of the Governmental Agency stating that, except for amounts retained by the Authority for costs of the Project not then due and payable, (i) the Construction has been completed and all labor, services, materials, supplies, machinery and equipment used in such Construction have been paid for, (ii) all other facilities necessary in connection with the Project have been acquired, constructed, equipped and installed and all costs and expenses incurred in connection therewith have been paid, (iii) the Project and all other facilities in connection therewith have been acquired, constructed, equipped and installed to his satisfaction.

Section 6.4. Commitment to Operate. The Governmental Agency hereby covenants and agrees to commence operation of the Project immediately on completion of construction and not to discontinue operations or dispose of such Project without the approval of the Authority.

Section 6.5. Continue to Operate. The Governmental Agency hereby covenants and agrees to continuously operate and maintain the Project in accordance with applicable provisions of federal and state law and to maintain adequate records relating to said operation; said records to be made available to the Authority upon its request at all reasonable times.

Section 6.6. Tax Covenant. In the event the Authority issues Bonds which are intended to be excludable from gross income for federal income tax purposes to provide the funds for the Loan, the Governmental Agency shall at all times do and perform all acts and things permitted by law and necessary or desirable in order to assure such exclusion and shall take such actions as may be directed by the Authority in order to accomplish the foregoing. The Governmental Agency shall not permit (i) the proceeds of the Loan to be used directly or indirectly in any trade or business, (ii) its payments hereunder to be secured directly or indirectly by property to be used in a trade or business, (iii) any management agreement for the operation of the System or (iv) any federal guarantee of its obligations hereunder without the prior written consent of the Authority. The Governmental Agency will not acquire or pledge any obligations which would cause the Bonds to be "arbitrage bonds" within the meaning of the Code.

Section 6.7. Accounts and Reports. The Governmental Agency shall at all times keep, or cause to be kept, proper books of record and account in accordance with the "Uniform System of Accounts" established by the Commonwealth, in which complete and accurate entries shall be

made of all its transactions relating to the System and which shall at all reasonable times be subject to the inspection of the Authority.

Section 6.8. Financial Statements. Within one hundred eighty (180) days after the end of each fiscal year of the Governmental Agency, the Governmental Agency shall provide to the Authority, itemized financial statements of income and expense and a balance sheet in reasonable detail, certified as accurate by a firm of independent certified public accountants or the Auditor of Public Accounts of the Commonwealth. All financial information must be satisfactory to the Authority as to form and content and be prepared in accordance with generally accepted accounting principles on a basis consistent with prior practice unless specifically noted thereon. With such financial statements, the Governmental Agency shall furnish to the Authority a certificate stating that, to the best knowledge of the authorized representative signing such certificate, no default under this Assistance Agreement exists on the date of such certificate, or if any such default shall then exist, describing such default with specificity. All recipients and subrecipients expending $500,000 or more in a year in Federal awards must have a single or program-specific audit conducted for that year in accordance with OMB Circular A-133.

Section 6.9. General Compliance With All Duties. The Governmental Agency shall faithfully and punctually perform all duties with reference to the Project and the System required by the Constitution and laws of the Commonwealth, and by the terms and provisions of this Assistance Agreement and any other Debt Obligations.

Section 6.10. General. The Governmental Agency shall do and perform or cause to be done and performed all acts and things required to be done or performed by or on behalf of the Governmental Agency under the provisions of the Act, the Federal Act and this Assistance Agreement in accordance with the terms of such provisions including the Additional Covenants and Agreements, if any, set forth in Exhibit G hereto.

Section 6.11. Further Covenants under the Federal Agreement. The Governmental Agency shall comply with all further requirements or conditions which may arise from time to time in order to assure compliance with the Federal Act, and with the agreements of the Authority set forth in the Federal Agreement, including but not limited to the following:

(A) The Governmental Agency shall provide all information requested of it by the Authority or the Cabinet so that (i) the Grants Information Control System, referred to in the Federal Agreement, can be maintained, (ii) the accounting and auditing procedures required by the Federal Act can be maintained and (iii) the Authority can furnish the information required of its under the Federal Agreement.

(B) Qualified operating personnel, properly certified by the Cabinet, shall be retained by the Governmental Agency to operate the Project during the entire term of this Assistance Agreement. An approved plan of operating and an operations and maintenance manual for the Project shall be provided by the Governmental Agency to the Cabinet and the Authority. The Project shall be operated and maintained in an efficient and effective manner.

(C) All residents in the service area of the Project must be offered the same opportunity to become users of the Project regardless of race, creed, color, or level of income.

(D) The Governmental Agency shall comply with provisions contained in the following federal regulations, orders, acts and circulars and the following statutes and regulations of the Commonwealth.

(1) Federal Cross-Cutters

Environmental Authorities

(a) Archeological and Historic Preservation Act of 1974, Pub. L. 86-523, as amended
(b) Clean Air Act, Pub. L. 84-159, as amended
(c) 40 CFR 35.3580 (and Appendix A to Subpart L) – NEPA – Like State Environmental Review Process
(d) Environmental Justice, Executive Order 12898
(e) Floodplain Management, Executive Order 11988 as amended by Executive Order 12148
(f) Protection of Wetlands, Executive Order 11990
(g) Farmland Protection Policy Act, Pub. L. 97-98
(h) Fish and Wildlife Coordination Act, Pub. L. 85-624, as amended
(i) National Historic Preservation Act of 1966, PL 89-665, as amended
(j) Safe Drinking Water Act, Pub. L. 93-523, as amended
(k) Wild and Scenic Rivers Act, Pub. L. 90-542, as amended

Economic and Miscellaneous Authorities

(a) Demonstration Cities and Metropolitan Development Act of 1966, Pub. L. 89-754, as amended, Executive Order 12372
(b) Procurement Prohibitions under Section 306 of the Clean Air Act and Section 508 of the Clean Water Act, including Executive Order 11738, Administration of the Clean Air Act and the Federal Water Pollution Control Act with Respect to Federal Contracts, Grants, or Loans.
(c) Uniform Relocation and Real Property Acquisition Policies Act, Pub. L. 91-646, as amended
(d) Debarment and Suspension, Executive Order 12549

Social Policy Authorities

(a) Age Discrimination Act of 1975, Pub. L. 94-135
(b) Title VI of the Civil Rights Act of 1964, Pub. L. 88-352
(c) Section 13 of the Federal Water Pollution Control Act Amendments of 1972, Pub. L. 92-500 (the Clean Water Act)
(d) Section 504 of the Rehabilitation Act of 1973, Pub. L. 93-112 (including Executive Orders 11914 and 11250)
(e) Equal Employment Opportunity, Executive Order 11246
(f) Women's and Minority Business Enterprise, Executive Orders 11625, 12138, and 12432
(g) Section 129 of the Small Business Administration Reauthorization and Amendment Act of 1988, Pub. L. 100-590

(2) State:

(a) KRS 151
(b) KRS 224
(c) KRS 224A.1115 Federally Assisted Drinking Water Revolving Fund
(d) KRS Chapter 337, Labor Laws
(e) 401 KAR Chapter 8

Section 6.12. Continuing Disclosure Obligation. The Governmental Agency covenants and agrees that notwithstanding any other provision of this Assistance Agreement to the contrary, upon written notice from the Authority that the Schedule of Payments provides ten percent (10%) or more of the debt service requirements on an issue of the Authority's Bonds and that compliance by the Governmental Agency with the requirements of Securities and Exchange Commission Rule 15c2-12, as amended (the "SEC Rule") is required in connection with the Authority's Bonds, the Governmental Agency shall provide to the Authority such information as may be required by the Rule, within the time periods set out in such notice by the Authority, to enable the Authority to establish to the satisfaction of prospective purchasers of the Authority's Bonds that the requirements of the SEC Rule will be satisfied in connection with the issuance of the Authority's Bonds. The Governmental Agency further understands and agrees that the Authority shall act as the Governmental Agency's disclosure agent for purposes of compliance with the SEC Rule and that upon a failure by the Governmental Agency to provide the information required to be provided under the SEC Rule within the time frame specified in such notice, the Authority and/or the beneficial owners and holders of the Authority's Bonds shall be specifically granted the right of enforcing the provisions of this Section 6.12 by an action in mandamus, for specific performance, or similar remedy to compel performance.

ARTICLE VII

MAINTENANCE, OPERATION, INSURANCE AND CONDEMNATION

Section 7.1. Maintain System. The Governmental Agency agrees that during the entire term of this Assistance Agreement, it will keep the Project, including all appurtenances thereto, and the equipment and machinery therein, in good and sound repair and good operating condition at its own cost so that the completed Project will continue to provide the services for which the System is designed.

Section 7.2. Additions and Improvements. The Governmental Agency shall have the privilege of making additions, modifications and improvements to the sites of the Project, and to the Project itself from time to time provided that said additions, modifications and improvements do not impair the operation or objectives of the Project. The Cost of such additions, modifications and improvements shall be paid by the Governmental Agency, and the same shall be the property of the Governmental Agency and shall be included under the terms of this Assistance Agreement as part of the site of the Project, or the Project, as the case may be. Nothing herein contained shall be construed as precluding the Authority and the Governmental Agency from entering into one or more supplementary Assistance Agreements providing for an additional Loan or Loans in respect of additional Projects undertaken by the Governmental Agency.

Section 7.3. System Not to Be Disposed Of. The Governmental Agency covenants and agrees that, until satisfaction in full of its obligations hereunder, it will not, without the prior written consent of the Authority, which consent shall not be unreasonably withheld, sell, mortgage, or in any manner dispose of, or surrender control or otherwise dispose of any of the facilities of the System or any part thereof (except that the Governmental Agency may retire obsolete and worn out facilities, and sell same, if appropriate).

Section 7.4. Compliance with State and Federal Standards. The Governmental Agency agrees that it will at all times provide operation and maintenance of the Project to comply with the water quality standards, if any, established by any state or federal agency. The Governmental Agency agrees that qualified operating personnel properly certified by the Commonwealth will be retained to operate the Project during the entire term of this Assistance Agreement.

Section 7.5. Access to Records. The Governmental Agency agrees that it will permit the Authority and any state or federal agency and their respective agents to have access to the records of the Governmental Agency pertaining to the operation and maintenance of the Project at any reasonable time following completion of construction of the Project, and commencement of operations thereof.

Section 7.6. Covenant to Insure - Casualty. The Governmental Agency agrees to insure the Project facilities in such amount as like properties are similarly insured by political subdivisions similarly situated, against loss or damage of the kinds usually insured against by political subdivisions similarly situated, by means of policies issued by reputable insurance companies duly qualified to do such business in the Commonwealth.

Section 7.7. Authority as Named Insured. Any insurance policy issued pursuant to Section 7.5 hereof, shall be so written or endorsed as to make losses, if any, payable to the Governmental Agency, and to the Authority, as their interests may appear.

Section 7.8. Covenant to Insure - Liability. The Governmental Agency agrees that it will carry public liability insurance with reference to the Project with one or more reputable insurance companies duly qualified to do business in the Commonwealth, insuring against such risks (including but not limited to personal inquiry, death and property damage) and in such amounts as are set forth in the Project Specifics, and naming the Authority as an additional insured.

Section 7.9. Covenant Regarding Worker's Compensation. Throughout the entire term of this Assistance Agreement, the Governmental Agency shall maintain worker's compensation coverage, or cause the same to be maintained.

Section 7.10. Application of Casualty Insurance Proceeds. If, prior to the completion of the term of this Assistance Agreement, the Project shall be damaged or partially or totally destroyed by fire, windstorm or other casualty, there shall be no abatement or reduction in the amount payable by the Governmental Agency pursuant to the terms of this Assistance Agreement and the Governmental Agency will (1) promptly repair, rebuild or restore the Project damaged or destroyed; and (2) apply for such purpose so much as may be necessary of any net proceeds of insurance resulting from claims for such losses, as well as any additional moneys of the Governmental Agency necessary therefor. All net proceeds of insurance resulting from claims for such losses shall be paid to the Governmental Agency, and shall be promptly applied as herein provided.

Section 7.11. Eminent Domain. In the event that title to, or the temporary use of, the Project, or any part thereof, shall be taken under the exercise of the power of eminent domain by any governmental body or by any Person acting under governmental authority, there shall be no abatement or reduction in the minimum amounts payable by the Governmental Agency to the Authority pursuant to the terms of this Assistance Agreement, and any and all net proceeds received from any award made in such eminent domain proceedings shall be paid to and held by the Governmental Agency in a separate condemnation award account and shall be applied by the Governmental Agency in either or both of the following ways, as shall be determined by the Governmental Agency in its sole discretion:

(A) The restoration of the improvements located on the Project sites to substantially the same condition as prior to the exercise of said power of eminent domain; or

(B) The acquisition of additional property, if necessary, and the acquisition of additional facilities by construction or otherwise, equivalent to the Project facilities, which property and facilities shall be deemed to be a part of the Project sites and a part of the Project facilities and to be substituted for Project facilities so taken by eminent domain, without the payment of any amount other than herein provided, to the same extent as if such property and facilities were specifically described herein.

Any balance of the net proceeds of the award in such eminent domain proceedings after the carrying out of the mandatory proceedings stipulated in (A) and (B) of this Section 7.11, shall be paid to the Governmental Agency upon delivery to the Authority of a certificate signed by an

authorized officer of the Governmental Agency to the effect that the Governmental Agency has complied with either subparagraph (A) or (B), or both, of this Section, and written approval of such certificate by an authorized officer of the Authority. In no event will the Governmental Agency voluntarily settle or consent to the settlement of any prospective or pending condemnation proceedings with respect to the Project or any part thereof without the written consent of the Authority.

Section 7.12. Flood Insurance. All structures located in flood prone areas shall be covered by flood insurance carried by the Governmental Agency for an amount equal to the total Project cost excluding the cost of land and any uninsurable improvements, or for the maximum limit available under the National Flood Insurance Act of 1968, as amended, whichever is less, for the entire useful life of the Project.

ARTICLE VIII

EVENTS OF DEFAULT AND REMEDIES

Section 8.1. Events of Default Defined. The following will be "Events of Default" under this Assistance Agreement and the term "Event of Default" or "Default" will mean, whenever it is used in this Assistance Agreement, any one or more of the following events:

(A) Failure by the Governmental Agency to pay any payments specified herein at the times specified herein.

(B) Failure by the Governmental Agency to observe or perform any covenant, condition or agreement on its part to be observed or performed, other than as referred to in subsection (A) of this Section, for a period of thirty (30) days after written notice specifying such failure and requesting that it be remedied will have been given to the Governmental Agency by the Authority unless the Authority agrees in writing to an extension of such time prior to its expiration; provided, however, if the failure stated in the notice cannot be corrected within the applicable period, the Authority will not unreasonably withhold its consent to an extension of such time if corrective action is instituted by the Governmental Agency within the applicable period and diligently pursued until such failure is corrected.

(C) The dissolution or liquidation of the Governmental Agency, or the voluntary initiation by the Governmental Agency of any proceeding under any federal or state law relating to bankruptcy, insolvency, arrangement, reorganization, readjustment of debt or any other form of debtor relief, or the initiation against the Governmental Agency of any such proceeding which will remain undismissed for sixty (60) days, or the entry by the Governmental Agency into an agreement of composition with creditors or the failure generally by the Governmental Agency to pay its debts as they become due.

(D) A default by the Governmental Agency under the provisions of any agreements relating to its Debt Obligations.

Section 8.2. Remedies on Default. Whenever any Event of Default referred to in Section 8.1 has occurred and is continuing (other than an event of default arising under Section 6.13 of this Assistance Agreement), the Authority may, without any further demand or notice, take one or any combination of the following remedial steps:

(A) Declare all payments due hereunder, as set forth in the Schedule of Payments, to be immediately due and payable.

(B) Exercise all the rights and remedies of the Authority set forth in the Act.

(C) Take whatever action at law or in equity may appear necessary or desirable to enforce its rights under this Assistance Agreement.

(D) Submit a formal referral to the appropriate federal agency, as required by the Federal Agreement.

The sole remedies for an Event of Default under this Assistance Agreement arising by virtue of the failure of the Governmental Agency to comply with the provisions of Section 6.10 hereof shall be those remedies specifically set forth in Section 6.10 hereof

Section 8.3. Appointment of Receiver. Upon the occurrence of an Event of Default, and upon the filing of a suit or other commencement of judicial proceedings to enforce the rights of the Authority under this Assistance Agreement, the Authority shall be entitled, as a matter of right, to the appointment of a receiver or receivers of the System and all receipts therefrom, pending such proceedings, with such power as the court making such appointment shall confer; provided, however, that the Authority may, with or without action under this Section, pursue any available remedy to enforce the payment obligations hereunder, or to remedy any Event of Default.

Section 8.4. No Remedy Exclusive. No remedy herein conferred upon or reserved to the Authority is intended to be exclusive, and every such remedy will be cumulative and will be in addition to every other remedy given hereunder and every remedy now or hereafter existing at law or in equity. No delay or omission to exercise any right or power accruing upon any default will impair any such right or power and any such right and power may be exercised from time to time and as often as may be deemed expedient.

Section 8.5. Consent to Powers of Authority Under Act. The Governmental Agency hereby acknowledges to the Authority its understanding of the provisions of the Act, vesting in the Authority certain powers, rights and privileges in respect of the Project upon the occurrence of an Event of Default, and the Governmental Agency hereby covenants and agrees that if the Authority should in the future have recourse to said rights and powers, the Governmental Agency shall take no action of any nature whatsoever calculated to inhibit, nullify, void, delay or render nugatory such actions of the Authority in the due and prompt implementation of this Assistance Agreement.

Section 8.6. Waivers. In the event that any agreement contained herein should be breached by either party and thereafter waived by the other party, such waiver will be limited to the particular breach so waived and will not be deemed to waive any other breach hereunder.

Section 8.7. Agreement to Pay Attorneys' Fees and Expenses. In the event that either party hereto will default under any of the provisions hereof and the non-defaulting party employs attorneys or incurs other expenses for the enforcement of performance or observance of any obligation or agreement on the part of the defaulting party herein contained, the defaulting party agrees that it will pay on demand therefor to the non-defaulting party the fees of such attorneys and such other expenses so incurred by the non-defaulting party.

ARTICLE IX

MISCELLANEOUS PROVISIONS

Section 9.1. Approval not to be Unreasonably Withheld. Any approval of the Authority required by this Assistance Agreement shall not be unreasonably withheld and shall be deemed to have been given on the thirtieth (30th) day following the submission of any matter requiring approval to the Authority, unless disapproved in writing prior to such thirtieth (30th) day. Any provision of this Assistance Agreement requiring the approval of the Authority or the satisfaction or the evidence of satisfaction of the Authority shall be interpreted as requiring action by an authorized officer of the Authority granting, authorizing or expressing such approval or satisfaction, as the case may be, unless such provision expressly provides otherwise.

Section 9.2. Approval. This Agreement is made subject to, and conditioned upon, the approval of this Assistance Agreement by the Secretary of the Finance and Administration Cabinet.

Section 9.3. Effective Date. This Assistance Agreement shall become effective as of the date first set forth hereinabove and shall continue in full force and effect until the date the obligations of the Governmental Agency pursuant to the provisions of this Assistance Agreement have been fully satisfied.

Section 9.4. Binding Effect. This Assistance Agreement shall be binding upon, and shall inure to the benefit of the parties hereto, and to any person, officer, board, department, agency, municipal corporation, or body politic and corporate succeeding by operation of law to the powers and duties of either of the parties hereto. This Assistance Agreement shall not be revocable by either of the parties, without the written consent of the other party.

Section 9.5. Severability. In the event that any provision of this Assistance Agreement will be held invalid or unenforceable by any court of competent jurisdiction, such holding will not invalidate or render unenforceable any other provision hereof.

Section 9.6. Assignability. The rights of the Authority under this Assistance Agreement shall be assignable by the Authority without the consent of the Governmental Agency, but none of the rights, duties or obligations of the Governmental Agency under this Assistance Agreement shall be assignable by the Governmental Agency without the prior written consent of the Authority.

Section 9.7. Execution in Counterparts. This Assistance Agreement may be simultaneously executed in several counterparts, each of which will be an original and all of which will constitute but one and the same instrument.

Section 9.8. Applicable Law. This Assistance Agreement will be governed by and construed in accordance with the laws of the Commonwealth.

Section 9.9. Captions. The captions or headings herein are for convenience only and in no way define, limit or describe the scope or intent of any provisions or sections of this Assistance Agreement.

IN WITNESS WHEREOF, the parties hereto have caused this Assistance Agreement to be executed by their respective duly authorized officers as of the day and year above written.

ATTEST:

Title: SECRETARY

KENTUCKY INFRASTRUCTURE AUTHORITY

By: _____

Title: EXECUTIVE DIRECTOR

ATTEST:

Title: Secretary

GOVERNMENTAL AGENCY:
NORTHERN KENTUCKY WATER DISTRICT

By: _____

Title: President

APPROVED:

SECRETARY/FINANCE AND ADMINISTRATION CABINET OF THE COMMONWEALTH OF KENTUCKY

EXAMINED:

Peck, Shaffer & Williams a division of Dinsmore & Shohl LLP
LEGAL COUNSEL TO THE KENTUCKY INFRASTRUCTURE AUTHORITY

APPROVED AS TO FORM AND LEGALITY

APPROVED
FINANCE AND ADMINISTRATION CABINET

EXHIBIT A
NORTHERN KENTUCKY WATER DISTRICT
PROJECT SPECIFICS
F13-012 (Increase)

GOVERNMENTAL AGENCY:

Name: Northern Kentucky Water District
2835 Crescent Springs Road
Erlanger, KY 41018

Contact Person: Jack Bragg
V.P. of Finance

SYSTEM: Water

PROJECT:

The Northern Kentucky Water District is requesting an increase in loan funding of $4,000,000 for the Kenton and Campbell County Water Main Project. The increase will fund additional costs that were identified during the geotechnical evaluation process. Also, additional improvements were identified for the Taylor Mill treatment plant which will permit the deferral of approximately $6.4 million in other capital spending requirements by ten years and will reduce electric consumption by about $70,000 per year.

This project includes the installation of new raw and finished water transmission mains along with equipment upgrades at the Taylor Mill treatment plant. The project will provide a more reliable water supply to wholesale customers and give the District flexibility in conveying raw water between reservoirs which will facilitate the temporary removal of the north reservoir from service for maintenance and a more even distribution of water storage between the north and south reservoirs.

PROJECT BUDGET:

		Total
Administrative Expenses	$	6,000
Legal Expenses		5,000
Land, Easements		50,000
Engineering Fees - Design / Const		450,000
Engineering Fees - Inspection		105,000
Construction		8,421,514
Contingency		786,486
Total	**$**	**9,824,000**

FUNDING SOURCES:

		Amount	%
Fund F Loan	$	8,000,000	81%
Local Funds		1,824,000	19%
Total	**$**	**9,824,000**	**100%**

KIA DEBT SERVICE:

Construction Loan	$	8,000,000
Interest Rate		1.75%
Loan Term (Years)		20
Estimated Annual Debt Service	$	475,805
Administrative Fee (0.25%)		20,000
Total Estimated Annual Debt Service	**$**	**495,805**

AMORTIZATION COMMENCEMENT DATE: June 1 and December 1

Interest payments will commence within six months from first draw of funds (estimated 12/01/14).

Full principal and interest payments will commence within one year of initiation of operation (estimated 06/01/16).

REPLACEMENT RESERVE ACCOUNT:	$	14,800	ANNUAL AMOUNT
	$	148,000	TOTAL AMOUNT

The annual replacement cost is $14,800. This amount should be added to the replacement account each December 1 until the balance reaches $148,000 and maintained for the life of the loan.

ADMINISTRATIVE FEE: 0.25%

DEFAULT RATE: 8.00%

DEBT OBLIGATIONS CURRENTLY OUTSTANDING:

		Outstanding	Maturity
Series 2003C Revenue Bonds		10,805,000	2020
Series 2004 Revenue Bonds		7,760,000	2029
Series 2006 Revenue Bonds		23,945,000	2031
Series 2009 Revenue Bonds		25,560,000	2033
Series 2011 Revenue Bonds		29,155,000	2035
Series 2012 Revenue Bonds		53,115,000	2039
Series 2013A Revenue Bonds		26,400,000	2038
Series 2013B Revenue Bonds		24,120,000	2028
Rural Development Loan		1,951,000	2039
Taylor Mill Purchase Financing		750,000	2018
KIA Fund F Loan (F06-03)		3,134,219	2028
KIA Fund F Loan (F08-07)		3,818,383	2032
KIA Fund C Loan (C08-01)		4,384,707	2020
KIA Fund F Loan (F09-02, i/a/o $24M)		23,509,066	2033
KIA (F13-012, i/a/o $4.0M)		0	TBD
KIA (F14-015, i/a/o $4.0M)		0	TBD
Deferred Note Payable		100,000	TBD
Total	**$**	**238,507,375**	

LIABILITY INSURANCE COVERAGE:

Death or Personal Injury (per person)	1,000,000
Death or Personal Injury (per occurrence)	
Property Damage on System	

EXHIBIT B

REQUEST FOR PAYMENT WITH RESPECT TO
ASSISTANCE AGREEMENT DATED AUGUST 1, 2014
LOAN NO. F13-012

Request No. _____ Dated:_____

Original sent to: Kentucky Infrastructure Authority
1024 Capital Center Drive
Suite 340
Frankfort, Kentucky 40601

Copy sent to: Branch Manager
Water Infrastructure Branch
Division of Water
Energy and Environment Cabinet
200 Fair Oaks, 4th Floor
Frankfort, Kentucky 40601

FROM: NORTHERN KENTUCKY WATER DISTRICT (the "Governmental Agency")

Gentlemen:

The above identified Governmental Agency has entered into an Assistance Agreement with the Kentucky Infrastructure Authority (the "Authority") for the acquisition and construction of drinking water supply facilities, described in the Assistance Agreement as the "Project."

Pursuant to the Assistance Agreement, we hereby certify that we have incurred the following expenses in connection with the Project and that the Authority's funding share of these expenses is in the amount so denoted in this request totaling $_____.

Documentation supporting the expenses incurred and identified per this request are attached.

ELIGIBLE PROJECT EXPENSES INCURRED

Contractor	Expenses this Request	Expenses to Date
Total		

ALLOCATION OF FUNDING FOR EXPENSES

Funding Source	Portion of Expenses this Request	Portion of Expenses Total to Date
Totals		

The Governmental Agency certifies it has also paid Project expenses for planning and design or has submitted requisitions to the applicable funding sources for Project expenses, which have not been identified in any previous Request or Payment, as follows:

Funding Source	Amount of Payment or Requisition	Date of Payment or Requisition

Respectfully submitted,

_____

Governmental Agency

By:_____

Title_____

CERTIFICATE OF CONSULTING ENGINEERS AS TO
PAYMENT REQUEST

The undersigned, a duly qualified and licensed Engineer hereby certifies that he or she represents the Governmental Agency submitting this request in connection with the "Eligible Project" and that all expenses represented in this request were duly incurred for the Construction of the "Project," that the Authority's funding share of these expenses is accurately represented and that such expenses have not been the subject of any request for disbursement previously submitted.

_____
Engineer/Architect

_____
Firm Name

EXHIBIT C

SCHEDULE OF SERVICE CHARGES

See Attached

SECTION II – RETAIL WATER RATES

Northern Kentucky Water District Service Area

1. Monthly Service Rate

First	1,500 cubic feet	$4.25 per 100 cubic feet
Next	163,500 cubic feet	$3.53 per 100 cubic feet
Over	165,000 cubic feet	$2.72 per 100 cubic feet

Customers in Subdistrict A *shall be assessed a monthly surcharge in the amount of	$8.17	(R)
Customers in Subdistrict B *shall be assessed a monthly surcharge in the amount of	$17.10	(I)
Customers in Subdistrict C *shall be assessed a monthly surcharge in the amount of	$17.82	(I)
Customers in Subdistrict D *shall be assessed a monthly surcharge in the amount of	$30.00	
Customers in Subdistrict E *shall be assessed a monthly surcharge in the amount of	$30.00	
Customers in Subdistrict F *shall be assessed a monthly surcharge in the amount of	$24.71	(R)
Customers in Subdistrict G *shall be assessed a monthly surcharge in the amount of	$28.01	(R)
Customers in Subdistrict H *shall be assessed a monthly surcharge in the amount of	$30.00	
Customers in Subdistrict I *shall be assessed a monthly surcharge in the amount of	$30.00	
Customers in Subdistrict K *shall be assessed a monthly surcharge in the amount of	$ 9.94	(R)
Customers in Subdistrict R *shall be assessed a monthly surcharge in the amount of	$19.91	(I)
Customers in Subdistrict RF *shall be assessed a monthly surcharge in the amount of	$23.77	
Customers in Subdistrict RL *shall be assessed a monthly surcharge in the amount of	$35.81	(R)

*Subdistrict charges are reviewed annually.
*Detailed street listing within each Subdistrict can be found under Appendix A.
*Service connections on extensions or laterals from a subdistrict street will be assessed the appropriate Subdistrict charge.

2. Quarterly Rates

First	4,500 cubic feet	$4.25 per 100 cubic feet
Next	490,500 cubic feet	$3.53 per 100 cubic feet
Over	495,000 cubic feet	$2.72 per 100 cubic feet

DATE OF ISSUE 1-1-2014

DATE EFFECTIVE 01-01-2014

ISSUED BY _____

TITLE Vice-President - Finance

KENTUCKY
PUBLIC SERVICE COMMISSION

JEFF R. DEROUEN
EXECUTIVE DIRECTOR

TARIFF BRANCH

Brent Kirtley

EFFECTIVE

1/1/2014

PURSUANT TO 807 KAR 5:011 SECTION 9 (1)

SECTION II – RETAIL WATER RATES – Cont'd

3. Fixed Service Charge

Meter Size	Monthly Service Charge	Quarterly Charge
5/8"	$14.20	$28.40
¾"	$14.60	$29.90
1"	$16.00	$34.30
1 ½"	$18.00	$40.50
2"	$22.70	$56.90
3"	$54.90	$177.00
4"	$68.80	$221.80
6"	$101.90	$327.80
8"	$137.60	$447.90
10" and Larger	$183.00	$584.80

SECTION III – WHOLESALE WATER SALES

Bullock Pen Water District	$3.26 per 1,000 gallons (or) $2.44 per 100 cubic feet
City of Walton	$3.26 per 1,000 gallons (or) $2.44 per 100 cubic feet
Pendleton County	$3.26 per 1,000 gallons (or) $2.44 per 100 cubic feet

SECTION IV – MISCELLANEOUS SERVICE FEES

Returned Check Charge	$20.00
Water Hauling Station	$5.68 per 1,000 gallons
Service Charge	$25.00 (See Definitions in Section I-A)
Overtime Charge	$60.00 (To be applied to Customer account for Request for water turned On or Off outside the normally business hours.)

DATE OF ISSUE 1-1-2014

DATE EFFECTIVE 01-01-2014

ISSUED BY

TITLE Vice-President - Finance

KENTUCKY
PUBLIC SERVICE COMMISSION
JEFF R. DEROUEN
EXECUTIVE DIRECTOR
TARIFF BRANCH
Brent Kirtley
EFFECTIVE
1/1/2014
PURSUANT TO 807 KAR 5:011 SECTION 9 (1)

EXHIBIT D

RESOLUTION

RESOLUTION OF THE NORTHERN KENTUCKY WATER DISTRICT APPROVING AND AUTHORIZING AN ASSISTANCE AGREEMENT DATED AS OF AUGUST 1, 2014 BETWEEN THE NORTHERN KENTUCKY WATER DISTRICT AND THE KENTUCKY INFRASTRUCTURE AUTHORITY.

WHEREAS, the Board of Commissioners ("Governing Authority") of the Northern Kentucky Water District ("Governmental Agency") has previously determined that it is in the public interest to acquire and construct certain facilities and improvements to the Governmental Agency's Water System (the "Project") and

WHEREAS, the Governmental Agency has made application to the Kentucky Infrastructure Authority (the "Authority") for the purpose of providing monies to acquire and construct the Project; and

WHEREAS, in order to obtain such monies, the Governmental Agency is required to enter into an assistance agreement dated as of August 1, 2014 (the "Assistance Agreement") with the Authority.

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners of the Northern Kentucky Water District, as follows:

SECTION 1. That the Governing Authority hereby approves and authorizes the Assistance Agreement between the Governmental Agency and the Authority substantially in the form on file with the Governmental Agency for the purpose of providing the necessary financing to the Governmental Agency for the acquisition and construction of the Project.

SECTION 2. That the President and Secretary of the Governmental Agency be and hereby are authorized, directed and empowered to execute necessary documents or agreements, and to otherwise act on behalf of the Governmental Agency to effect such financing.

SECTION 3. That this resolution shall take effect at the earliest time provided by law.

ADOPTED on _____, 2014.

_____
President

Attest:

_____
Title: Secretary

CERTIFICATE

I, the undersigned, hereby certify that I am the duly qualified and acting Secretary of the Northern Kentucky Water District; that the foregoing is a full, true and correct copy of a Resolution adopted by the Board of Commissioners of said District at a meeting duly held on _____, 2014; that said official action appears as a matter of public record in the official records or journal of the governing authority; that said meeting was held in accordance with all applicable requirements of Kentucky law, including KRS 61.810, 61.815, 61.820 and 61.823; that a quorum was present at said meeting; that said official action has not been modified, amended, revoked or repealed and is now in full force and effect.

IN TESTIMONY WHEREOF, witness my signature this ____ day of _____, 2014.

_____
Secretary

EXHIBIT E

OPINION OF COUNSEL

[Letterhead of Counsel to Governmental Agency]

[Date]

Kentucky Infrastructure Authority
1024 Capital Center Drive
Suite 340
Frankfort, Kentucky 40601

RE: Assistance Agreement by and between Kentucky Infrastructure Authority and Northern Kentucky Water District, dated as of August 1, 2014

Ladies and Gentlemen:

The undersigned is an attorney at law duly admitted to the practice of law in the Commonwealth of Kentucky and is legal counsel to the Northern Kentucky Water District, hereinafter referred to as the "Governmental Agency". I am familiar with the organization and existence of the Governmental Agency and the laws of the Commonwealth applicable thereto. Additionally I am familiar with the drinking water supply project (the "Project") with respect to which the Assistance Agreement by and between the Kentucky Infrastructure Authority ("Authority") and the Governmental Agency is being authorized, executed and delivered.

I have reviewed the form of Assistance Agreement by and between the Authority and the Governmental Agency, the resolution or ordinance of the governing authority authorizing the execution and delivery of said Assistance Agreement.

Based upon my review I am of the opinion that:

1) The Governmental Agency is a duly organized and existing political subdivision or body politic of the Commonwealth of Kentucky validly existing under the Constitution and statutes of the Commonwealth of Kentucky.

2) The Assistance Agreement has been duly executed and delivered by the Governmental Agency and is a valid and binding obligation of the Governmental Agency enforceable in accordance with its terms, except to the extent that the enforceability thereof may be limited by equitable principles and by bankruptcy, reorganization, moratorium, insolvency or similar laws heretofore or hereafter enacted relating to or affecting the enforcement of creditors' rights or remedies generally.

3) The Governmental Agency has all necessary power and authority (i) to enter into, perform and consummate all transactions contemplated by the Assistance Agreement, and (ii) to execute and deliver the documents and instruments to be executed and delivered by it in connection with the construction of the Project.

4) The Service Charges, as defined in the Assistance Agreement, are in full force and effect and have been duly and lawfully adopted by the Governmental Agency.

5) The execution and delivery of the Assistance Agreement and the performance by the Governmental Agency of its obligations thereunder does not and will not conflict with, violate or constitute a default under any court or administrative order, decree or ruling, or any law, statute, ordinance or regulation, or any agreement, indenture, mortgage, lease, note or other obligation or instrument, binding upon the Governmental Agency, or any of its properties or assets. The Governmental Agency has obtained each and every authorization, consent, permit, approval or license of, or filing or registration with, any court or governmental department, commission, board, bureau, agency or instrumentality, or any specifically granted exemption from any of the foregoing, that is necessary to the valid execution, delivery or performance by the Governmental Agency of the Assistance Agreement and the imposition of the Service Charges.

6) To the best of my knowledge after due inquiry there is no action, suit, proceedings or investigation at law or in equity before any court, public board or body pending or threatened against, affecting or questioning (i) the valid existence of the Governmental Agency, (ii) the right or title of the members and officers of the Governmental Agency to their respective positions, (iii) the authorization, execution, delivery or enforceability of the Assistance Agreement or the application of any monies or security therefor, (iv) the construction of the Project, (v) the validity or enforceability of the Service Charges or (vi) that would have a material adverse impact on the ability of the Governmental Agency to perform its obligations under the Assistance Agreement.

7) None of the proceedings or authority heretofore had or taken by the Governmental Agency for the authorization, execution or delivery of the Assistance Agreement has or have been repealed, rescinded, or revoked.

8) To the best of my knowledge, the Governmental Agency has fully complied with all federal and state labor and procurement laws in connection with the construction of the Project.

9) All proceedings and actions of the Governmental Agency with respect to which the Assistance Agreement is to be delivered were had or taken at meetings properly convened and held in substantial compliance with the applicable provisions of Sections 61.805 to 61.850 of the Kentucky Revised Statutes.

Very truly yours,

EXHIBIT F

TO ASSISTANCE AGREEMENT BETWEEN
NORTHERN KENTUCKY WATER DISTRICT
("GOVERNMENTAL AGENCY") AND
THE KENTUCKY INFRASTRUCTURE AUTHORITY

Total Loan to be Repaid by
Governmental Agency to
Kentucky Infrastructure Authority $_____

Principal and Interest Payable
on Each June 1 and December 1

It is understood and agreed by the parties to this Assistance Agreement that this Exhibit F is an integral part of the Assistance Agreement between the Governmental Agency and the Kentucky Infrastructure Authority.

IN WITNESS WHEREOF, the parties have caused this Exhibit F to Assistance Agreement to be executed by their respective duly authorized officers as of the date of said Assistance Agreement.

KENTUCKY INFRASTRUCTURE AUTHORITY

By:_____

Title:_____

NORTHERN KENTUCKY WATER DISTRICT,
Governmental Agency

By:_____

Title:_____

ATTEST:

_____

Title:_____

EXHIBIT G

ADDITIONAL COVENANTS AND AGREEMENTS

1) The Authority to Award (bid) package, including the Disadvantaged Business Enterprise (DBE) reviews, must be approved by DOW prior to all contracts being awarded. Contracts 1 and 3 have already received the Authority to Award package from DOW. DOW must conduct a preconstruction and project management conference for all contracts.

2) All easements or purchases of land shall be completed prior to commencement of construction. Certification of all land or easement acquisitions shall be provided to the Division of Water. The certification of all land or easement acquisitions has already been provided for Contract 1 and 3.

3) No construction funds for projects will be reimbursed to the Governmental Agency until KIA receives from DOW a certification letter that states that a Project has been bid and meets all SRF requirements.

4) Construction costs will be reimbursed monthly to the Governmental Agency upon presentation to KIA and DOW of invoices and supporting documentation showing costs incurred.

EXHIBIT E-3

NOTICE TO STATE LOCAL DEBT OFFICER

July 22, 2022

Commissioner and State Local Debt Officer
1024 Capital Center Drive, Suite 340
Frankfort, Kentucky 40601

RE: ***Northern Kentucky Water District, PSC Case No. 2022-00209***
Notice of Intent to Issue Securities

Dear Commissioner:

Pursuant to the regulations of the Kentucky Public Service Commission, specifically 807 KAR 5:001 (18)(1)(g), be advised that the Northern Kentucky Water District ("District") notifies the State Local Debt Officer that the District intends on drawing an additional funds from $3,477,000.01 from a previously issued and drawn from KIA Loan F13-012.

We will file the appropriate documents with your office in accordance with the requirements of KRS 65.117 once the securities are issued.

Please feel free to email or call if any questions.

Respectfully,

Lindsey Rechtin
Incoming President/CEO
VP of Finance and Support Services
Northern Kentucky Water District
2835 Crescent Springs Rd.
P.O. Box 18640
Erlanger, KY 41018
P: 859-426-2758 I F: 859-442-0665

EXHIBIT F

FINANCIAL STATEMENTS

Northern Kentucky Water District
Statement of Net Position
April 30, 2022

Assets and Deferred Outflows of Resources		
Current Assets		
Cash and Cash Equivalents	$	44,595,384
Investments		3,945,452
Accounts Receivable		
Customers, Net		4,966,173
Unbilled Customers		9,100,000
Other		101,334
Assessments Receivable		174,942
Inventory Supplies for New Installation		
and Maintenance, at Cost		2,385,642
Prepaid Items		1,626,514
Restricted Assets - Cash and Cash Equivalents		
Bond Proceeds Fund		25,122
Debt Service Account		1,492,859
Improvement, Repair & Replacement		1,458,814
Total Current Assets		69,872,236
Noncurrent Assets		
Restricted Assets - Cash and Cash Equivalents		
Bond Proceeds Fund		14,960,328
Debt Service Account		11,447,245
Improvement, Repair & Replacement		7,346,612
Restricted Assets - Investments		
Bond Proceeds Fund		
Debt Service Reserve Account		17,390,082
Miscellaneous Deferred Charges		4,061,359
Capital assets		
Land, System, Buildings and Equipment		527,376,245
Construction in Progress		18,297,309
Total Capital Assets		545,673,554
Less Accumulated Depreciation		200,977,524
Total Capital Assets, Net of Accumulated Depreciation		344,696,030
Total Noncurrent Assets		399,901,656
Total Assets		469,773,892
Deferred Outflows of Resources		
Deferred Outflows Related to Pension		2,553,369
Deferred Outflows Related to Other Postemployment Benefits		3,519,560
Deferred Loss on Refundings		2,542,302
Total Deferred Outflows of Resources		8,615,231
Total Assets and Deferred Outflows of Resources	$	478,389,123

Northern Kentucky Water District
Statement of Net Position
April 30, 2022

Liabilities and Deferred Inflows of Resources		
Current Liabilities		
Bond Indebtedness	$	12,996,773
Notes Payable		1,751,438
Accounts Payable		388,712
Accrued Payroll & Taxes		534,256
Compensated Absences		324,632
Arbitrage Liability		5,596
Other Accrued Liabilities		325,416
Liabilities Payable - Restricted Assets		
Accrued Interest Payable		1,492,859
Accounts Payable		1,483,938
Total Current Liabilities		19,303,620
Long-Term Liabilities (Net of Current Portion)		
Liabilities Payable - Restricted Assets		
Accounts Payable		678,054
Compensated Absences		1,327,726
Arbitrage Liability		15,850
Bond Indebtedness		121,122,083
Bond Anticipation Notes Payable		24,685,000
Notes Payable		28,571,119
Net Pension Liability		22,419,617
Net Other Postemployment Benefits Liability		6,730,325
Total Long-Term Liabilities		205,549,774
Total Liabilities		224,853,394
Deferred Inflows of Resources		
Deferred Inflows Related to Pension		3,205,757
Deferred Inflows Related to Other Postemployment Benefits		3,132,278
Deferred Gain on Refunding		2,635,668
Total Deferred Inflows of Resources		8,973,703
Total Liabilities and Deferred Inflows of Resources		233,827,097
Net Position		
Net Investment in Capital Assets		155,476,251
Restricted For		
Debt Service Funds		28,837,327
Capital Improvement Projects		21,628,885
Unrestricted		38,619,563
Total Net Position		244,562,026
Total Liabilities, Deferred Inflows of Resources, and Net Position	$	478,389,123

Northern Kentucky Water District
Statement of Revenues, Expenses and Changes in Net Position
April 30, 2022

Operating Revenues		
Water Sales		18,181,757
Forfeited Discounts		323,006
Rents from Water Property		134,537
Other Water Revenues		60,273
Total Operating Revenues		18,699,573
Operating Expenses		
Operating & Maintenance Expenses		
Salaries & Wages		3,236,882
Employee Pension & Benefits		1,997,153
Taxes Other than Income Taxes		238,571
Purchased Power		1,150,598
Chemicals		956,518
Materials & Supplies		682,630
Contractual Services		1,235,036
Transportation		242,246
Insurance		236,819
Bad Debt Expense		75,339
Miscellaneous		86,517
Regulatory Commission Assessment		48,584
Total Operating & Maintenance Expenses		10,186,893
Depreciation Expense		4,107,040
Total Operating Expenses		14,293,933
Net Operating Income		4,405,640
Non-Operating Income (Expense)		
Investment Income		173,149
Miscellaneous Non-Operating Income		89
Loss on Abandonment of Mains		-
Interest on Long-Term Debt		(1,281,470)
Amortization of Debt Premiums and Bond Issuance Costs		515,909
Bond Issuance Costs		-
Pension Expense		-
Other Postemployment Benefit Expense		-
Arbitrage Rebate		-
Gain on Sale of Capital Assets		-
Total Non-Operating Expenses		(592,323)
Change in Net Position Before Capital Contributions		3,813,317
Capital Contributions		263,622
Change in Net Position		4,076,939
Net Position - January 1, 2022		240,485,087
Net Position - April 30, 2022	$	244,562,026

Northern Kentucky Water District

EXHIBIT G

SUMMARY OF KIA LOAN F13-012

EXHIBIT G - SUMMARY OF KIA LOAN F13-012

On or about May 2, 2013, the Board of Directors of the Kentucky Infrastructure Authority ("KIA") authorized a loan of $4,000,000 to NKWD ("KIA Loan F13-012") to finance a portion of the cost of (1) a raw water main extension at NKWD's Fort Thomas Water Treatment Plant; (2) improvements to NKWD's Taylor Mill Water Treatment Plant; and (3) a 36-inch water main crossing the Licking River.

Case No. 2014-00100
CPCN and Financing for Raw Water Main Extension

On March 31, 2014, NKWD applied in Case No. 2014-00100 for a Certificate of Public Convenience and Necessity ("CPCN") to construct the Fort Thomas Treatment Plant raw water main extension and for authorization to enter an Assistance Agreement with KIA to borrow $4,000,000. NKWD estimated the total cost of the proposed project as $1,424,000 and proposed to use $928,000 of the proceeds from KIA Loan F13-012 for the project. It proposed to use $496,000 from internally generated funds to finance the remaining project costs.

On May 1, 2014, the Commission issued a CPCN to NKWD to construct the proposed raw water main extension. In the same order, the Commission authorized NKWD to enter an Assistance Agreement with KIA to borrow an amount not to exceed $4,000,000. Although the Commission placed no limit on the amount of the proceeds that could be used on raw water main project, it prohibited the use of any of the F13-012 loan proceeds for either of other two projects until a CPCN had been issue for the project.

The Fort Thomas Water Treatment Plant raw water main extension was completed by August 27, 2015 at a total cost of $1,157,522.06, of which $927,999.99 was from the proceeds of KIA Loan F13-012.

Case No. 2014-00151
CPCN and Financing for Taylor Mill Treatment Plant Improvements

On May 1, 2014, NKWD applied in Case No. 2014-00151 for a CPCN to construct electrical and basin improvements to its Taylor Mill Water Treatment Plant at an estimated cost of approximately $4,000,000, and authorization to use $1,000,000 of proceeds from KIA Loan F13-012 for the project. The remaining project costs were to be funded with, $2,483,000 from the operational capital budget and $517,000 of proceeds from Bond Anticipation Note 2011.

On June 16, 2014, the Commission issued a CPCN for the proposed improvements to the Taylor Mill Water Treatment Plant and authorizing authorized the use of $1,000,000 of the proceeds from KIA Loan F13-012 for the proposed improvements. In its Order, the Commission prohibited the use of any loan proceeds for the Licking River water main crossing under NKWD had obtained a CPCN for that project.

The improvements to the Taylor Mill Water Treatment Plant were completed by April 15, 2016 at a total cost of $3,903,500.50 of which $3,595,000 was from the proceeds from KIA Loan F13-012.

Amendment to F13-012 Loan

On June 26, 2014, KIA Board of Directors approved an increase in the amount of KIA Loan F13-012 from $4,000,000 to $8,000,000. NKWD had requested the additional amount because of increased project costs to the Taylor Mill Treatment Plant ($2,100,000) and the Licking River Crossing ($1,500,000). Based on the records available, it appears the increased cost of the Taylor Mill Water Treatment Plant improvements project was reflected in NKWD's application in Case No. 2014-00151 but were expected to be financed with internally generated funds as KIA had not approved an increased in the loan amount when NKWD submitted its application.

On July 14, 2014, KIA issued a conditional commitment letter to NKWD for the amended loan amount of $8,000,000. NKWD's then-Vice President of Finance signed this letter on August 1, 2014, acknowledging and accepting KIA's commitment of funds.

On August 21, 2014, NKWD's Board of Commissioners authorized NKWD's execution of an Assistance Agreement for KIA Loan F13-012 at the increased amount. A copy of that Agreement is included in the Application as Exhibit E-2.

NKWD did not apply to the Commission for authorization to execute an Assistance Agreement reflecting the increased loan amount.[1] NKWD has made five draws on KIA Loan F13-012 in the total amount of $4,522,999.99 to complete the Fort Thomas Treatment Plant raw water main and the Taylor Mill Water Treatment Plant improvements. The last of these draws occurred on August 8, 2016. A summary of the draw requests and draw forms are included herein.

[1] See Case No. 2005-00058, *Kentucky Infrastructure Authority's Joint Application on Behalf of Certain Water Districts for Authority to Borrow Funds to Refinance Certain Indebtedness to the Kentucky Infrastructure Authority*, Order at 4 ("KRS 278.300 makes no provision for the Commission to retroactively approve a utility's issuance of evidences of indebtedness. Moreover, to engage in such practice would encourage utilities to enter into unauthorized transactions without obtaining the necessary regulatory approval and then present the transaction to the Commission as a fait accompli. . . . For these reasons, the Commission has historically refused to retroactively approve a utility's issuance of evidences of indebtedness.").

Case No. 2022-00209
CPCN and Financing for 36-inch Licking River Crossing Project

On July 12, 2022, in the preparation of NKWD's application for a CPCN to construct the 36-inch Licking River Crossing and for authorization to use the remaining proceeds of KIA Loan F13-012 for the cost of the proposed construction, current NKWD officials discover the aforementioned discrepancies between the approvals in Case Nos. 2014-00100 and 2014-00151, the signed loan amount ($8,000,000 versus approved $4,000,000), and funds drawn to date of $4,523,000. NKWD has not concealed or hid its actions regarding KIA Loan F13-012. Since the execution of the Assistance Agreement for KIA Loan F13-012 and last draw in August 2016, NKWD has made numerous filings with the Commission detailing the amount drawn on the loan including a 2018 rate case.[2] In each of its annual audits filed with the Commission, it has accurately reported the amount of draws upon the loan.[3] It has also accurately reported the principal amount of KIA Loan F13-12 in the annual financial and statistical reports that it has submitted to the Commission pursuant to 807 KAR 5:006, Section 4(2).[4]

[2] Case No. 2021-00373, *Electronic Application of Northern Kentucky Water District for Approval of Refinance Bonds*, Application at Exhibit 4; Case No. 2021-00095, *Electronic Application of Northern Kentucky Water District for a Certificate of Public Convenience and Necessity to Replace its Existing Automated Meter Reading ("AMR") Meters with Advanced Metering Infrastructure ("AMI") and Issuance of a Bond Anticipation Note*, Application at Exhibit E; Case No. 2020-00284, *Electronic Application of Northern Kentucky Water District for Approval of Refinancing Outstanding Bonds*, Application at Exhibit 4; Case No. 2018-00431, *Electronic Application of Northern Kentucky Water District for a Certificate of Convenience and Necessity for Olive/Cox Road Water Main Replacement Project*, Application at Exhibit E. Case No. 2017-00265, *Electronic Application of Northern Kentucky Water District for Approval of Madison Pike 24-Inch Hydraulic Redundancy Project (Phase 2) and for Issuance of a Certificate of Convenience and Necessity*, Application at Exhibit E (noting F13-012 Loan amount $1 less at $4,522,999);, Case No. 2018-00291, *Application for Rate Adjustment*, Application Exhibits A, C, and J, and Responses to Second Data Requests (Debt Service Spreadsheet).

[3] 2014 Annual Audit, page 43 (April 20, 2015) (expenditure as of December 31, 2014 for the F13-012 Loan at $1,822,190); 2015 Annual Audit, page 30 (May 20, 2016) (additions to long term debt as of December 31, 2015 for the F13-012 Loan at $4,176,704); 2016 Annual Audit, page 28 (marked 23) (June 29, 2017) (listing the F13-012 Loan and stating that $4,523,000 has been received while imprecisely stating the "full amount of allow funds is $4,000,000); 2017 Annual Audit, page 31 (marked 26) (June 28, 2018) (listing the F13-012 Loan and stating that $4,523,000 has been received and the full amount of allowable funds is $8,000,000) 2018 Annual Audit, page 28 (marked 24) (July 2, 2019) (listing the F13-012 Loan and stating that $4,523,000 has been received and the full amount of allowable funds is $8,000,000); 2019 Annual Audit, page 30 (marked 26) (June 27, 2020) listing the F13-012 Loan and stating that $4,523,000 has been received and the full amount of allowable funds is $8,000,000); 2020 Annual Audit, page 32 (marked 28) (May 27, 2021) (listing the F13-012 Loan and stating that $4,523,000 has been received and the full amount of allowable funds is $8,000,000).

[4] 2015 Annual Report, page 46 (principal drawn for the F13-012 Loan as $4,176,703); 2016 Annual Report, page 43 (F13-012 Loan as $4,523,000); 2017 Annual Report, page 42 (F13-012 Loan as $4,523,000); 2018 Annual Report, page 43 (F13-012 Loan as $4,523,000); 2019 Annual Report, page 43 (F13-012 Loan as $4,523,000); 2020 Annual Report, page 43 (F13-012 Loan as $4,523,000); 2021 Annual Report, page 46 (F13-012 Loan as $4,523,000)

NKWD's submits that these actions were not willful but inadvertent and unintentional.[5] To the extent that the Commission will permit, NKWD will seek Commission authorization to use the remaining proceeds of KIA Loan F13-012 for the construction of 36-inch Licking River Crossing. It will not expend any of the remaining loan proceeds until it has obtained a CPCN for the 36-inch Licking River Crossing and either Commission authorization for such use of the loan proceeds or a Commission Order disclaiming authority to address NKWD's request for authorization.

A summary of the draw requests and draw forms follows.

[5]Commission records reflect that during the period in which the Assistance Agreement was executed and implemented, NKWD was experiencing problems ensuring compliance with applicable statutory and regulatory requirements regarding KIA assistance agreements. Specifically, in Case No. 2018-00316, *Electronic Application of Northern Kentucky Water District for Approval of Financing and Issuance of a Certificate of Convenience and Necessity*, a different assistance agreement between KIA and NKWD had been prematurely executed before its submission to the Commission. NKWD and KIA explained that execution occurred as a result of "staff turnover in both organizations, confusion at the time over certification and financing requirements of the Commission and a concern about the potential risk of loan recission." *Id.*, Order at 2-3. Noting that NKWD had taken steps to prevent any draws on the prematurely executed loan and had implemented steps to prevent future recurrences, the Commission did not impose any regulatory sanctions. The incident at issue in Case No. 2018-00316 occurred **after the execution of KIA Loan F-13-012.** Actions taken since that time such as hiring Manager of Legal, Compliance, and Regulatory Affairs to oversee compliance with KRS Chapter 278 and Commission regulations to ensure that similar incidents will not occur in the future.

Northern Kentucky Water District
KIA F13-012 Detail - 66.468
December 31, 2021

Projects Related to Loan:

Account Number	Project Status	Project Name
184-0470-000	Closed	R&R/FTTP Raw Water Line Part 1 & 2
184-0476-000	Closed	TMTP Electrical & Basin Improvements
184-0749-000	Ongoing	36" Licking River Crossing Wilder

Draw Request Numbe	Year Funds Spent	Date Funds Requested	Expenses Per Request	Vendor	Project No.	Project Name
1	2014	8/12/2014	314,896.93	Welsh Excavation	184-0470-000	R&R/FTTP Raw Water Line Part 1 & 2
1	2014	8/12/2014	186,122.92	Welsh Excavation	184-0470-000	R&R/FTTP Raw Water Line Part 1 & 2
1	2014	8/12/2014	134,260.70	Welsh Excavation	184-0470-000	R&R/FTTP Raw Water Line Part 1 & 2
1	2014	8/12/2014	109,604.65	Welsh Excavation	184-0470-000	R&R/FTTP Raw Water Line Part 1 & 2
1	2014	8/12/2014	130,371.30	Welsh Excavation	184-0470-000	R&R/FTTP Raw Water Line Part 1 & 2
1	2014	8/12/2014	695,049.98	Building Crafts	184-0476-000	TMTP Electrical & Basin Improvements
		Sub-Total Draw Request 1	1,570,306.48			
2	2014	8/17/2015	63,783.25	Welsh Excavation	184-0470-000	R&R/FTTP Faw Water Line Part 1 & 2
2	2014	8/17/2015	188,100.00	Building Crafts	184-0476-000	TMTP Electrical & Basin Improvements
2	2015	8/17/2015	784,874.70	Building Crafts	184-0476-000	TMTP Electrical & Basin Improvements
		Sub-Total Draw Request 2	1,036,757.95			
3	2015	9/21/2015	(11,039.76)	Welsh Excavation	184-0470-000	R&R/FTTP Faw Water Line Part 1 & 2
3	2015	9/21/2015	222,235.20	Building Crafts	184-0476-000	TMTP Electrical & Basin Improvements
3	2015	9/21/2015	529,810.20	Building Crafts	184-0476-000	TMTP Electrical & Basin Improvements
3	2015	9/21/2015	602,299.80	Building Crafts	184-0476-000	TMTP Electrical & Basin Improvements
3	2015	9/21/2015	226,334.43	Building Crafts	184-0476-000	TMTP Electrical & Basin Improvements
		Sub-Total Draw Request 3	1,569,639.87			
4	2015	3/7/2016	75,217.44	Building Crafts	184-0476-000	TMTP Electrical & Basin Improvements
4	2015	3/7/2016	76,078.25	Building Crafts	184-0476-000	TMTP Electrical & Basin Improvements
		Sub-Total Draw Request 4	151,295.69			
5	2015	8/8/2016	143,990.00	Building Crafts	184-0476-000	TMTP Electrical & Basin Improvements
5	2016	8/8/2016	51,010.00	Building Crafts	184-0476-000	TMTP Electrical & Basin Improvements
		Sub-Total Draw Request 5	195,000.00			
		Total KIA Funds Drawn at 12/31/2016	4,522,999.99			

TOTAL PROJECT	927,999.99	184-0470-000	R&R/FTTP Faw Water Line Part 1 & 2
TOTAL PROJECT	3,595,000.00	184-0476-000	TMTP Electrical & Basin Improvements
	4,522,999.99		

Northern Kentucky
Water District

December 22, 2014

Brandi Armstrong
Financial Analyst
Kentucky Infrastructure Authority
1024 Capital Center Drive, Suite 340
Frankfort, Kentucky 40601

Subject: Fund F13-012

Dear Ms. Armstrong:

Please find enclosed Request No. 1 for the Northern Kentucky Water District Kenton and Campbell County Water Main Projects in the amount of $1,570,306.49 for SRF F13-012, Contract 1 - 36" Raw Water Main Replacement and Contract 3 - Taylor Mill Treatment Plant Electrical and Basin Improvements. Contract 2 is still waiting to advertise for bids pending scheduled CSX review in January 2015 and hopefully approval from CSX for the railroad crossing permit.

Attached to the request form are payment requests Nos. 1 through No. 5 from Welsh Excavation and payment requests No. 1 from Building Crafts, Inc. along with supporting documentation and DBE forms.

If you have any questions, please do not hesitate to call me at (859) 426-2734.

Sincerely,

Amy Kramer

Amy Kramer, P.E.
Engineering & Distribution Manager

akk

cc: Cathy Arnett

FUND F

EXHIBIT B

REQUEST FOR PAYMENT WITH RESPECT TO
ASSISTANCE AGREEMENT DATED AUGUST 1, 2014

Request No. 1 Dated December 17, 2014

Original to: Kentucky Infrastructure Authority
1024 Capital Center Drive, Suite 340
Frankfort, Kentucky 40601

Copy to: Division of Water
Resource Planning and Program Support Branch
200 Fair Oaks Lane
Fourth Floor
Frankfort, Kentucky 40601
ATTN: Cathy Arnett

From: Northern Kentucky Water District ("Governmental Agency")

Ladies and Gentlemen:

The above-identified Governmental Agency has entered into an Assistance Agreement with the Kentucky Infrastructure Authority (the "Authority") for the acquisition, planning, design, and construction of facilities described in the Assistance Agreement as the "Project."

Pursuant to the Assistance Agreement, we here by certify that we have incurred the following expenses in connection with the Project and that the Authority's funding share of these expenses is in the amount so denoted in this request totaling $1,570,306.49.

Documentation supporting the expenses incurred and identified per this request is attached.

ELIGIBLE PROJECT EXPENSES INCURRED

Contractor	Expenses This Request	Expenses To Date
Welsh Excavation - Payment Request #1	$314,896.94	
Welsh Excavation - Payment Request #2	$186,122.92	
Welsh Excavation - Payment Request #3	$134,260.70	
Welsh Excavation - Payment Request #4	$109,604.65	
Welsh Excavation - Payment Request #5	$130,371.30	
Building Crafts, Inc.- Payment Request #1	$695,049.98	
TOTAL	$1,570,306.49	$1,570,306.49

ALLOCATION OF FUNDING FOR EXPENSES

Funding Source	Portion of Expenses This Request	Portion of Expenses Total to Date
Fund F Project 13-012	$1,570,306.49	$1,570,306.49
Local Funds	$ 338,826.55	$ 338,826.55
Totals	$1,909,133.04	$1,909,133.04

The Governmental Agency certifies it has also paid Project expenses or has submitted requisitions to the applicable funding sources for Project expenses, which have not been identified in any previous Request for Payment, as follows:

Funding Source	Amount of Payment or Requisition	Date of Payment or Requisition

Respectfully submitted,

Northern Kentucky Water District
Governmental Agency

By _____
Richard Harrison
Title V. P., Engineering, Production & Distribution

CERTIFICATE OF CONSULTING ENGINEERS
AS TO
PAYMENT REQUEST

The undersigned, a duly qualified and licensed Engineer hereby certifies that he or she represents the Governmental Agency submitting this SRF Fund F request dated August 1, 2014 in connection with the "Eligible Project" and that all expenses represented in this request were duly incurred for the "Project," that the Authority's funding share of these expenses is accurately represented and that such expenses have not been the subject of any request for disbursement previously submitted.

Engineer/Consultant

Burgess & Niple
Firm Name

CERTIFICATE OF CONSULTING ENGINEERS
AS TO
PAYMENT REQUEST

The undersigned, a duly qualified and licensed Engineer hereby certifies that he or she represents the Governmental Agency submitting this SRF Fund F request dated August 1, 2014 in connection with the "Eligible Project" and that all expenses represented in this request were duly incurred for the "Project," that the Authority's funding share of these expenses is accurately represented and that such expenses have not been the subject of any request for disbursement previously submitted.

Engineer/Consultant

ARCADIS U.S., Inc
Firm Name

Northern Kentucky
Water District

March 17, 2015

Brandi Armstrong
Financial Analyst
Kentucky Infrastructure Authority
1024 Capital Center Drive, Suite 340
Frankfort, Kentucky 40601

Subject: Fund F13-012

Dear Ms. Armstrong:

Please find enclosed Request No. 2 for the Northern Kentucky Water District Kenton and Campbell County Water Main Projects in the amount of $1,036,757.95 for SRF F13-012, Contract 1 - 36" Raw Water Main Replacement and Contract 3 - Taylor Mill Treatment Plant Electrical and Basin Improvements. Contract 2 is still waiting to advertise for bids pending scheduled CSX railroad crossing permit review that is underway.

Attached to the request form are payment requests No. 6 from Welsh Excavation and payment requests No. 2 and 3 from Building Crafts, Inc. along with supporting documentation and DBE forms.

If you have any questions, please do not hesitate to call me at (859) 426-2734.

Sincerely,

Amy Kramer, P.E.
Engineering & Distribution Manager

akk

cc: Cathy Arnett

FUND F

EXHIBIT B

REQUEST FOR PAYMENT WITH RESPECT TO
ASSISTANCE AGREEMENT DATED AUGUST 1, 2014

Request No. 2 Dated February 20, 2015

Original to: Kentucky Infrastructure Authority
1024 Capital Center Drive, Suite 340
Frankfort, Kentucky 40601

Copy to: Division of Water
Resource Planning and Program Support Branch
200 Fair Oaks Lane
Fourth Floor
Frankfort, Kentucky 40601
ATTN: Cathy Arnett

From: Northern Kentucky Water District ("Governmental Agency")

Ladies and Gentlemen:

The above-identified Governmental Agency has entered into an Assistance Agreement with the Kentucky Infrastructure Authority (the "Authority") for the acquisition, planning, design, and construction of facilities described in the Assistance Agreement as the "Project."

Pursuant to the Assistance Agreement, we here by certify that we have incurred the following expenses in connection with the Project and that the Authority's funding share of these expenses is in the amount so denoted in this request totaling $1,036,757.95.

Documentation supporting the expenses incurred and identified per this request is attached.

ELIGIBLE PROJECT EXPENSES INCURRED

Contractor	Expenses This Request	Expenses To Date
Welsh Excavation - Payment Request #6	$ 63,783.25	
Building Crafts, Inc.- Payment Request #2	$188,100.00	
Building Crafts, Inc. – Payment Request #3	$784,874.70	
TOTAL	$1,036,757.95	$3,643,822.39

ALLOCATION OF FUNDING FOR EXPENSES

Funding Source	Portion of Expenses This Request	Portion of Expenses Total to Date
Fund F Project 13-012	$ 1,036,757.95	$3,643,822.39
Local Funds	$ 15,460.87	$ 354,287.42
Totals	$ 1,052,218.82	$3,998,109.81

The Governmental Agency certifies it has also paid Project expenses or has submitted requisitions to the applicable funding sources for Project expenses, which have not been identified in any previous Request for Payment, as follows:

Funding Source	Amount of Payment or Requisition	Date of Payment or Requisition

Respectfully submitted,

Northern Kentucky Water District
Governmental Agency

By _____
Richard Harrison
Title V. P., Engineering, Production & Distribution

CERTIFICATE OF CONSULTING ENGINEERS
AS TO
PAYMENT REQUEST

The undersigned, a duly qualified and licensed Engineer hereby certifies that he or she represents the Governmental Agency submitting this SRF Fund F request dated August 1, 2014 in connection with the "Eligible Project" and that all expenses represented in this request were duly incurred for the "Project," that the Authority's funding share of these expenses is accurately represented and that such expenses have not been the subject of any request for disbursement previously submitted.

For Welsh Excavation - Payment Request #6 - $63,783.25.

Engineer/Consultant

Burgess & Niple
Firm Name

CERTIFICATE OF CONSULTING ENGINEERS
AS TO
PAYMENT REQUEST

The undersigned, a duly qualified and licensed Engineer hereby certifies that he or she represents the Governmental Agency submitting this SRF Fund F request dated August 1, 2014 in connection with the "Eligible Project" and that all expenses represented in this request were duly incurred for the "Project," that the Authority's funding share of these expenses is accurately represented and that such expenses have not been the subject of any request for disbursement previously submitted.

Engineer/Consultant

ARCADIS U.S., Inc
Firm Name

Interoffice Requisition/Receiving Report

White Receiving Copy
Yellow Retain for Dept. Files

VENDOR NUMBER:	NEW VENDOR	RECEIVING DATE:	1/12/2015
VENDOR NAME:	WELSH EXCAVATION	INVOICE #:	6
ADDRESS:	5780 S.R. 128	REQUESTED BY:	S. COOK
CITY STATE ZIP	CLEVES, OH 45002	DEPARTMENT	ENGINEERING

QUANTITY ORDERED	ITEM DESCRIPTION	ACCOUNT / JOB NUMBER	AMOUNT
	36" RAW WATER MAIN	184-470	
		Line 960	
	Retainage Being Paid	231-0005-000	$63,783.25
		TOTAL:	$63,783.25

CONFIRMATION (circle one) Yes No Order Complete (circle) Yes No

ORDER DATE: _____ RECEIVED BY: _____ APPROVED: Amy Frame

ENTERED

COPY

APPLICATION AND CERTIFICATE FOR PAYMENT

AIA DOCUMENT G702

TO (OWNER) :
Northern KY Water District
2835 Crescent Springs Road, P.O. Box 18640
Erlanger, KY 41018

FROM (CONTRACTOR) :
Welsh Excavation
5780 S.R. 128
Cleves, OH 45002

CONTRACT FOR :
Site Work

PROJECT NO:
PROJECT : 36" Raw Water Main

APPLICATION NO 6
PERIOD TO : 12/31/2014
CONTRACT NO : 184-0470
CONTRACT DATE : 5/16/2014 Job Invoice

Distribution to :
- _ OWNER
- _ ARCHITECT
- _ CONTRACTOR
- _ ENGINEER

CONTRACTOR'S APPLICATION FOR PAYMENT

CHANGE ORDER SUMMARY		ADDITIONS	DEDUCTIONS
Change Orders approved in previous months by Owner			
	TOTAL	$ 27,836.16	$ (5,309.73)
Approved this Month			
Number	Date Approved		
	TOTALS	$ 27,836.16	$ (5,309.73)
Net change by Change Orders		$ 22,526.43	

Application is made for Payment , as shown below, in connection with the Subcontract Documents.
Pay Request Continuation Sheet , AIA Document G703 , is attached hereto.

1. ORIGINAL CONTRACT SUM			$ 984,241.00
2. Net change by Change Orders			$ 22,526.43
3. CONTRACT SUM TO DATE (Line 1 ± 2)			$ 1,006,767.43
4. COMPLETED & STORED TO DATE			
a. Completed to Date	$ 968,082.23		
b. Materials Stored to Date	$ -		
TOTAL			$ 968,082.23
5. RETAINAGE			
a. 3% of Completed Work	$ 29,042.47		
b. 3% of Stored Material	$ -		
TOTAL			$ 29,042.47
6. TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)			$ 939,039.76
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)			$ 875,256.51
8. CURRENT PAYMENT DUE			$ 63,783.25
9. BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)			$ 67,727.67

okay to pay RTH 1/12/14

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that current payment shown herein is now due.

CONTRACTOR : Welsh Excavation

By : _____ Date : 1/6/2015
Jeffrey A. Van Fossen, President

State of : OHIO County of : HAMILTON
Subscribed and sworn to before me on
JANUARY 6, 2015

Notary Public : _____

My Commission expires : 4-13-15

NOTARIAL SEAL STATE OF OHIO

GREGORY P. BRICKING
NOTARY PUBLIC
STATE OF OHIO
Recorded in
Butler County
My Comm. Exp. 4/13/15

ENGINEER'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising the above application, the Contractor certifies to the Owner that to the best of the Contractor's knowledge, information and belief the Work has progressed as indicated, the quality of the work is in accordance with the Contract Documents,and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

ENGINEER :

By : _____ Date : _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable to the Subcontractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor or Subcontractor under this Contract.

OWNER:

Reviewed By: _____

Approved By: _____

Ft. THOMAS 36" RAW WATER - BILLING WORKSHEET

ITEM NO.	DESCRIPTION	BID QTY	UNIT	UNIT COST	BID TOTAL	QTY THIS APP.	QTY PREV. APP.	QTY TOTAL	COMPLETE THIS PERIOD	FROM PREVIOUS APP.	COMPLETE TO DATE	% COMP.	BALANCE TO FINISH	10% RETAIN.	TOTAL LESS RETAIN.
	WATER MAIN														
1	36" C-900 PVC	2,260	LF	168.00	379,680.00	0.0	2,278.0	2,278.0	0.00	382,704.00	382,704.00	100.8%	(3,024.00)	38,270.40	344,433.60
2	6" C-900 PVC	2,000	LF	42.00	84,000.00	0.0	2,005.0	2,005.0	0.00	84,210.00	84,210.00	100.3%	(210.00)	8,421.00	75,789.00
3	Connect to Existing Water Main / Tie-In 36"	1	EA	8,100.00	8,100.00	0.0	1.0	1.0	0.00	8,100.00	8,100.00	100.0%	0.00	810.00	7,290.00
4	Connect to Existing Water Main / Tie-In 42"	1	EA	9,000.00	9,000.00	0.0	1.0	1.0	0.00	9,000.00	9,000.00	100.0%	0.00	900.00	8,100.00
5	Connect to Existing Water Main / Tie-In 6"	5	EA	2,375.00	11,875.00	0.0	5.0	5.0	0.00	11,875.00	11,875.00	100.0%	0.00	1,187.50	10,687.50
6	Install Flush Hydrant Assembly	4	EA	6,075.00	24,300.00	0.0	4.0	4.0	0.00	24,300.00	24,300.00	100.0%	0.00	2,430.00	21,870.00
7	6" Gate Valve	10	EA	800.00	8,000.00	0.0	10.0	10.0	0.00	8,000.00	8,000.00	100.0%	0.00	800.00	7,200.00
8	36" Butterfly Valve	4	EA	11,000.00	44,000.00	0.0	4.0	4.0	0.00	44,000.00	44,000.00	100.0%	0.00	4,400.00	39,600.00
9	Concrete Anti-Seep Collar	3	EA	750.00	2,250.00	0.0	3.0	3.0	0.00	2,250.00	2,250.00	100.0%	0.00	225.00	2,025.00
10	4" Drain	1	EA	500.00	500.00	0.0	1.0	1.0	0.00	500.00	500.00	100.0%	0.00	50.00	450.00
11	6" Plug & Block (End Treatment)	1	EA	500.00	500.00	0.0	1.0	1.0	0.00	500.00	500.00	100.0%	0.00	50.00	450.00
12	Air Release Valve (ARV & Serv Line Mat.from NKWD)	2	EA	950.00	1,900.00	0.0	2.0	2.0	0.00	1,900.00	1,900.00	100.0%	0.00	190.00	1,710.00
13	6" x 6" x 6" Anchoring Tee & Block	5	EA	325.00	1,625.00	0.0	5.0	5.0	0.00	1,625.00	1,625.00	100.0%	0.00	162.50	1,462.50
14	36" Tee	2	EA	8,450.00	16,900.00	0.0	2.0	2.0	0.00	16,900.00	16,900.00	100.0%	0.00	1,690.00	15,210.00
15	6" Tee	3	EA	350.00	1,050.00	0.0	3.0	3.0	0.00	1,050.00	1,050.00	100.0%	0.00	105.00	945.00
16	6" 22 1/2	4	LF	250.00	1,000.00	0.0	2.0	2.0	0.00	500.00	500.00	50.0%	500.00	50.00	450.00
17	36" 11 1/4	4	LF	4,950.00	19,800.00	(2.0)	7.0	5.0	(9,900.00)	34,650.00	24,750.00	125.0%	(4,950.00)	2,475.00	22,275.00
18	36" 22 1/2	4	EA	5,050.00	20,200.00	0.0	6.0	6.0	0.00	30,300.00	30,300.00	150.0%	(10,100.00)	3,030.00	27,270.00
19	36" 45	10	EA	5,475.00	54,750.00	1.0	7.0	8.0	5,475.00	38,325.00	43,800.00	80.0%	10,950.00	4,380.00	39,420.00
20	36" 90	1	EA	16,500.00	16,500.00	0.0	1.0	1.0	0.00	16,500.00	16,500.00	100.0%	0.00	1,650.00	14,850.00
21	42" x 36" Red	1	EA	5,575.00	5,575.00	0.0	1.0	1.0	0.00	5,575.00	5,575.00	100.0%	0.00	557.50	5,017.50
22	Corrosion Test Stations	1	LS	9,500.00	9,500.00	0.0	1.0	1.0	0.00	9,500.00	9,500.00	100.0%	0.00	950.00	8,550.00
				Subtotal:	721,005.00				(4,425.00)	732,264.00	727,839.00	100.9%	(6,834.00)	72,783.90	655,055.10
	STORM SEWER														
23	12" Storm	92	LF	38.00	3,496.00	0.0	92.0	92.0	0.00	3,496.00	3,496.00	100.0%	0.00	349.60	3,146.40
24	18" Storm	208	LF	45.00	9,360.00	0.0	220.0	220.0	0.00	9,900.00	9,900.00	105.8%	(540.00)	990.00	8,910.00
25	24" Storm	600	LF	62.00	37,200.00	0.0	720.0	720.0	0.00	44,640.00	44,640.00	120.0%	(7,440.00)	4,464.00	40,176.00
26	30" Storm	220	LF	90.00	19,800.00	0.0	80.0	80.0	0.00	7,200.00	7,200.00	36.4%	12,600.00	720.00	6,480.00
27	CB - 2-2B	2	EA	1,500.00	3,000.00	0.0	2.0	2.0	0.00	3,000.00	3,000.00	100.0%	0.00	300.00	2,700.00
28	CB - 2-3	5	EA	2,300.00	11,500.00	0.0	5.0	5.0	0.00	11,500.00	11,500.00	100.0%	0.00	1,150.00	10,350.00
29	Pipe Foundation	100	LF	12.00	1,200.00	0.0	0.0	0.0	0.00	0.00	0.00	0.0%	1,200.00	0.00	0.00
30	36" Outlet Structure	1	LS	24,000.00	24,000.00	0.0	1.0	1.0	0.00	24,000.00	24,000.00	100.0%	0.00	2,400.00	21,600.00
				Subtotal:	109,556.00				0.00	103,736.00	103,736.00	94.7%	5,820.00	10,373.60	93,362.40
	MISC. ITEMS														
31	Stone Wall / Ditch R & R	3	EA	4,000.00	12,000.00	0.0	3.0	3.0	0.00	12,000.00	12,000.00	100.0%	0.00	1,200.00	10,800.00
32	Asphaltic Concrete Milling & Paving	2,790	SY	16.00	44,640.00	0.0	51.4	51.4	0.00	822.40	822.40	1.8%	43,817.60	82.24	740.16
33	Asphaltic Concrete	1,800	SY	32.00	57,600.00	0.0	1,763.7	1,763.7	0.00	56,438.40	56,438.40	98.0%	1,161.60	5,643.84	50,794.56
34	Concrete Curb	10	LF	60.00	600.00	0.0	34.0	34.0	0.00	2,040.00	2,040.00	340.0%	(1,440.00)	204.00	1,836.00
35	Gravel Driveway	70	SY	12.00	840.00	0.0	70.0	70.0	0.00	840.00	840.00	100.0%	0.00	84.00	756.00
36	Best Management Practice	1	LS	8,000.00	8,000.00	0.0	1.0	1.0	0.00	8,000.00	8,000.00	100.0%	0.00	800.00	7,200.00
37	Concret Ditch Over Storm Pipe	500	SY	60.00	30,000.00	0.0	564.0	564.0	0.00	33,840.00	33,840.00	112.8%	(3,840.00)	3,384.00	30,456.00
				Subtotal:	153,680.00				0.00	113,980.80	113,980.80	74.2%	39,699.20	11,398.08	102,582.72
	CONTRACT TOTALS:				984,241.00				(4,425.00)	949,980.80	945,555.80	96.1%	38,685.20	94,555.58	851,000.22

Ft. THOMAS 36" RAW WATER - BILLING WORKSHEET

ITEM NO.	DESCRIPTION	BID QTY	UNIT	UNIT COST	BID TOTAL	QTY THIS APP.	QTY PREV. APP.	QTY TOTAL	COMPLETE THIS PERIOD	FROM PREVIOUS APP.	COMPLETE TO DATE	% COMP.	BALANCE TO FINISH	10% RETAIN.	TOTAL LESS RETAIN.
	CHANGE ORDERS														
1-1	Add 3-11.25 deg bends	3	EA	4,950.00	14,850.00	0.0	3.0	3.0	0.00	14,850.00	14,850.00	100.0%	0.00	1,485.00	13,365.00
1-2	Add 1 22.5 deg bend	1	EA	5,050.00	5,050.00	0.0	1.0	1.0	0.00	5,050.00	5,050.00	100.0%	0.00	505.00	4,545.00
1-3	Added Corrosion Protect	1	LS	2,055.96	2,055.96	0.0	1.0	1.0	0.00	2,055.96	2,055.96	100.0%	0.00	205.60	1,850.36
				Subtotal:	21,955.96				0.00	21,955.96	21,955.96	100.0%	0.00	2,195.60	19,760.36
2-1	Deduct Tie-In to 36"	1	LS	(8,100.00)	(8,100.00)	0.0	1.0	1.0	0.00	(8,100.00)	(8,100.00)	100.0%	0.00	(810.00)	(7,290.00)
2-2	Deduct 36" Tee	1	EA	(8,450.00)	(8,450.00)	0.0	1.0	1.0	0.00	(8,450.00)	(8,450.00)	100.0%	0.00	(845.00)	(7,605.00)
2-3	Deduct Cathodic Protect	1	LS	(764.51)	(764.51)	0.0	1.0	1.0	0.00	(764.51)	(764.51)	100.0%	0.00	(76.45)	(688.06)
2-4	Mat & Leb for 30x36 Reducer	1	LS	6,720.82	6,720.82	0.0	1.0	1.0	0.00	6,720.82	6,720.82	100.0%	0.00	672.08	6,048.74
2-5	Single Fitting Cath. Protect	1	LS	513.96	513.96	0.0	1.0	1.0	0.00	513.96	513.96	100.0%	0.00	51.40	462.56
2-6	Base asphalt - tack and seal	42	SY	45.00	1,890.00	0.0	42.0	42.0	0.00	1,890.00	1,890.00	100.0%	0.00	189.00	1,701.00
2-7	Mill & Pave	75	SY	16.00	1,200.00	0.0	75.0	75.0	0.00	1,200.00	1,200.00	100.0%	0.00	120.00	1,080.00
2-8.	Concrete Curb	28	LF	60.00	1,680.00	0.0	28.0	28.0	0.00	1,680.00	1,680.00	100.0%	0.00	168.00	1,512.00
				Subtotal:	(5,309.73)				0.00	(5,309.73)	(5,309.73)	100.0%	0.00	(530.97)	(4,778.76)
3-1	Add 2-45 deg bends - 6" Pipe (D)	1	LS	425.00	425.00	0.0	1.0	1.0	0.00	425.00	425.00	100.0%	0.00	42.50	382.50
3-2	Add Concrete Wings for Paved Gutter (F)	1	LS	1,420.00	1,420.00	0.0	1.0	1.0	0.00	1,420.00	1,420.00	100.0%	0.00	142.00	1,278.00
3-3	Add Base Repair for Ring Road (H)	1	LS	4,035.20	4,035.20	0.0	1.0	1.0	0.00	4,035.20	4,035.20	100.0%	0.00	403.52	3,631.68
				Subtotal:	5,880.20				0.00	5,880.20	5,880.20	100.0%	0.00	588.02	5,292.18
	CHANGE ORDER TOTALS:				22,526.43				0.00	22,526.43	22,526.43	100.0%	0.00	2,252.64	20,273.79
	PROJECT TOTALS:				1,006,767.43				(4,425.00)	972,507.23	968,082.23	96.2%	38,685.20	96,808.22	871,274.01

AFFIDAVIT OF CONTRACTOR

The State of Ohio
County of Hamilton Cleves, Ohio Date: 1/6/2015

Jeffrey A. Van Fossen, being first duly sworn says that he is president of Welsh Excavation Company, Inc., the contractor having a contract with No. KY Water District , the Owner for the site work on or around or in front of the following described property in: Ft. Thomas, KY

viz: 36" Raw Water Main

Whereof: No. KY Water District Was the owner, part owner, or lessee.

Sub-Contractors

Affiant further says that all and any Sub-Contractors under said contract have been paid in full for work done to date hereof under said contract.

Material Men

Affiant further says that all and any machinery or fuel furnished under said contract has been furnished out of stock and that he owes for no machinery, material or fuel furnished to date hereof under said contract.

Labor

Affiant further says that every laborer in his employ furnishing labor under said contract to date hereof has been paid in full and that he owes no labor furnished to date hereof under said contract.

Affiant further says the current amount due or to become due for the period, net of retention is: **$63,783.25** and warrants that all labor performed under said contract has been in compliance with all requirements to the U.S. Government, the Commonwealth of Kentucky and the requirements of the applicable building codes.

Jeffrey A. Van Fossen, President
Welsh Excavation Company, Inc.

Sworn to before me and
subscribed in my Presence at
Cleves, Ohio

this 6th day of January, 2015.

Notary Public:

NOTARIAL SEAL STATE OF OHIO

GREGORY P. BRICKING
NOTARY PUBLIC
STATE OF OHIO
Recorded in
Butler County
My Comm. Exp. 4/13/15

My Commission Expires: 4-13-15

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Welsh Excavation Company, Inc.

Project Name: Ft. Thomas Treatment Plant 36-inch Water Main Project No.: AI 2485

Reporting Period: 01/1/2015 - 01/31/2015

DBE Subcontractor's Name: Earth Images

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$	$ 4558.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (construction):	$	$ 4558.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (equipment):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (services):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (materials/supplies):	$	$
Total dollar amount for this reporting period:	$	$

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Michelle Cable

Prime Contractor's Title: Accountant / HR Mgr.

Prime Contractor's Phone: (513) 353 - 9014

Prime Contractor's E-mail: michellec@welshexcavation.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Welsh Excavation Company, Inc.

Project Name: Ft. Thomas Treatment Plant 36-inch Water Main Project No.: AI 2485

Reporting Period: 01/1/2015 - 01/31/2015

DBE Subcontractor's Name: Erosion Runner

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$	$ 4800.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (construction):	$	$ 4800.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (equipment):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (services):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (materials/supplies):	$	$
Total dollar amount for this reporting period:	$	$

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Michelle Cable

Prime Contractor's Title: Accountant / HR Mgr.

Prime Contractor's Phone: (513) 353 - 9014

Prime Contractor's E-mail: michellec@welshexcavation.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Welsh Excavation Company, Inc.

Project Name: Ft. Thomas Treatment Plant 36-inch Water Main Project No.: AI 2485

Reporting Period: 02/01/2015 - 02/28/2015

DBE Subcontractor's Name: Earth Images

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$	$ 4558.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (construction):	$	$ 4558.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (equipment):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (services):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (materials/supplies):	$	$
Total dollar amount for this reporting period:	$	$

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Michelle Cable

Prime Contractor's Title: Accountant / HR Mgr.

Prime Contractor's Phone: (513) 353 - 9014

Prime Contractor's E-mail: michellec@welshexcavation.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Welsh Excavation Company, Inc.

Project Name: Ft. Thomas Treatment Plant 36-inch Water Main Project No.: AI 2485

Reporting Period: 02/01/2015 - 02/28/2015

DBE Subcontractor's Name: Erosion Runner

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$	$ 4800.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (construction):	$	$ 4800.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (equipment):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (services):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (materials/supplies):	$	$
Total dollar amount for this reporting period:	$	$

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Michelle Cable

Prime Contractor's Title: Accountant / HR Mgr.

Prime Contractor's Phone: (513) 353 - 9014

Prime Contractor's E-mail: michellec@welshexcavation.com

Interoffice Requisition/Receiving Report

White Receiving Copy
Yellow Retain for Dept. Files

VENDOR NUMBER:	BUIIRR	RECEIVING DATE:	1/23/2015
VENDOR NAME:	BUILDING CRAFTS, INC.	INVOICE #:	2
ADDRESS:	2 ROSEWOOD DRIVE	REQUESTED BY:	S. COOK
CITY STATE ZIP	WILDER, KY 41076	DEPARTMENT	ENGINEERING

QUANTITY ORDERED	ITEM DESCRIPTION	ACCOUNT / JOB NUMBER	AMOUNT
	TAYLOR MILL WATER TREATMENT PLANT	184-0476	$209,000.00
	ELECTRICAL AND BASIN IMPROVEMENTS	Line 991	
	RETAINAGE BEING HELD #2	231-0005-000	($20,900.00)
		TOTAL:	$188,100.00

CONFIRMATION (circle one) Yes No Order Complete (circle) Yes No

ORDER DATE: _____ RECEIVED BY: _____ APPROVED: _____

COPY

Rec'd 1/15/15

TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvemen
Project No 184-0476 DOW Loan NO DWL 13060

APPLICATION NO: 0610-02
PERIOD TO: 12/16/2014
PROJECT NO: 4060

Distribution to:
- Owner
- Architect
- Accounting
- Field

FROM CONTRACTOR: Building Crafts Inc.
2 Rosewood Dr
Wilder, KY. 41076

VIA ARCHITECT: ARCADIS/Magna

CONTRACT DATE: 7/2/14
Project No : 184-0476
DOW Loan NO DWL: 13060

CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM		$3,468,997.00
2.	Net change by Change Orders		$0.00
3.	CONTRACT SUM TO DATE (Line 1 ± 2)		$3,468,997.00
4.	TOTAL COMPLETED AND STORED TO DATE (Column G on G703)		$981,277.75
5.	RETAINAGE:		
	a. 10 % of Completed Work (Columns D + E on G703)	$98,127.78	
	b. _____% of Stored Material (Column F on G703)	$0.00	
	Total Retainage (Line 5a + 5b or Total in Column J of G703)		$98,127.78
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$883,149.98
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$695,049.98
8.	CURRENT PAYMENT DUE		$188,100.00
9.	BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)		$2,585,847.03

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

BY: _____ Date: 1/15/15

State of: Kentucky

Subscribed and sworn to before me this 15th day of January 2015

Notary Public: _____

DONNA WALLACE NOTARY ID NO. 508815 PUBLIC, STATE AT LARGE, KY.

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $188,100.00

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

184-476

RECEIVED
JAN 15 2015
ON THIS DATE

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 2
PERIOD TO: 12/16/2014

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A	B	C	D	E	F	G		H
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH
			FROM PREVIOUS APPLICATION	THIS PERIOD				
	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
3	Mobilization and Site Setup	$18,000.00	$18,000.00	$0.00	$0.00	$18,000.00	100%	$0.00
4	Demobilization	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
5	Div. 2 - Sitework							
	02 41 00 Demolition	$190,000.00	$142,500.00	$0.00	$0.00	$142,500.00	75%	$47,500.00
	Div. 3 - Concrete							
7	03 01 30 Rehabilitation of Concrete (Not In Unit Price)	$138,000.00	$103,500.00	$34,500.00	$0.00	$138,000.00	100%	$0.00
8	03 30 00 Cast In Place Concrete Including Sawcutting	$121,877.00	$91,407.75	$23,000.00	$0.00	$114,407.75	94%	$7,469.25
9	Div. 5 - Metals							
10	05 50 00 Miscellaneous Metals Including handrail	$48,000.00	$13,000.00	$18,000.00	$0.00	$31,000.00	65%	$17,000.00
9	Div. 6 - Wood and Plastics							
11	0610 53 Miscellaneios Carpentry	$8,000.00	$0.00	$0.00	$0.00	$0.00	0%	$8,000.00
9	Div. 7 - Thermal and Moisture Protection							
	07 16 00 Capillary Waterproofing	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
	07 55 52 Modified Bitumious Roofing	$178,000.00	$0.00	$0.00	$0.00	$0.00	0%	$178,000.00
	Div. 9 - Finishes							
12	09 91 0 - Painting	$148,000.00	$96,200.00	$39,000.00	$0.00	$135,200.00	91%	$12,800.00
	Div. 23 - HVAC							
	23 00 00 Common work results for HVAC	$63,000.00	$0.00	$0.00	$0.00	$0.00	0%	$63,000.00
	Div. 26 - Electrical							
13	26 05 00 - Common Work Results for Electrical	$1,230,000.00	$61,500.00	$12,000.00	$0.00	$73,500.00	6%	$1,156,500.00
	Div. 40 - Process Inegration							
14	40 05 05 Exposed Piping	$35,000.00	$0.00	$0.00	$0.00	$0.00	0%	$35,000.00
15	40 05 53 Valves	$101,000.00	$0.00	$0.00	$0.00	$0.00	0%	$101,000.00
	Div. 43 - Process							
18	Div. 43 - Vertical Turbine Pumps	$736,000.00	$0.00	$0.00	$0.00	$0.00	0%	$736,000.00
	Div. 46 - Water and Wastewater Equiptment							
18	46 43 73 Tube Settlers	$165,000.00	$82,500.00	$82,500.00	$0.00	$165,000.00	100%	$0.00
	Unit Price Bid Items:							
20	Item 2 Wall Expansion Joint Repair	$31,200.00	$0.00	$0.00	$0.00	$0.00	0%	$31,200.00
21	Item 3 Trough Crack Repair	$10,000.00	$0.00	$0.00	$0.00	$0.00	0%	$10,000.00
22	Item 4 Surface Spall Repair	$44,850.00	$27,600.00	$0.00	$0.00	$27,600.00	62%	$17,250.00
23	Item 5 Contingency Allowance	$40,000.00	$0.00	$0.00	$0.00	$0.00	0%	$40,000.00
24	Item 6 For Base Slab Crack Repair	$18,000.00	$0.00	$0.00	$0.00	$0.00	0%	$18,000.00
	TOTAL	$3,468,997.00	$772,277.75	$209,000.00	$0.00	$981,277.75		$2,487,719.25

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No 184-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 12/16/2014

DBE Subcontractor's Name: None

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (equipment):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (services):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (materials/supplies):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Dan Breetz Digitally signed by Dan Breetz DN: cn=Dan Breetz, o, ou, email=dbreetz@buildingcrafts.com, c=US Date: 2014.12.18 15:21:24 -05'00'

Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 2
PERIOD TO: 12/16/2014

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0478 DOW Loan NO DWL 13060

A				B	C	D	E	F		G
BID ITEM NO.	DESCRIPTION OF WORK	BID QUANTITY	UNIT PRICE	BID VALUE	ESTIMATED QUANITIY INSTALLED TO DATE	INSTALLED VALUE TO DATE	MATERIALS PRESENTLY SOTRED (NOT IN C)	TOTAL COMPLETED AND STORED TO DATE (D+E)	% (F/B)	BALANCE TO FINISH (B-F)
G3	Item 2 Wall Expansion Joint Repair	600	$52.00	$31,200.00		$0.00	$0.00	$0.00	0%	$31,200.00
G4	Item 3 Trough Crack Repair	200	$50.00	$10,000.00		$0.00	$0.00	$0.00	0%	$10,000.00
G5	Item 4 Surface Spall Repair	650	$69.00	$44,850.00	400	$27,600.00	$0.00	$27,600.00	62%	$17,250.00
G6	Item 5 Contingency Allowance	1	$4,000.00	$4,000.00		$0.00	$0.00	$0.00	0%	$4,000.00
G7	Item 6 For Base Slab Crack Repair	400	$45.00	$18,000.00		$0.00	$0.00	$0.00	0%	$18,000.00
	TOTAL		$4,216.00	$108,050.00		$27,600.00	$0.00	$27,600.00		$80,450.00

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No 184-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 12/16/2014

DBE Subcontractor's Name: None

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (equipment):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (services):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (materials/supplies):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Dan Breetz Digitally signed by Dan Breetz DN: cn=Dan Breetz, o, ou, email=dbreetz@buildingcrafts.com, c=US Date: 2014.12.18 15:21:24 -05'00'

Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

Interoffice Requisition/Receiving Report

White Receiving Copy
Yellow Retain for Dept. Files

VENDOR NUMBER:	BUIIRR	RECEIVING DATE:	2/13/2015
VENDOR NAME:	BUILDING CRAFTS, INC.	INVOICE #:	3
ADDRESS:	2 ROSEWOOD DRIVE	REQUESTED BY:	S. COOK
CITY STATE ZIP	WILDER, KY 41076	DEPARTMENT	ENGINEERING

QUANTITY ORDERED	ITEM DESCRIPTION	ACCOUNT / JOB NUMBER	AMOUNT
	TAYLOR MILL WATER TREATMENT PLANT	184-0476	$872,083.00
	ELECTRICAL AND BASIN IMPROVEMENTS	Line 991	
	RETAINAGE BEING HELD #3	231-0005-000	($87,208.30)
		TOTAL:	$784,874.70

CONFIRMATION (circle one) Yes No Order Complete (circle) Yes No

ORDER DATE: _____ RECEIVED BY: _____ APPROVED: _____

TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvement
Project No 184-0476 DOW Loan NO DWL 13060

APPLICATION NO: 3
PERIOD TO: 2/10/2015
PROJECT NO: 4060

Distribution to:
[ ] Owner
[ ] Architect
[ ] Accounting
[ ] Field
[ ]

FROM CONTRACTOR: Building Crafts Inc.
2 Rosewood Dr
Wilder, KY. 41076

VIA ARCHITECT: ARCADIS/Magna

CONTRACT DATE: 7/2/14
Project No : 184-0476
DOW Loan NO DWL: 13060

CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM		$3,468,997.00
2.	Net change by Change Orders		$0.00
3.	CONTRACT SUM TO DATE (Line 1 ± 2)		$3,468,997.00
4.	TOTAL COMPLETED AND STORED TO DATE (Column G on G703)		$1,853,360.75
5.	RETAINAGE:		
	a. 10 % of Completed Work (Columns D + E on G703)	$185,336.08	
	b. _____% of Stored Material (Column F on G703)	$0.00	
	Total Retainage (Line 5a + 5b or Total in Column J of G703)		$185,336.08
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$1,668,024.68
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$883,149.98
8.	CURRENT PAYMENT DUE		$784,874.70
9.	BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)		$1,800,972.33

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

BY: Dan Bruetz Date: 2/10/15

State of: Ky

Subscribed and sworn to before me this 10th day of Feb. 2015

Notary Public: Donna Wallace

DONNA WALLACE NOTARY ID NO. 508815 PUBLIC STATE AT LARGE, KY

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $784,874.70

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 3
PERIOD TO: 2/10/2015

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A	B	C	D	E	F	G		H
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION	WORK COMPLETED THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH
	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
3	Mobilization and Site Setup	$18,000.00	$18,000.00	$0.00	$0.00	$18,000.00	100%	$0.00
4	Demobilization	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
5	Div. 2 - Sitework							
	02 41 00 Demolition	$190,000.00	$142,500.00	$47,500.00	$0.00	$190,000.00	100%	$0.00
	Div. 3 - Concrete							
7	03 01 30 Rehabilitation of Concrete (Not in Unit Price)	$138,000.00	$138,000.00	$0.00	$0.00	$138,000.00	100%	$0.00
8	03 30 00 Cast In Place Concrete Including Sawcutting	$121,877.00	$114,407.75	$0.00	$0.00	$114,407.75	94%	$7,469.25
9	Div. 5 - Metals							
10	05 50 00 Miscellaneous Metals including handrail	$48,000.00	$31,000.00	$13,000.00	$0.00	$44,000.00	92%	$4,000.00
9	Div. 6 - Wood and Plastics							
11	0610 53 Miscellaneios Carpentry	$8,000.00	$0.00	$6,000.00	$0.00	$6,000.00	75%	$2,000.00
9	Div. 7 - Thermal and Moisture Protection							
	07 16 00 Capillary Waterproofing	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
	07 55 52 Modified Bitumious Roofing	$178,000.00	$0.00	$0.00	$0.00	$0.00	0%	$178,000.00
	Div. 9 - Finishes							
12	09 91 0 - Painting	$148,000.00	$135,200.00	$0.00	$0.00	$135,200.00	91%	$12,800.00
	Div. 23 - HVAC							
	23 00 00 Common work results for HVAC	$63,000.00	$0.00	$33,000.00	$0.00	$33,000.00	52%	$30,000.00
	Div. 26 - Electrical							
13	26 05 00 - Common Work Results for Electrical	$1,230,000.00	$73,500.00	$665,000.00	$0.00	$738,500.00	60%	$491,500.00
	Div. 40 - Process Inegration							
14	40 05 05 Exposed Piping	$35,000.00	$0.00	$10,000.00	$0.00	$10,000.00	29%	$25,000.00
15	40 05 53 Valves	$101,000.00	$0.00	$15,000.00	$0.00	$15,000.00	15%	$86,000.00
	Div. 43 - Process							
18	Div. 43 - Vertical Turbine Pumps	$736,000.00	$0.00	$0.00	$0.00	$0.00	0%	$736,000.00
	Div. 46 - Water and Wastewater Equiptment							
18	46 43 73 Tube Settlers	$165,000.00	$165,000.00	$0.00	$0.00	$165,000.00	100%	$0.00
	Unit Price Bid Items:							
20	Item 2 Wall Expansion Joint Repair	$31,200.00	$0.00	$10,400.00	$0.00	$10,400.00	33%	$20,800.00
21	Item 3 Trough Crack Repair	$10,000.00	$0.00	$750.00	$0.00	$750.00	8%	$9,250.00
22	Item 4 Surface Spall Repair	$44,850.00	$27,600.00	$25,254.00	$0.00	$52,854.00	118%	($8,004.00)
23	Item 5 Contingency Allowance	$40,000.00	$0.00	$7,579.00	$0.00	$7,579.00	19%	$32,421.00
24	Item 6 For Base Slab Crack Repair	$18,000.00	$0.00	$17,100.00	$0.00	$17,100.00	95%	$900.00
25	CO 1 Quantity adjustment for bid items 2,3,4,6	($22,946.00)	$0.00	$0.00	$0.00	$0.00	0%	($22,946.00)
26	CO 2 Additonal work associated with field order #2	$19,991.00	$0.00	$16,000.00	$0.00	$16,000.00	80%	$3,991.00
27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$0.00	$5,500.00	$0.00	$5,500.00	19%	$23,728.00
	TOTAL	$3,495,270.00	$981,277.75	$872,083.00	$0.00	$1,853,360.75		$1,641,909.25

TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 3
PERIOD TO: 2/10/2015

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A				B	C	D	E	F		G
BID ITEM NO.	DESCRIPTION OF WORK	BID QUANTITY	UNIT PRICE	BID VALUE	ESTIMATED QUANITIY INSTALLED TO DATE	INSTALLED VALUE TO DATE	MATERIALS PRESENTLY SOTRED (NOT IN C)	TOTAL COMPLETED AND STORED TO DATE (D+E)	% (F/B)	BALANCE TO FINISH (B-F)
G3	Item 2 Wall Expansion Joint Repair	600	$52.00	$31,200.00	200	$10,400.00	$0.00	$10,400.00	33%	$20,800.00
G4	Item 3 Trough Crack Repair	200	$50.00	$10,000.00	15	$750.00	$0.00	$750.00	8%	$9,250.00
G5	Item 4 Surface Spall Repair	650	$69.00	$44,850.00	766	$52,854.00	$0.00	$52,854.00	118%	($8,004.00)
G6	Item 5 Contingency Allowance	1	$40,000.00	$40,000.00	1	$7,579.00	$0.00	$7,579.00	19%	$32,421.00
G7	Item 6 For Base Slab Crack Repair	400	$45.00	$18,000.00	380	$17,100.00	$0.00	$17,100.00	95%	$900.00
	TOTAL		$40,218.00	$144,050.00		$88,683.00	$0.00	$88,683.00		$55,367.00

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No 184-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 1/31/2015

DBE Subcontractor's Name: None

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (equipment):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (services):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (materials/supplies):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Dan Breetz Digitally signed by Dan Breetz DN: cn=Dan Breetz, o, ou, email=dbreetz@buildingcrafts.com, c=US Date: 2015.03.03 09:08:36 -05'00'

Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

Northern Kentucky
Water District

October 5, 2015

Brandi Armstrong
Financial Analyst
Kentucky Infrastructure Authority
1024 Capital Center Drive, Suite 340
Frankfort, Kentucky 40601

Subject: Fund F13-012

Dear Ms. Armstrong:

Please find enclosed Request No. 3 for the Northern Kentucky Water District Kenton and Campbell County Water Main Projects in the amount of $1,569,639.87 for SRF F13-012, Contract 1 - 36" Raw Water Main Replacement and Contract 3 - Taylor Mill Treatment Plant Electrical and Basin Improvements. Contract 2 is still waiting to advertise for bids pending scheduled CSX railroad crossing permit review that is underway.

Attached to the request form are payment requests No. 7 from Welsh Excavation and payment requests No. 4 through 7 from Building Crafts, Inc. along with supporting documentation and DBE forms.

If you have any questions, please do not hesitate to call me at (859) 426-2734.

Sincerely,

Amy Kramer

Amy Kramer, P.E.
Acting V.P. Engineering, Production & Distribution

akk

cc: Cathy Arnett

FUND F

EXHIBIT B

REQUEST FOR PAYMENT WITH RESPECT TO
ASSISTANCE AGREEMENT DATED AUGUST 1, 2014

Request No. 3 Dated September 21, 2015

Original to: Kentucky Infrastructure Authority
1024 Capital Center Drive, Suite 340
Frankfort, Kentucky 40601

Copy to: Division of Water
Resource Planning and Program Support Branch
200 Fair Oaks Lane
Fourth Floor
Frankfort, Kentucky 40601
ATTN: Cathy Arnett

From: Northern Kentucky Water District ("Governmental Agency")

Ladies and Gentlemen:

The above-identified Governmental Agency has entered into an Assistance Agreement with the Kentucky Infrastructure Authority (the "Authority") for the acquisition, planning, design, and construction of facilities described in the Assistance Agreement as the "Project."

Pursuant to the Assistance Agreement, we here by certify that we have incurred the following expenses in connection with the Project and that the Authority's funding share of these expenses is in the amount so denoted in this request totaling $1,569,639.87.

Documentation supporting the expenses incurred and identified per this request is attached.

ELIGIBLE PROJECT EXPENSES INCURRED

Contractor	Expenses This Request	Expenses To Date
Welsh Excavation - Payment Request #7	$31,402.47	$970,442.23
Building Crafts, Inc.- Payment Request #4	$222,235.20	
Building Crafts, Inc. – Payment Request #5	$529,810.20	
Building Crafts, Inc. – Payment Request #6	$602,299.80	
Building Crafts, Inc. – Payment Request #7	$226,334.43	$3,248,704.31
TOTAL	$1,612,082.10	$4,219,146.54

Reduce draw by $42,442.23 because the District is requesting only $928,000 of Contract #1 (Welsh) be funded by SRF. Therefore, amount requested in Draw #3 is $1,569,639.87.

ALLOCATION OF FUNDING FOR EXPENSES

Funding Source	Portion of Expenses This Request	Portion of Expenses Total to Date
Fund F Project 13-012	$ 1,569,639.87	$4,176,704.31
Local Funds	$ 82,257.07	$ 436,510.26
Totals	$ 1,651,896.94	$4,613,214.57

The Governmental Agency certifies it has also paid Project expenses or has submitted requisitions to the applicable funding sources for Project expenses, which have not been identified in any previous Request for Payment, as follows:

Funding Source	Amount of Payment or Requisition	Date of Payment or Requisition

Respectfully submitted,

Northern Kentucky Water District
Governmental Agency

By Amy Kramer
Amy Kramer
Title Acting V. P., Engineering, Production & Distribution

CERTIFICATE OF CONSULTING ENGINEERS
AS TO
PAYMENT REQUEST

The undersigned, a duly qualified and licensed Engineer hereby certifies that he or she represents the Governmental Agency submitting this SRF Fund F request dated September 21, 2015 in connection with the "Eligible Project" and that all expenses represented in this request were duly incurred for the "Project," that the Authority's funding share of these expenses is accurately represented and that such expenses have not been the subject of any request for disbursement previously submitted.

For Welsh Construction Payment #7.

Engineer/Consultant

Burgess & Niple
Firm Name

CERTIFICATE OF CONSULTING ENGINEERS
AS TO
PAYMENT REQUEST

The undersigned, a duly qualified and licensed Engineer hereby certifies that he or she represents the Governmental Agency submitting this SRF Fund F request dated September 21, 2015 in connection with the "Eligible Project" and that all expenses represented in this request were duly incurred for the "Project," that the Authority's funding share of these expenses is accurately represented and that such expenses have not been the subject of any request for disbursement previously submitted.

Engineer/Consultant

ARCADIS U.S., Inc
Firm Name

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No 184-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 2/28/2015

Attach Invoices

DBE Subcontractor's Name: None

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (equipment):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (services):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (materials/supplies):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Dan Breetz Digitally signed by Dan Breetz DN: cn=Dan Breetz, o, ou, email=dbreetz@buildingcrafts.com, c=US Date: 2015.03.17 10:56:58 -04'00'

Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No 184-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 3/12/2015

DBE Subcontractor's Name: None

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (equipment):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (services):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (materials/supplies):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Dan Breetz Digitally signed by Dan Breetz DN: cn=Dan Breetz, o, ou, email=dbreetz@buildingcrafts.com, c=US Date: 2015.03.17 10:56:58 -04'00'

Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No 184-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 4/23/2015

DBE Subcontractor's Name: None

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (equipment):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (services):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (materials/supplies):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____

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Prime Contractor's Signature: Dan Breetz Digitally signed by Dan Breetz DN: cn=Dan Breetz, o, ou, email=dbreetz@buildingcrafts.com, c=US Date: 2015.03.17 10:56:58 -04'00'

Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No 184-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 5/29/2015

Attach Invoices

DBE Subcontractor's Name: None

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (equipment):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (services):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (materials/supplies):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Dan Breetz Digitally signed by Dan Breetz DN: cn=Dan Breetz, o, ou, email=dbreetz@buildingcrafts.com, c=US Date: 2015.03.17 10:56:58 -04'00'

Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No 184-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 6/30/2015

DBE Subcontractor's Name: None

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (equipment):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (services):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (materials/supplies):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Dan Breetz Digitally signed by Dan Breetz DN: cn=Dan Breetz, o, ou, email=dbreetz@buildingcrafts.com, c=US Date: 2015.03.17 10:56:58 -04'00'

Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No 184-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 7/20/2015

DBE Subcontractor's Name: None

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (equipment):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (services):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (materials/supplies):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____

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Prime Contractor's Signature: Dan Breetz Digitally signed by Dan Breetz DN: cn=Dan Breetz, o, ou, email=dbreetz@buildingcrafts.com, c=US Date: 2015.03.17 10:56:58 -04'00'

Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Welsh Excavation Company, Inc.

Project Name: Ft. Thomas Treatment Plant 36-inch Water Main Project No.: AI 2485

Reporting Period: 03/01/2015 - 03/31/2015

DBE Subcontractor's Name: Earth Images

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$	$ 4558.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (construction):	$	$ 4558.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (equipment):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (services):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (materials/supplies):	$	$
Total dollar amount for this reporting period:	$	$

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Michelle Cable

Prime Contractor's Title: Accountant / HR Mgr.

Prime Contractor's Phone: (513) 353 - 9014

Prime Contractor's E-mail: michellec@welshexcavation.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Welsh Excavation Company, Inc.

Project Name: Ft. Thomas Treatment Plant 36-inch Water Main Project No.: AI 2485

Reporting Period: 03/01/2015 - 03/31/2015

DBE Subcontractor's Name: Erosion Runner

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$	$ 4800.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (construction):	$	$ 4800.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (equipment):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (services):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (materials/supplies):	$	$
Total dollar amount for this reporting period:	$	$

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Michelle Cable

Prime Contractor's Title: Accountant / HR Mgr.

Prime Contractor's Phone: (513) 353 - 9014

Prime Contractor's E-mail: michellec@welshexcavation.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Welsh Excavation Company, Inc.

Project Name: Ft. Thomas Treatment Plant 36-inch Water Main Project No.: AI 2485

Reporting Period: 04/01/2015 - 04/30/2015

DBE Subcontractor's Name: Erosion Runner

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$	$ 4800.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (construction):	$	$ 4800.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (equipment):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (services):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (materials/supplies):	$	$
Total dollar amount for this reporting period:	$	$

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Michelle Cable

Prime Contractor's Title: Accountant / HR Mgr.

Prime Contractor's Phone: (513) 353 - 9014

Prime Contractor's E-mail: michellec@welshexcavation.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Welsh Excavation Company, Inc.

Project Name: Ft. Thomas Treatment Plant 36-inch Water Main Project No.: AI 2485

Reporting Period: 05/01/2015 - 05/31/2015

DBE Subcontractor's Name: Earth Images

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$	$ 18,370.00
Total dollar amount for this reporting period:	$	$ 11,255.20
Total dollar amount of subcontract (construction):	$	$ 18,370.00
Total dollar amount for this reporting period:	$	$ 11,255.20
Total dollar amount of subcontract (equipment):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (services):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (materials/supplies):	$	$
Total dollar amount for this reporting period:	$	$

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Michelle Cable

Prime Contractor's Title: Accountant / HR Mgr.

Prime Contractor's Phone: (513) 353 - 9014

Prime Contractor's E-mail: michellec@welshexcavation.com

Invoice

earthimages
Creating extraordinary residential and public landscapes

5868 Stiller Road
Floyds Knobs, IN 47119
Phone (812) 923-8386

Invoice Number: 0023430-IN
Invoice Date: 5/10/2015
Order Number:
Job Number: 0015010
Customer P.O.
Customer Number: 01-0023358

Sold To:
WELSH EXCAVATION CO INC
5780 SR 128
CLEVES, OH 45002

Terms NET 30 DAYS

	Item Description	Quantity	Unit	Price	Amount
1004	MOB & DEMOB FOR SEEDING	1.000	EACH	1,430.000	1,430.00
HYDROS	HYDRO SEEDING	16,940.000	SYS	0.580	9,825.20

Installed w/e 5/10/2015
on FT THOMAS WTP, CAMPBLL CO., KY

Net Invoice:	11,255.20
Less Discount:	0.00
Sales Tax:	0.00
Invoice Total:	11,255.20

If you are tax exempt - Please mail in the proper exemption certificate for your state.

A finance charge (interest) of 1 1/2 % per month (18% annually) will be applied to all charges not paid within 30 days of billing date.

COPY

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Welsh Excavation Company, Inc.

Project Name: Ft. Thomas Treatment Plant 36-inch Water Main Project No.: AI 2485

Reporting Period: 05/01/2015 - 05/31/2015

Attach Invoices

DBE Subcontractor's Name: Erosion Runner

	MBE	WBE
Total dollar amount of subcontract:	$	$ 4800.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (construction):	$	$ 4800.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (equipment):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (services):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (materials/supplies):	$	$
Total dollar amount for this reporting period:	$	$

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Michelle Cable

Prime Contractor's Title: Accountant / HR Mgr.

Prime Contractor's Phone: (513) 353 - 9014

Prime Contractor's E-mail: michellec@welshexcavation.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Welsh Excavation Company, Inc.

Project Name: Ft. Thomas Treatment Plant 36-inch Water Main Project No.: AI 2485

Reporting Period: 06/01/2015 - 06/30/2015

DBE Subcontractor's Name: Earth Images

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$	$ 4558.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (construction):	$	$ 4558.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (equipment):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (services):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (materials/supplies):	$	$
Total dollar amount for this reporting period:	$	$

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Michelle Cable

Prime Contractor's Title: Accountant / HR Mgr.

Prime Contractor's Phone: (513) 353 - 9014

Prime Contractor's E-mail: michellec@welshexcavation.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Welsh Excavation Company, Inc.

Project Name: Ft. Thomas Treatment Plant 36-inch Water Main Project No.: AI 2485

Reporting Period: 06/01/2015 - 06/30/2015

DBE Subcontractor's Name: Erosion Runner

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$	$ 4800.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (construction):	$	$ 4800.00
Total dollar amount for this reporting period:	$	$ No money paid this period
Total dollar amount of subcontract (equipment):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (services):	$	$
Total dollar amount for this reporting period:	$	$
Total dollar amount of subcontract (materials/supplies):	$	$
Total dollar amount for this reporting period:	$	$

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Michelle Cable

Prime Contractor's Title: Accountant / HR Mgr.

Prime Contractor's Phone: (513) 353 - 9014

Prime Contractor's E-mail: michellec@welshexcavation.com

APPLICATION AND CERTIFICATE FOR PAYMENT

AIA DOCUMENT G702

TO (OWNER) :
Northern KY Water District
2835 Crescent Springs Road, P.O. Box 18640
Erlanger, KY 41018

FROM (CONTRACTOR) :
Welsh Excavation
5780 S.R. 128
Cleves, OH 45002

CONTRACT FOR :
Site Work

PROJECT NO:
PROJECT : 36" Raw Water Main

APPLICATION NO 7
PERIOD TO : 6/23/2015
CONTRACT NO : 184-0470
CONTRACT DATE : 5/16/2014 Job Invoice

Distribution to :
- OWNER
- ARCHITECT
- CONTRACTOR
- ENGINEER

CONTRACTOR'S APPLICATION FOR PAYMENT

CHANGE ORDER SUMMARY		ADDITIONS	DEDUCTIONS
Change Orders approved in previous months by Owner	TOTAL	$ 27,836.16	$ (5,309.73)
Approved this Month			
Number	Date Approved		
FOUR	12/31/2014	$ 2,360.00	
CLOSEOUT	6/23/2015	$ (38,685.20)	
	TOTALS	$ (8,489.04)	$ (5,309.73)
Net change by Change Orders		$ (13,798.77)	

Application is made for Payment , as shown below, in connection with the Subcontract Documents.
Pay Request Continuation Sheet , AIA Document G703 , is attached hereto.

1. ORIGINAL CONTRACT SUM		$ 984,241.00
2. Net change by Change Orders		$ (13,798.77)
3. CONTRACT SUM TO DATE (Line 1 ± 2)		$ 970,442.23
4. COMPLETED & STORED TO DATE		
a. Completed to Date	$ 970,442.23	
b. Materials Stored to Date	$ -	
TOTAL		$ 970,442.23
5. RETAINAGE		
a. 0% of Completed Work	$ -	
b. 0% of Stored Material	$ -	
TOTAL		$ -
6. TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$ 970,442.23
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$ 939,039.76
8. CURRENT PAYMENT DUE		$ 31,402.47
9. BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)		$ -

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that current payment shown herein is now due.

CONTRACTOR : Welsh Excavation

By : _____ Date : 6/23/2015
Jeffrey A. Van Fossen, President

State of : OHIO County of : HAMILTON
Subscribed and sworn to before me on

Notary Public :

My Commission expires :

ENGINEER'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising the above application, the Contractor certifies to the Owner that to the best of the Contractor's knowledge, information and belief the Work has progressed as indicated, the quality of the work is in accordance with the Contract Documents,and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

ENGINEER :

By : _____ Date : _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable to the Subcontractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor or Subcontractor under this Contract.

OWNER:

Reviewed By: _____

Approved By: _____

Final Payment
OK to PAY
184-~~775~~470 Send Check to
JK

Ft. THOMAS 36" RAW WATER - BILLING WORKSHEET

ITEM NO.	DESCRIPTION	BID QTY	UNIT	UNIT COST	BID TOTAL	QTY THIS APP.	QTY PREV. APP.	QTY TOTAL	COMPLETE THIS PERIOD	FROM PREVIOUS APP.	COMPLETE TO DATE	% COMP.	BALANCE TO FINISH	10% RETAIN.	TOTAL LESS RETAIN.
	WATER MAIN														
1	36" C-900 PVC	2,260	LF	168.00	379,680.00	0.0	2,278.0	2,278.0	0.00	382,704.00	382,704.00	100.8%	(3,024.00)	38,270.40	344,433.60
2	6" C-900 PVC	2,000	LF	42.00	84,000.00	0.0	2,005.0	2,005.0	0.00	84,210.00	84,210.00	100.3%	(210.00)	8,421.00	75,789.00
3	Connect to Existing Water Main / Tie-In 36"	1	EA	8,100.00	8,100.00	0.0	1.0	1.0	0.00	8,100.00	8,100.00	100.0%	0.00	810.00	7,290.00
4	Connect to Existing Water Main / Tie-In 42"	1	EA	9,000.00	9,000.00	0.0	1.0	1.0	0.00	9,000.00	9,000.00	100.0%	0.00	900.00	8,100.00
5	Connect to Existing Water Main / Tie-In 6"	5	EA	2,375.00	11,875.00	0.0	5.0	5.0	0.00	11,875.00	11,875.00	100.0%	0.00	1,187.50	10,687.50
6	Install Flush Hydrant Assembly	4	EA	6,075.00	24,300.00	0.0	4.0	4.0	0.00	24,300.00	24,300.00	100.0%	0.00	2,430.00	21,870.00
7	6" Gate Valve	10	EA	800.00	8,000.00	0.0	10.0	10.0	0.00	8,000.00	8,000.00	100.0%	0.00	800.00	7,200.00
8	36" Butterfly Valve	4	EA	11,000.00	44,000.00	0.0	4.0	4.0	0.00	44,000.00	44,000.00	100.0%	0.00	4,400.00	39,600.00
9	Concrete Anti-Seep Collar	3	EA	750.00	2,250.00	0.0	3.0	3.0	0.00	2,250.00	2,250.00	100.0%	0.00	225.00	2,025.00
10	4" Drain	1	EA	500.00	500.00	0.0	1.0	1.0	0.00	500.00	500.00	100.0%	0.00	50.00	450.00
11	6" Plug & Block (End Treatment)	1	EA	500.00	500.00	0.0	1.0	1.0	0.00	500.00	500.00	100.0%	0.00	50.00	450.00
12	Air Release Valve (ARV & Serv Line Mat from NKWD)	2	EA	950.00	1,900.00	0.0	2.0	2.0	0.00	1,900.00	1,900.00	100.0%	0.00	190.00	1,710.00
13	6" x 6" x 6" Anchoring Tee & Block	5	EA	325.00	1,625.00	0.0	5.0	5.0	0.00	1,625.00	1,625.00	100.0%	0.00	162.50	1,462.50
14	36" Tee	2	EA	8,450.00	16,900.00	0.0	2.0	2.0	0.00	16,900.00	16,900.00	100.0%	0.00	1,690.00	15,210.00
15	6" Tee	3	EA	350.00	1,050.00	0.0	3.0	3.0	0.00	1,050.00	1,050.00	100.0%	0.00	105.00	945.00
16	6" 22 1/2	4	LF	250.00	1,000.00	0.0	2.0	2.0	0.00	500.00	500.00	50.0%	500.00	50.00	450.00
17	36" 11 1/4	4	LF	4,950.00	19,800.00	(2.0)	7.0	5.0	(9,900.00)	34,650.00	24,750.00	125.0%	(4,950.00)	2,475.00	22,275.00
18	36" 22 1/2	4	EA	5,050.00	20,200.00	0.0	6.0	6.0	0.00	30,300.00	30,300.00	150.0%	(10,100.00)	3,030.00	27,270.00
19	36" 45	10	EA	5,475.00	54,750.00	1.0	7.0	8.0	5,475.00	38,325.00	43,800.00	80.0%	10,950.00	4,380.00	39,420.00
20	36" 90	1	EA	16,500.00	16,500.00	0.0	1.0	1.0	0.00	16,500.00	16,500.00	100.0%	0.00	1,650.00	14,850.00
21	42" x 36" Red	1	EA	5,575.00	5,575.00	0.0	1.0	1.0	0.00	5,575.00	5,575.00	100.0%	0.00	557.50	5,017.50
22	Corrosion Test Stations	1	LS	9,500.00	9,500.00	0.0	1.0	1.0	0.00	9,500.00	9,500.00	100.0%	0.00	950.00	8,550.00
				Subtotal:	721,005.00				(4,425.00)	732,264.00	727,839.00	100.9%	(6,834.00)	72,783.90	655,055.10
	STORM SEWER														
23	12" Storm	92	LF	38.00	3,496.00	0.0	92.0	92.0	0.00	3,496.00	3,496.00	100.0%	0.00	349.60	3,146.40
24	18" Storm	208	LF	45.00	9,360.00	0.0	220.0	220.0	0.00	9,900.00	9,900.00	105.8%	(540.00)	990.00	8,910.00
25	24" Storm	600	LF	62.00	37,200.00	0.0	720.0	720.0	0.00	44,640.00	44,640.00	120.0%	(7,440.00)	4,464.00	40,176.00
26	30" Storm	220	LF	90.00	19,800.00	0.0	80.0	80.0	0.00	7,200.00	7,200.00	36.4%	12,600.00	720.00	6,480.00
27	CB - 2-2B	2	EA	1,500.00	3,000.00	0.0	2.0	2.0	0.00	3,000.00	3,000.00	100.0%	0.00	300.00	2,700.00
28	CB - 2-3	5	EA	2,300.00	11,500.00	0.0	5.0	5.0	0.00	11,500.00	11,500.00	100.0%	0.00	1,150.00	10,350.00
29	Pipe Foundation	100	LF	12.00	1,200.00	0.0	0.0	0.0	0.00	0.00	0.00	0.0%	1,200.00	0.00	0.00
30	36" Outlet Structure	1	LS	24,000.00	24,000.00	0.0	1.0	1.0	0.00	24,000.00	24,000.00	100.0%	0.00	2,400.00	21,600.00
				Subtotal:	109,556.00				0.00	103,736.00	103,736.00	94.7%	5,820.00	10,373.60	93,362.40
	MISC. ITEMS														
31	Stone Wall / Ditch R & R.	3	EA	4,000.00	12,000.00	0.0	3.0	3.0	0.00	12,000.00	12,000.00	100.0%	0.00	1,200.00	10,800.00
32	Asphaltic Concrete Milling & Paving	2,790	SY	16.00	44,640.00	0.0	51.4	51.4	0.00	822.40	822.40	1.8%	43,817.60	82.24	740.16
33	Asphaltic Concrete	1,800	SY	32.00	57,600.00	0.0	1,763.7	1,763.7	0.00	56,438.40	56,438.40	98.0%	1,161.60	5,643.84	50,794.56
34	Concrete Curb	10	LF	60.00	600.00	0.0	34.0	34.0	0.00	2,040.00	2,040.00	340.0%	(1,440.00)	204.00	1,836.00
35	Gravel Driveway	70	SY	12.00	840.00	0.0	70.0	70.0	0.00	840.00	840.00	100.0%	0.00	84.00	756.00
36	Best Management Practice	1	LS	8,000.00	8,000.00	0.0	1.0	1.0	0.00	8,000.00	8,000.00	100.0%	0.00	800.00	7,200.00
37	Concret Ditch Over Storm Pipe	500	SY	60.00	30,000.00	0.0	564.0	564.0	0.00	33,840.00	33,840.00	112.8%	(3,840.00)	3,384.00	30,456.00
				Subtotal:	153,680.00				0.00	113,980.80	113,980.80	74.2%	39,699.20	11,398.08	102,582.72
	CONTRACT TOTALS:				984,241.00				(4,425.00)	949,980.80	945,555.80	96.1%	38,685.20	94,555.58	851,000.22

Ft. THOMAS 36" RAW WATER - BILLING WORKSHEET

ITEM NO.	DESCRIPTION	BID QTY	UNIT	UNIT COST	BID TOTAL	QTY THIS APP.	QTY PREV. APP.	QTY TOTAL	COMPLETE THIS PERIOD	FROM PREVIOUS APP.	COMPLETE TO DATE	% COMP.	BALANCE TO FINISH	10% RETAIN.	TOTAL LESS RETAIN.
	CHANGE ORDERS														
1-1	Add 3-11.25 deg bends	3	EA	4,950.00	14,850.00	0.0	3.0	3.0	0.00	14,850.00	14,850.00	100.0%	0.00	1,485.00	13,365.00
1-2	Add 1 22.5 deg bend	1	EA	5,050.00	5,050.00	0.0	1.0	1.0	0.00	5,050.00	5,050.00	100.0%	0.00	505.00	4,545.00
1-3	Added Corrosion Protect	1	LS	2,055.96	2,055.96	0.0	1.0	1.0	0.00	2,055.96	2,055.96	100.0%	0.00	205.60	1,850.36
				Subtotal:	21,955.96				0.00	21,955.96	21,955.96	100.0%	0.00	2,195.60	19,760.36
2-1	Deduct Tie-In to 30"	1	LS	(8,100.00)	(8,100.00)	0.0	1.0	1.0	0.00	(8,100.00)	(8,100.00)	100.0%	0.00	(810.00)	(7,290.00)
2-2	Deduct 36" Tee	1	EA	(8,450.00)	(8,450.00)	0.0	1.0	1.0	0.00	(8,450.00)	(8,450.00)	100.0%	0.00	(845.00)	(7,605.00)
2-3	Deduct Cathodic Protect	1	LS	(764.51)	(764.51)	0.0	1.0	1.0	0.00	(764.51)	(764.51)	100.0%	0.00	(76.45)	(688.06)
2-4	Mat & Lab for 30x36 Reducer	1	LS	6,720.82	6,720.82	0.0	1.0	1.0	0.00	6,720.82	6,720.82	100.0%	0.00	672.08	6,048.74
2-5	Single Fitting Cath. Protect	1	LS	513.96	513.96	0.0	1.0	1.0	0.00	513.96	513.96	100.0%	0.00	51.40	462.56
2-6	Base asphalt - tack and seal	42	SY	45.00	1,890.00	0.0	42.0	42.0	0.00	1,890.00	1,890.00	100.0%	0.00	189.00	1,701.00
2-7	Mill & Pave	75	SY	16.00	1,200.00	0.0	75.0	75.0	0.00	1,200.00	1,200.00	100.0%	0.00	120.00	1,080.00
2-8	Concrete Curb	28	LF	60.00	1,680.00	0.0	28.0	28.0	0.00	1,680.00	1,680.00	100.0%	0.00	168.00	1,512.00
				Subtotal:	(5,309.73)				0.00	(5,309.73)	(5,309.73)	100.0%	0.00	(530.97)	(4,778.76)
3-1	Add 2-45 deg bends - 6" Pipe (D)	1	LS	425.00	425.00	0.0	1.0	1.0	0.00	425.00	425.00	100.0%	0.00	42.50	382.50
3-2	Add Concrete Wings for Paved Gutter (F)	1	LS	1,420.00	1,420.00	0.0	1.0	1.0	0.00	1,420.00	1,420.00	100.0%	0.00	142.00	1,278.00
3-3	Add Base Repair for Ring Road (H)	1	LS	4,035.20	4,035.20	0.0	1.0	1.0	0.00	4,035.20	4,035.20	100.0%	0.00	403.52	3,631.68
				Subtotal:	5,880.20				0.00	5,880.20	5,880.20	100.0%	0.00	588.02	5,292.18
4-1	Add Charge for Hydroseed	11,800	SY	0.20	2,360.00	11,800.0	0.0	11,800.0	2,360.00	0.00	2,360.00	100.0%	0.00	236.00	2,124.00
				Subtotal:	2,360.00				2,360.00	0.00	2,360.00	100.0%	0.00	236.00	2,124.00
	CHANGE ORDER TOTALS:				24,886.43				2,360.00	22,526.43	24,886.43	100.0%	0.00	2,488.64	22,397.79
	PROJECT TOTALS:				1,009,127.43				(2,065.00)	972,507.23	970,442.23	96.2%	38,685.20	97,044.22	873,398.01

AIA Document G702, APPLICATION AND CERTIFICATE FOR PAYMENT, containing Subcontractor's signed Certification is attached.

In tabulations below, amounts are stated to the nearest dollar.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO : 7
APPLICATION DATE : 06/23/15
PERIOD TO : 06/23/15
PROJECT NO :
SUBCONTRACT NO:
INVOICE #:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D + E)	TOTAL COMPLETED AND STORED TO DATE (D + E + F)	% (G / C)	BALANCE TO FINISH (C - G)	RETAINAGE 10%
			FROM PREVIOUS APPLICATIONS (D + E)	THIS PERIOD					
	Water Main	721,005.00	732,264.00	(4,425.00)	0.00	727,839.00	101%	(6,834.00)	72,783.90
	Storm Sewer	109,556.00	103,736.00	0.00	0.00	103,736.00	95%	5,820.00	10,373.60
	Misc. Items	153,680.00	113,980.80	0.00	0.00	113,980.80	74%	39,699.20	11,398.08
	Change Orders	24,886.43	22,526.43	2,360.00	0.00	24,886.43	100%	0.00	2,488.64
	Closeout	(38,685.20)	0.00	0.00	0.00				
									REDUCED
	TOTALS FOR EACH COLUMN	970,442.23	972,507.23	(2,065.00)	0.00	970,442.23	100%	38,685.20	0.00

Interoffice Requisition/Receiving Report

White Receiving Copy
Yellow Retain for Dept. Files

VENDOR NUMBER:	BUIIRR	RECEIVING DATE:	3/25/2015
VENDOR NAME:	BUILDING CRAFTS, INC.	INVOICE #:	4
ADDRESS:	2 ROSEWOOD DRIVE	REQUESTED BY:	J. Schuchter
CITY STATE ZIP	WILDER, KY 41076	DEPARTMENT	ENGINEERING

QUANTITY ORDERED	ITEM DESCRIPTION	ACCOUNT / JOB NUMBER	AMOUNT
	TAYLOR MILL WATER TREATMENT PLANT	184-0476	$246,928.00
	ELECTRICAL AND BASIN IMPROVEMENTS	Line 991	
	RETAINAGE BEING HELD #4	231-0005-000	($24,692.80)
		TOTAL:	$222,235.20

CONFIRMATION (circle one) Yes No Order Complete (circle) Yes No

ORDER DATE: _____ RECEIVED BY: _____ APPROVED: Amy Thom

COPY

ENTERED

TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvement
Project No 184-0476 DOW Loan NO DWL 13060

APPLICATION NO: 4
PERIOD TO: 3/12/2015
PROJECT NO: 4060

Distribution to:
- [ ] Owner
- [ ] Architect
- [ ] Accounting
- [ ] Field
- [ ]

FROM CONTRACTOR: Building Crafts Inc.
2 Rosewood Dr
Wilder, KY. 41076

VIA ARCHITECT: ARCADIS/Magna

CONTRACT DATE: 7/2/14
Project No : 184-0476
DOW Loan NO DWL: 13060

CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM		$3,468,997.00
2.	Net change by Change Orders		$0.00
3.	CONTRACT SUM TO DATE (Line 1 ± 2)		$3,468,997.00
4.	TOTAL COMPLETED AND STORED TO DATE (Column G on G703)		$2,100,288.75
5.	RETAINAGE:		
	a. 10 % of Completed Work (Columns D + E on G703)	$210,028.88	
	b. _____% of Stored Material (Column F on G703)	$0.00	
	Total Retainage (Line 5a + 5b or Total in Column J of G703)		$210,028.88
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$1,890,259.88
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$1,668,024.68
8.	CURRENT PAYMENT DUE		$222,235.20
9.	BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)		$1,578,737.13

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

BY: _____ Date: 3/17/2015

State of: Kentucky

Subscribed and sworn to before me this 17 day of March 2015

Notary Public: Shannon Stallmeyer

SHANNON STALLMEYER
My Commission Expires
NOTARY PUBLIC
01-20-2016
STATE AT LARGE KENTUCKY

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $222,235.20

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 4
PERIOD TO: 3/12/2015

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A	B	C	D	E	F	G		H
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH
			FROM PREVIOUS APPLICATION	THIS PERIOD				
	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
3	Mobilization and Site Setup	$18,000.00	$18,000.00	$0.00	$0.00	$18,000.00	100%	$0.00
4	Demobilization	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
5	Div. 2 - Sitework							
	02 41 00 Demolition	$190,000.00	$190,000.00	$0.00	$0.00	$190,000.00	100%	$0.00
	Div. 3 - Concrete							
7	03 01 30 Rehabilitation of Concrete (Not in Unit Price)	$138,000.00	$138,000.00	$0.00	$0.00	$138,000.00	100%	$0.00
8	03 30 00 Cast In Place Concrete Including Sawcutting	$121,877.00	$114,407.75	$0.00	$0.00	$114,407.75	94%	$7,469.25
9	Div. 5 - Metals							
10	05 50 00 Miscellaneous Metals including handrail	$48,000.00	$44,000.00	$0.00	$0.00	$44,000.00	92%	$4,000.00
9	Div. 6 - Wood and Plastics							
11	0610 53 Miscellaneios Carpentry	$8,000.00	$6,000.00	$2,000.00	$0.00	$8,000.00	100%	$0.00
9	Div. 7 - Thermal and Moisture Protection							
	07 16 00 Capillary Waterproofing	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
	07 55 52 Modified Bitumious Roofing	$178,000.00	$0.00	$0.00	$0.00	$0.00	0%	$178,000.00
	Div. 9 - Finishes							
12	09 91 0 - Painting	$148,000.00	$135,200.00	$2,000.00	$0.00	$137,200.00	93%	$10,800.00
	Div. 23 - HVAC							
	23 00 00 Common work results for HVAC	$63,000.00	$33,000.00	$5,700.00	$0.00	$38,700.00	61%	$24,300.00
	Div. 26 - Electrical							
13	26 05 00 - Common Work Results for Electrical	$1,230,000.00	$738,500.00	$125,500.00	$0.00	$864,000.00	70%	$366,000.00
	Div. 40 - Process Inegration							
14	40 05 05 Exposed Piping	$35,000.00	$10,000.00	$15,500.00	$0.00	$25,500.00	73%	$9,500.00
15	40 05 53 Valves	$101,000.00	$15,000.00	$4,000.00	$0.00	$19,000.00	19%	$82,000.00
	Div. 43 - Process							
18	Div. 43 - Vertical Turbine Pumps	$736,000.00	$0.00	$68,500.00	$0.00	$68,500.00	9%	$667,500.00
	Div. 46 - Water and Wastewater Equiptment							
18	46 43 73 Tube Settlers	$165,000.00	$165,000.00	$0.00	$0.00	$165,000.00	100%	$0.00
	Unit Price Bid Items:							
20	Item 2 Wall Expansion Joint Repair	$31,200.00	$10,400.00	$0.00	$0.00	$10,400.00	33%	$20,800.00
21	Item 3 Trough Crack Repair	$10,000.00	$750.00	$0.00	$0.00	$750.00	8%	$9,250.00
22	Item 4 Surface Spall Repair	$44,850.00	$52,854.00	$0.00	$0.00	$52,854.00	118%	($8,004.00)
23	Item 5 Contingency Allowance	$40,000.00	$7,579.00	$0.00	$0.00	$7,579.00	19%	$32,421.00
24	Item 6 For Base Slab Crack Repair	$18,000.00	$17,100.00	$0.00	$0.00	$17,100.00	95%	$900.00
25	CO 1 Quantity adjustment for bid items 2,3,4,6	($22,946.00)	$0.00	$0.00	$0.00	$0.00	0%	($22,946.00)
26	CO 2 Additonal work associated with field order #2	$19,991.00	$16,000.00	$0.00	$0.00	$16,000.00	80%	$3,991.00
27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$5,500.00	$23,728.00	$0.00	$29,228.00	100%	$0.00
	TOTAL	$3,495,270.00	$1,853,360.75	$246,928.00	$0.00	$2,100,288.75		$1,394,981.25

Interoffice Requisition/Receiving Report

White Receiving Copy
Yellow Retain for Dept. Files

VENDOR NUMBER:	BUIIRR	RECEIVING DATE:	3/25/2015
VENDOR NAME:	BUILDING CRAFTS, INC.	INVOICE #:	5
ADDRESS:	2 ROSEWOOD DRIVE	REQUESTED BY:	J. Schuchter
CITY STATE ZIP	WILDER, KY 41076	DEPARTMENT	ENGINEERING

QUANTITY ORDERED	ITEM DESCRIPTION	ACCOUNT / JOB NUMBER	AMOUNT
	TAYLOR MILL WATER TREATMENT PLANT	184-0476	$588,678.00
	ELECTRICAL AND BASIN IMPROVEMENTS	Line 991	
	RETAINAGE BEING HELD #5	231-0005-000	($58,867.80)
		TOTAL:	$529,810.20

CONFIRMATION (circle one) Yes No Order Complete (circle) Yes No

ORDER DATE: _____ RECEIVED BY: J. Schuchter APPROVED: Amy Brame

ENTERED

COPY

TO OWNER: Northern Kentuck Water District 2835 Crescent Springs Road Erlanger, KY 41017	PROJECT:	Taylor Mill Water Treatment Plant Electrical and Basin Improvement Project No 184-0476 DOW Loan NO DWL 13060	APPLICATION NO: PERIOD TO: PROJECT NO:	5 3/12/2015 4060	Distribution to: ☐ Owner ☐ Architect ☐ Accounting ☐ Field ☐
FROM CONTRACTOR: Building Crafts Inc. 2 Rosewood Dr Wilder, KY. 41076	VIA ARCHITECT:	ARCADIS/Magna	CONTRACT DATE: Project No : DOW Loan NO DWL:	7/2/14 184-0476 13060	

CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM		$3,468,997.00
2.	Net change by Change Orders		$0.00
3.	CONTRACT SUM TO DATE (Line 1 ± 2)		$3,468,997.00
4.	TOTAL COMPLETED AND STORED TO DATE (Column G on G703)		$2,688,986.75
5.	RETAINAGE:		
	a. 10 % of Completed Work (Columns D + E on G703)	$268,896.68	
	b. _____% of Stored Material (Column F on G703)	$0.00	
	Total Retainage (Line 5a + 5b or Total in Column J of G703)		$268,896.68
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$2,420,070.08
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$1,890,259.88
8.	CURRENT PAYMENT DUE		$529,810.20
9.	BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)		$1,048,926.93

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

BY: Date: _____

State of: Kentucky

Subscribed and sworn to before me this 22 day of April 2015

Notary Public: Shannon Stallmeyer

SHANNON STALLMEYER
My Commission Expires
NOTARY PUBLIC
01-20-2016
STATE AT LARGE, KENTUCKY

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $529,810.20

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

184- 476

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 5
PERIOD TO: 3/12/2015

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A	B	C	D	E	F	G		H
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION	WORK COMPLETED THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH
	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
3	Mobilization and Site Setup	$18,000.00	$18,000.00	$0.00	$0.00	$18,000.00	100%	$0.00
4	Demobilization	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
5	Div. 2 - Sitework							
	02 41 00 Demolition	$190,000.00	$190,000.00	$0.00	$0.00	$190,000.00	100%	$0.00
	Div. 3 - Concrete							
7	03 01 30 Rehabilitation of Concrete (Not In Unit Price)	$138,000.00	$138,000.00	$0.00	$0.00	$138,000.00	100%	$0.00
8	03 30 00 Cast In Place Concrete Including Sawcutting	$121,877.00	$114,407.75	$6,000.00	$0.00	$120,407.75	99%	$1,469.25
9	Div. 5 - Metals							
10	05 50 00 Miscellaneous Metals Including handrail	$48,000.00	$44,000.00	$0.00	$0.00	$44,000.00	92%	$4,000.00
9	Div. 6 - Wood and Plastics							
11	0610 53 Miscellaneios Carpentry	$8,000.00	$8,000.00	$0.00	$0.00	$8,000.00	100%	$0.00
9	Div. 7 - Thermal and Moisture Protection							
	07 16 00 Capillary Waterproofing	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
	07 55 52 Modified Bitumious Roofing	$178,000.00	$0.00	$65,000.00	$0.00	$65,000.00	37%	$113,000.00
	Div. 9 - Finishes							
12	09 91 0 - Painting	$148,000.00	$137,200.00	$5,000.00	$0.00	$142,200.00	96%	$5,800.00
	Div. 23 - HVAC							
	23 00 00 Common work results for HVAC	$63,000.00	$38,700.00	$15,000.00	$0.00	$53,700.00	85%	$9,300.00
	Div. 26 - Electrical							
13	26 05 00 - Common Work Results for Electrical	$1,230,000.00	$864,000.00	$205,045.00	$0.00	$1,069,045.00	87%	$160,955.00
	Div. 40 - Process Inegration							
14	40 05 05 Exposed Piping	$35,000.00	$25,500.00	$4,500.00	$0.00	$30,000.00	86%	$5,000.00
15	40 05 53 Valves	$101,000.00	$19,000.00	$2,500.00	$0.00	$21,500.00	21%	$79,500.00
	Div. 43 - Process							
18	Div. 43 - Vertical Turbine Pumps	$736,000.00	$68,500.00	$285,633.00	$0.00	$354,133.00	48%	$381,867.00
	Div. 46 - Water and Wastewater Equiptment							
18	46 43 73 Tube Settlers	$165,000.00	$165,000.00	$0.00	$0.00	$165,000.00	100%	$0.00
	Unit Price Bid Items:							
20	Item 2 Wall Expansion Joint Repair	$31,200.00	$10,400.00	$0.00	$0.00	$10,400.00	33%	$20,800.00
21	Item 3 Trough Crack Repair	$10,000.00	$750.00	$0.00	$0.00	$750.00	8%	$9,250.00
22	Item 4 Surface Spall Repair	$44,850.00	$52,854.00	$0.00	$0.00	$52,854.00	118%	($8,004.00)
23	Item 5 Contingency Allowance	$40,000.00	$7,579.00	$0.00	$0.00	$7,579.00	19%	$32,421.00
24	Item 6 For Base Slab Crack Repair	$18,000.00	$17,100.00	$0.00	$0.00	$17,100.00	95%	$900.00
25	CO 1 Quantity adjustment for bid items 2,3,4,6	($22,946.00)	$0.00	$0.00	$0.00	$0.00	0%	($22,946.00)
26	CO 2 Additonal work associated with field order #2	$19,991.00	$16,000.00	$0.00	$0.00	$16,000.00	80%	$3,991.00
27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$29,228.00	$0.00	$0.00	$29,228.00	100%	$0.00
	TOTAL	$3,495,270.00	$2,100,288.75	$588,678.00	$0.00	$2,688,966.75		$806,303.25

Interoffice Requisition/Receiving Report

White Receiving Copy
Yellow Retain for Dept. Files

VENDOR NUMBER:	BUIIRR	RECEIVING DATE:	6/4/2015
VENDOR NAME:	BUILDING CRAFTS, INC.	INVOICE #:	6
ADDRESS:	2 ROSEWOOD DRIVE	REQUESTED BY:	J. Schuchter
CITY STATE ZIP	WILDER, KY 41076	DEPARTMENT	ENGINEERING

QUANTITY ORDERED	ITEM DESCRIPTION	ACCOUNT / JOB NUMBER	AMOUNT
	TAYLOR MILL WATER TREATMENT PLANT	184-0476	$669,222.00
	ELECTRICAL AND BASIN IMPROVEMENTS	Line 991	
	RETAINAGE BEING HELD #6	231-0005-000	($66,922.20)
		TOTAL:	$602,299.80

CONFIRMATION (circle one) Yes No Order Complete (circle) Yes No

ORDER DATE: _____ RECEIVED BY: _____ APPROVED: Jeff D. Schuchter 6-8-15

COPY

ENTERED

TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvement
Project No 184-0476 DOW Loan NO DWL 13060

APPLICATION NO: 6
PERIOD TO: 3/12/2015
PROJECT NO: 4060

Distribution to:
- Owner
- Architect
- Accounting
- Field

FROM CONTRACTOR: Building Crafts Inc.
2 Rosewood Dr
Wilder, KY. 41076

VIA ARCHITECT: ARCADIS/Magna

CONTRACT DATE: 7/2/14
Project No : 184-0476
DOW Loan NO DWL: 13060

CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM		$3,468,997.00
2.	Net change by Change Orders		$0.00
3.	CONTRACT SUM TO DATE (Line 1 ± 2)		$3,468,997.00
4.	TOTAL COMPLETED AND STORED TO DATE (Column G on G703)		$3,358,188.75
5.	RETAINAGE:		
	a. 10 % of Completed Work (Columns D + E on G703)	$335,818.88	
	b. _____% of Stored Material (Column F on G703)	$0.00	
	Total Retainage (Line 5a + 5b or Total in Column J of G703)		$335,818.88
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$3,022,369.88
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$2,420,070.08
8.	CURRENT PAYMENT DUE		$602,299.80
9.	BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)		$446,627.13

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

BY: _____ Date: 5/29/15

State of: Kentucky

Subscribed and sworn to before me this 29 day of May 2015

Notary Public: Shannon Stallmeyer

SHANNON STALLMEYER
My Commission Expires
NOTARY PUBLIC
01-20-2016
STATE AT LARGE, KENTUCKY

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $602,299.80

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

184-476

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 6
PERIOD TO: 3/12/2015

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A	B	C	D	E	F	G		H
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION	WORK COMPLETED THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH
	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
3	Mobilization and Site Setup	$18,000.00	$18,000.00	$0.00	$0.00	$18,000.00	100%	$0.00
4	Demobilization	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
5	Div. 2 - Sitework							
	02 41 00 Demolition	$190,000.00	$190,000.00	$0.00	$0.00	$190,000.00	100%	$0.00
	Div. 3 - Concrete							
7	03 01 30 Rehabilitation of Concrete (Not In Unit Price)	$138,000.00	$138,000.00	$0.00	$0.00	$138,000.00	100%	$0.00
8	03 30 00 Cast In Place Concrete Including Sawcutting	$121,877.00	$120,407.75	$0.00	$0.00	$120,407.75	99%	$1,469.25
9	Div. 5 - Metals							
10	05 50 00 Miscellaneous Metals Including handrail	$48,000.00	$44,000.00	$0.00	$0.00	$44,000.00	92%	$4,000.00
9	Div. 6 - Wood and Plastics							
11	0610 53 Miscellaneios Carpentry	$8,000.00	$8,000.00	$0.00	$0.00	$8,000.00	100%	$0.00
9	Div. 7 - Thermal and Moisture Protection							
	07 16 00 Capillary Waterproofing	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
	07 55 52 Modified Bitumious Roofing	$178,000.00	$65,000.00	$108,500.00	$0.00	$173,500.00	97%	$4,500.00
	Div. 9 - Finishes							
12	09 91 0 - Painting	$148,000.00	$142,200.00	$0.00	$0.00	$142,200.00	96%	$5,800.00
	Div. 23 - HVAC							
	23 00 00 Common work results for HVAC	$83,000.00	$53,700.00	$6,500.00	$0.00	$60,200.00	96%	$2,800.00
	Div. 26 - Electrical							
13	26 05 00 - Common Work Results for Electrical	$1,230,000.00	$1,069,045.00	$95,000.00	$0.00	$1,164,045.00	95%	$65,955.00
	Div. 40 - Process Inegration							
14	40 05 05 Exposed Piping	$35,000.00	$30,000.00	$0.00	$0.00	$30,000.00	86%	$5,000.00
15	40 05 53 Valves	$101,000.00	$21,500.00	$0.00	$75,000.00	$96,500.00	96%	$4,500.00
	Div. 43 - Process							
18	Div. 43 - Vertical Turbine Pumps	$736,000.00	$354,133.00	$192,607.00	$166,102.00	$712,842.00	97%	$23,158.00
	Div. 46 - Water and Wastewater Equiptment							
18	46 43 73 Tube Settlers	$165,000.00	$165,000.00	$0.00	$0.00	$165,000.00	100%	$0.00
	Unit Price Bid Items:							
20	Item 2 Wall Expansion Joint Repair	$31,200.00	$10,400.00	$0.00	$0.00	$10,400.00	33%	$20,800.00
21	Item 3 Trough Crack Repair	$10,000.00	$750.00	$0.00	$0.00	$750.00	8%	$9,250.00
22	Item 4 Surface Spall Repair	$44,850.00	$52,854.00	$0.00	$0.00	$52,854.00	118%	($8,004.00)
23	Item 5 Contingency Allowance	$40,000.00	$7,579.00	$21,522.00	$0.00	$29,101.00	73%	$10,899.00
24	Item 6 For Base Slab Crack Repair	$18,000.00	$17,100.00	$0.00	$0.00	$17,100.00	95%	$900.00
25	CO 1 Quantity adjustment for bid items 2,3,4,6	($22,946.00)	$0.00	$0.00	$0.00	$0.00	0%	($22,946.00)
26	CO 2 Additonal work associated with field order #2	$19,991.00	$16,000.00	$3,991.00	$0.00	$19,991.00	100%	$0.00
27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$29,228.00	$0.00	$0.00	$29,228.00	100%	$0.00
	TOTAL	$3,495,270.00	$2,688,966.75	$428,120.00	$241,102.00	$3,358,188.75		$137,081.25

Layne Christensen

Remit to: P.O. Box 677801 Dallas, TX 75267-7801

Water Resource Division ~ Louisville, KY - Indianapolis, IN - Middletown, OH
PH: 262-246-4646 ~ FAX: 262-246-4784

INVOICE #: 89072892

SOLD TO: Building Crafts, Inc.
ATTN: Dan Breetz
2 Rosewood Drive
Wilder, KY 41076
Client Phone: 859-781--9500

INVOICE DATE: 05/20/2015
PO#: 0610-P02
LAYNE ORDER#: 31879
CLIENT#: 47950361

TERMS: NET 30 DAYS

QUANTITY	DESCRIPTION	PRICE	TOTAL

PARTIAL PAY ESTIMATE NO. 3

Furnish and deliver to jobsite complete per Plans and Specifications pumps #1, #5 and #6 from proposal dated February 24, 2014.
Start-up/Training/Field Services $11,870.00
Material/Sub $672,493.00
Sales Tax $40,349.00
TOTAL CONTRACT $724,712.00

Layne Christensen Company will institute a late payment charge at a rate of 18% per annum (unless a lower rate is required under applicable law, in which case the lower rate shall apply) for all payments not made on or before the due date. It is the policy of Layne Christensen to preserve all lien and payment bond rights where available. All notifications are sent strictly for this purpose.

Thank you for your business
Layne Christensen is an Equal Opportunity Employer

** Original **

PAYMENT ESTIMATE FORM

PROJECT: Taylor Mill Water Treatment Plant Electrical & Basin Improvements

ESTIMATE PERIOD: PURCHASE ORDER 0610-P02 LAYNE PROJECT NO. 31879

FROM: April 18, 2015
TO: May 15, 2015

DATE 5/20/2015
ESTIMATE NO.: 3

ITEM	DESCRIPTION	CONTRACT				PREVIOUS ESTIMATE		THIS ESTIMATE		TOTAL	
NO.		Quant.	Unit	Price	Amt.	Quant.	Amt.	Quant.	Amt.	Quant.	Amt.
1	Pump #1	1	LS	166,102.00	166,102.00	0%	0.00	75%	124,576.50	75%	124,576.50
2	Pump #5	1	LS	316,069.00	316,069.00	100%	316,069.00	0%	0.00	100%	316,069.00
3	Pump #6	1	LS	190,322.00	190,322.00	20%	38,064.40	80%	152,257.60	100%	190,322.00
4	Start-up/Training	1	LS	11,870.00	11,870.00	0%	0.00	66%	7,834.20	66%	7,834.20
5	Sales Tax	1	LS	40,349.00	40,349.00	0%	0.00	0%	0.00	0%	0.00

TOTAL AMOUNTS

I hereby certify to the Owner that the quantities shown on this estimate are correct and the work has been performed and all material, suppliers and subcontractors have been paid to date from previous approved payments.

LAYNE CHRISTENSEN

(Contractor)

(Field Inspector)

(Engineer)

(Owner)

Work Completed to Date	638,801.70
Materials on Hand	0.00
Total	638,801.70
Less 10% Retainage	(63,880.17)
Balance	574,921.53
Less Previous Estimates	(318,720.06)
Amount Due This Estimate	256,201.47

BUILDING CRAFTS INC
2 Rosewood Drive
Wilder KY 41076

Order number/Date
439011900 / 04/24/2015

Project name
Delivery Contact is Don Ellison 859-496-7434.

Please notify Don Ellison 48 hours prior to the delivery..

Shipping marks
Pitt-Ohio PGH-5008844876

Terms of delivery: EXW Incoterms 2010 Full Freight Allowed

Item	Product Description	Quantity	Unit	Unit price	Value USD
000010	3-80-26000-020 Dwg: 81197; 85098; R-4014; RM6007; 81209 LM: H14.201-AE1; D125.RM6007-A; PRM-4014; P81197-125-250(ME3-3A-NC-8.00-16.00-G-SF-1A); P81209-55-C (Asco G74-G34) Min/Max Normal Inlet Press: _162_ PSI Pump Shut-Off Press: _250_ PSI Pump Suction Press, If Any: _110_ PSI Outlet Static System Press: _150_ PSI Voltage / Cycles: 120V / 60HZ Tram At: 5 PSI Normal Opening / Closing Speed: _60_ Seconds Emergency Closing Speed: _10_ Seconds Cylinder Mounted In Position: C Pressure Switch Set At: _155_ PSI Shop Notes: Approval Required ACB Water Cylinder with SST Tube: Hanna #ME3-3A-NC-8.00-16.00-G-SF-1A (6" Dia. Bore X 16" Stroke) Normal Solenoid: Asco #8344G74-MO w/ 100 Mesh Strainer (2) Emergency Solenoids: Asco #8219g34 X = (3) SPDT Limit Switches: LSA7c-2C; (1 Valve Full Open, 1 Valve 95% Closed, 1 Valve Full Closed) X = Stainless Steel 316 Body Seat Part #3, Seat Follower Part #6, Trunnion Part #51 & Internal/External Fasteners Part #5, #7, #18, #32, #33, #38, #54, #58, #61, #68, #74, #75, #76, #77, #78, #85, #86, #87, #88 X = SPDT Pressure Switch: Asco #SA11D / TH10A42B (Install on main valve with isolation ball valve) Back-Up Ring: R14-0309, SHOP USED STANDARD BACK-UP RUBBER WITH SHIM Product code:				
	Value for Item	2 PC	41,000.00 41,000.00 USD	82,000.00 82,000.00

BUILDING CRAFTS INC
2 Rosewood Drive
Wilder KY 41076

Order number/Date
439011900 / 04/24/2015

Total amount **82,000.00**

Payment deadlines

Until 05/24/2015:	73,800.00	USD	30 days after invoice date,net
Until 08/22/2015:	8,200.00	USD	120 days after invoice net

Interoffice Requisition/Receiving Report

White Receiving Copy
Yellow Retain for Dept. Files

VENDOR NUMBER:	BUIIRR	RECEIVING DATE:	8/13/2015
VENDOR NAME:	BUILDING CRAFTS, INC.	INVOICE #:	7
ADDRESS:	2 ROSEWOOD DRIVE	REQUESTED BY:	J. Schuchter
CITY STATE ZIP	WILDER, KY 41076	DEPARTMENT	ENGINEERING

QUANTITY ORDERED	ITEM DESCRIPTION	ACCOUNT / JOB NUMBER	AMOUNT
	TAYLOR MILL WATER TREATMENT PLANT	184-0476	
	ELECTRICAL AND BASIN IMPROVEMENTS	Line 991	
	Work completed this period #7		$61,500.00
	RETAINAGE BEING HELD #7 5%	231-0005-000	($3,075.00)
	Substantial completion issued 8/4/15		
	Previous retainage held equals $335,818.88		
	Reduced retainage to 5%		
	Releasing 5% of held retainage		$167,909.43
		TOTAL:	$226,334.43

CONFIRMATION (circle one) Yes No Order Complete (circle) Yes No

ORDER DATE: _____ RECEIVED BY: Jeff Schuchter APPROVED: Amy Brown

COPY

ENTERED

g:\forms filled in\Building Crafts

APPLICATION AND CERTIFICATE FOR PAYMENT AIA DOCUMENT G702

TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvement
Project No 184-0476 DOW Loan NO DWL 13060

APPLICATION NO: 7
PERIOD TO: 7/20/15
PROJECT NO: 4060

Distribution to:
- [ ] Owner
- [ ] Architect
- [ ] Accounting
- [ ] Field
- [ ]

FROM CONTRACTOR: Building Crafts Inc.
2 Rosewood Dr
Wilder, KY. 41076

VIA ARCHITECT: ARCADIS/Magna

CONTRACT DATE: 7/2/14
Project No : 184-0476
DOW Loan NO DWL: 13060

CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM		$3,468,997.00
2.	Net change by Change Orders		$0.00
3.	CONTRACT SUM TO DATE (Line 1 ± 2)		$3,468,997.00
4.	TOTAL COMPLETED AND STORED TO DATE (Column G on G703)		$3,419,688.75
5.	RETAINAGE:		
	a. 5 % of Completed Work (Columns D + E on G703)	$170,984.44	
	b. _____% of Stored Material (Column F on G703)	$0.00	
	Total Retainage (Line 5a + 5b or Total in Column J of G703)		$170,984.44
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$3,248,704.31
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$3,022,369.88
8.	CURRENT PAYMENT DUE		$226,334.43
9.	BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)		$220,292.69

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

Date: 8/14/15

BY: Dan Breetz

State of: Kentucky

Subscribed and sworn to before me this 4th day of August 2015

Notary Public: Donna A. Wallace

DONNA WALLACE NOTARY ID NO. 508815 PUBLIC STATE AT LARGE, KY.

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $226,334.43

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 7
PERIOD TO: 7/20/15

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A	B	C	D	E	F	G		H
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH
			FROM PREVIOUS APPLICATION	THIS PERIOD				
	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
3	Mobilization and Site Setup	$18,000.00	$18,000.00	$0.00	$0.00	$18,000.00	100%	$0.00
4	Demobilization	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
5	Div. 2 - Sitework							
	02 41 00 Demolition	$190,000.00	$190,000.00	$0.00	$0.00	$190,000.00	100%	$0.00
	Div. 3 - Concrete							
7	03 01 30 Rehabilitation of Concrete (Not in Unit Price)	$138,000.00	$138,000.00	$0.00	$0.00	$138,000.00	100%	$0.00
8	03 30 00 Cast In Place Concrete Including Sawcutting	$121,877.00	$120,407.75	$0.00	$0.00	$120,407.75	99%	$1,469.25
9	Div. 5 - Metals							
10	05 50 00 Miscellaneous Metals including handrail	$48,000.00	$44,000.00	$0.00	$0.00	$44,000.00	92%	$4,000.00
9	Div. 6 - Wood and Plastics							
11	0610 53 Miscellaneios Carpentry	$8,000.00	$8,000.00	$0.00	$0.00	$8,000.00	100%	$0.00
9	Div. 7 - Thermal and Moisture Protection							
	07 16 00 Capillary Waterproofing	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
	07 55 52 Modified Bitumious Roofing	$178,000.00	$173,500.00	$4,500.00	$0.00	$178,000.00	100%	$0.00
	Div. 9 - Finishes							
12	09 91 0 - Painting	$148,000.00	$142,200.00	$0.00	$0.00	$142,200.00	96%	$5,800.00
	Div. 23 - HVAC							
	23 00 00 Common work results for HVAC	$63,000.00	$60,200.00	$0.00	$0.00	$60,200.00	96%	$2,800.00
	Div. 26 - Electrical							
13	26 05 00 - Common Work Results for Electrical	$1,230,000.00	$1,164,045.00	$45,000.00	$0.00	$1,209,045.00	98%	$20,955.00
	Div. 40 - Process Inegration							
14	40 05 05 Exposed Piping	$35,000.00	$30,000.00	$0.00	$0.00	$30,000.00	86%	$5,000.00
15	40 05 53 Valves	$101,000.00	$96,500.00	$0.00	$0.00	$96,500.00	96%	$4,500.00
	Div. 43 - Process							
18	Div. 43 - Vertical Turbine Pumps	$736,000.00	$712,842.00	$12,000.00	$0.00	$724,842.00	98%	$11,158.00
	Div. 46 - Water and Wastewater Equiptment							
18	46 43 73 Tube Settlers	$165,000.00	$165,000.00	$0.00	$0.00	$165,000.00	100%	$0.00
	Unit Price Bid Items:							
20	Item 2 Wall Expansion Joint Repair	$31,200.00	$10,400.00	$0.00	$0.00	$10,400.00	33%	$20,800.00
21	Item 3 Trough Crack Repair	$10,000.00	$750.00	$0.00	$0.00	$750.00	8%	$9,250.00
22	Item 4 Surface Spall Repair	$44,850.00	$52,854.00	$0.00	$0.00	$52,854.00	118%	($8,004.00)
23	Item 5 Contingency Allowance	$40,000.00	$29,101.00	$0.00	$0.00	$29,101.00	73%	$10,899.00
24	Item 6 For Base Slab Crack Repair	$18,000.00	$17,100.00	$0.00	$0.00	$17,100.00	95%	$900.00
25	CO 1 Quantity adjustment for bid items 2,3,4,6	($22,946.00)	$0.00	$0.00	$0.00	$0.00	0%	($22,946.00)
26	CO 2 Additonal work associated with field order #2	$19,991.00	$19,991.00	$0.00	$0.00	$19,991.00	100%	$0.00
27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$29,228.00	$0.00	$0.00	$29,228.00	100%	$0.00
	TOTAL	$3,495,270.00	$3,358,188.75	$61,500.00	$0.00	$3,419,688.75		$75,581.25

APPLICATION AND CERTIFICATE FOR PAYMENT *AIA DOCUMENT G702* PAGE ONE OF TWO PAGES

TO (OWNER) :
Northern KY Water District
2835 Crescent Springs Road, P.O. Box 18640
Erlanger, KY 41018
FROM (CONTRACTOR) :
Welsh Excavation
5780 S.R. 128
Cleves, OH 45002
CONTRACT FOR :
Site Work

PROJECT NO:
PROJECT : 36" Raw Water Main

APPLICATION NO 7
PERIOD TO : 6/23/2015
CONTRACT NO : 184-0470
CONTRACT DATE : 5/16/2014 Job Invoice

Distribution to :
_ OWNER
_ ARCHITECT
_ CONTRACTOR
_ ENGINEER

CONTRACTOR'S APPLICATION FOR PAYMENT

CHANGE ORDER SUMMARY		ADDITIONS	DEDUCTIONS
Change Orders approved in previous months by Owner	TOTAL	$ 27,836.16	$ (5,309.73)
Approved this Month			
Number	Date Approved		
FOUR	12/31/2014	$ 2,360.00	
CLOSEOUT	6/23/2015	$ (38,685.20)	
	TOTALS	$ (8,489.04)	$ (5,309.73)
Net change by Change Orders		$ (13,798.77)	

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that current payment shown herein is now due.

CONTRACTOR : Welsh Excavation

By : _____ Date : 6/23/2015
Jeffrey A. Van Fossen, President

Application is made for Payment , as shown below, in connection with the Subcontract Documents.
Pay Request Continuation Sheet , AIA Document G703 , is attached hereto.

1. ORIGINAL CONTRACT SUM		$ 984,241.00
2. Net change by Change Orders		$ (13,798.77)
3. CONTRACT SUM TO DATE (Line 1 ± 2)		$ 970,442.23
4. COMPLETED & STORED TO DATE		
a. Completed to Date	$ 970,442.23	
b. Materials Stored to Date	$ -	
TOTAL		$ 970,442.23
5. RETAINAGE		
a. 0% of Completed Work	$ -	
b. 0% of Stored Material	$ -	
TOTAL		$ -
6. TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$ 970,442.23
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$ 939,039.76
8. CURRENT PAYMENT DUE		$ 31,402.47
9. BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)		$ -

State of : OHIO County of : HAMILTON
Subscribed and sworn to before me on

Notary Public :

My Commission expires :

ENGINEER'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising the above application, the Contractor certifies to the Owner that to the best of the Contractor's knowledge, information and belief the Work has progressed as indicated, the quality of the work is in accordance with the Contract Documents,and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

ENGINEER :

By : _____ Date : _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable to the Subcontractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor or Subcontractor under this Contract.

OWNER:

Reviewed By: _____

Approved By: _____

Final Payment
OK to PAY
184-~~775~~470 Send Check to

Ft. THOMAS 36" RAW WATER - BILLING WORKSHEET

ITEM NO.	DESCRIPTION	BID QTY	UNIT	UNIT COST	BID TOTAL	QTY THIS APP.	QTY PREV. APP.	QTY TOTAL	COMPLETE THIS PERIOD	FROM PREVIOUS APP.	COMPLETE TO DATE	% COMP.	BALANCE TO FINISH	10% RETAIN.	TOTAL LESS RETAIN.
	WATER MAIN														
1	36" C-900 PVC	2,260	LF	168.00	379,680.00	0.0	2,278.0	2,278.0	0.00	382,704.00	382,704.00	100.8%	(3,024.00)	38,270.40	344,433.60
2	6" C-900 PVC	2,000	LF	42.00	84,000.00	0.0	2,005.0	2,005.0	0.00	84,210.00	84,210.00	100.3%	(210.00)	8,421.00	75,789.00
3	Connect to Existing Water Main / Tie-In 36"	1	EA	8,100.00	8,100.00	0.0	1.0	1.0	0.00	8,100.00	8,100.00	100.0%	0.00	810.00	7,290.00
4	Connect to Existing Water Main / Tie-In 42"	1	EA	9,000.00	9,000.00	0.0	1.0	1.0	0.00	9,000.00	9,000.00	100.0%	0.00	900.00	8,100.00
5	Connect to Existing Water Main / Tie-In 6"	5	EA	2,375.00	11,875.00	0.0	5.0	5.0	0.00	11,875.00	11,875.00	100.0%	0.00	1,187.50	10,687.50
6	Install Flush Hydrant Assembly	4	EA	6,075.00	24,300.00	0.0	4.0	4.0	0.00	24,300.00	24,300.00	100.0%	0.00	2,430.00	21,870.00
7	6" Gate Valve	10	EA	800.00	8,000.00	0.0	10.0	10.0	0.00	8,000.00	8,000.00	100.0%	0.00	800.00	7,200.00
8	36" Butterfly Valve	4	EA	11,000.00	44,000.00	0.0	4.0	4.0	0.00	44,000.00	44,000.00	100.0%	0.00	4,400.00	39,600.00
9	Concrete Anti-Seep Collar	3	EA	750.00	2,250.00	0.0	3.0	3.0	0.00	2,250.00	2,250.00	100.0%	0.00	225.00	2,025.00
10	4" Drain	1	EA	500.00	500.00	0.0	1.0	1.0	0.00	500.00	500.00	100.0%	0.00	50.00	450.00
11	6" Plug & Block (End Treatment)	1	EA	500.00	500.00	0.0	1.0	1.0	0.00	500.00	500.00	100.0%	0.00	50.00	450.00
12	Air Release Valve (ARV & Serv Line Mat from NKWD)	2	EA	950.00	1,900.00	0.0	2.0	2.0	0.00	1,900.00	1,900.00	100.0%	0.00	190.00	1,710.00
13	6" x 6" x 6" Anchoring Tee & Block	5	EA	325.00	1,625.00	0.0	5.0	5.0	0.00	1,625.00	1,625.00	100.0%	0.00	162.50	1,462.50
14	36" Tee	2	EA	8,450.00	16,900.00	0.0	2.0	2.0	0.00	16,900.00	16,900.00	100.0%	0.00	1,690.00	15,210.00
15	6" Tee	3	EA	350.00	1,050.00	0.0	3.0	3.0	0.00	1,050.00	1,050.00	100.0%	0.00	105.00	945.00
16	6" 22 1/2	4	LF	250.00	1,000.00	0.0	2.0	2.0	0.00	500.00	500.00	50.0%	500.00	50.00	450.00
17	36" 11 1/4	4	LF	4,950.00	19,800.00	(2.0)	7.0	5.0	(9,900.00)	34,650.00	24,750.00	125.0%	(4,950.00)	2,475.00	22,275.00
18	36" 22 1/2	4	EA	5,050.00	20,200.00	0.0	6.0	6.0	0.00	30,300.00	30,300.00	150.0%	(10,100.00)	3,030.00	27,270.00
19	36" 45	10	EA	5,475.00	54,750.00	1.0	7.0	8.0	5,475.00	38,325.00	43,800.00	80.0%	10,950.00	4,380.00	39,420.00
20	36" 90	1	EA	16,500.00	16,500.00	0.0	1.0	1.0	0.00	16,500.00	16,500.00	100.0%	0.00	1,650.00	14,850.00
21	42" x 36" Red	1	EA	5,575.00	5,575.00	0.0	1.0	1.0	0.00	5,575.00	5,575.00	100.0%	0.00	557.50	5,017.50
22	Corrosion Test Stations	1	LS	9,500.00	9,500.00	0.0	1.0	1.0	0.00	9,500.00	9,500.00	100.0%	0.00	950.00	8,550.00
				Subtotal:	721,005.00				(4,425.00)	732,264.00	727,839.00	100.9%	(6,834.00)	72,783.90	655,055.10
	STORM SEWER														
23	12" Storm	92	LF	38.00	3,496.00	0.0	92.0	92.0	0.00	3,496.00	3,496.00	100.0%	0.00	349.60	3,146.40
24	18" Storm	208	LF	45.00	9,360.00	0.0	220.0	220.0	0.00	9,900.00	9,900.00	105.8%	(540.00)	990.00	8,910.00
25	24" Storm	600	LF	62.00	37,200.00	0.0	720.0	720.0	0.00	44,640.00	44,640.00	120.0%	(7,440.00)	4,464.00	40,176.00
26	30" Storm	220	LF	90.00	19,800.00	0.0	80.0	80.0	0.00	7,200.00	7,200.00	36.4%	12,600.00	720.00	6,480.00
27	CB - 2-2B	2	EA	1,500.00	3,000.00	0.0	2.0	2.0	0.00	3,000.00	3,000.00	100.0%	0.00	300.00	2,700.00
28	CB - 2-3	5	EA	2,300.00	11,500.00	0.0	5.0	5.0	0.00	11,500.00	11,500.00	100.0%	0.00	1,150.00	10,350.00
29	Pipe Foundation	100	LF	12.00	1,200.00	0.0	0.0	0.0	0.00	0.00	0.00	0.0%	1,200.00	0.00	0.00
30	36" Outlet Structure	1	LS	24,000.00	24,000.00	0.0	1.0	1.0	0.00	24,000.00	24,000.00	100.0%	0.00	2,400.00	21,600.00
				Subtotal:	109,556.00				0.00	103,736.00	103,736.00	94.7%	5,820.00	10,373.60	93,362.40
	MISC. ITEMS														
31	Stone Wall / Ditch R & R	3	EA	4,000.00	12,000.00	0.0	3.0	3.0	0.00	12,000.00	12,000.00	100.0%	0.00	1,200.00	10,800.00
32	Asphaltic Concrete Milling & Paving	2,790	SY	16.00	44,640.00	0.0	51.4	51.4	0.00	822.40	822.40	1.8%	43,817.60	82.24	740.16
33	Asphaltic Concrete	1,800	SY	32.00	57,600.00	0.0	1,763.7	1,763.7	0.00	56,438.40	56,438.40	98.0%	1,161.60	5,643.84	50,794.56
34	Concrete Curb	10	LF	60.00	600.00	0.0	34.0	34.0	0.00	2,040.00	2,040.00	340.0%	(1,440.00)	204.00	1,836.00
35	Gravel Driveway	70	SY	12.00	840.00	0.0	70.0	70.0	0.00	840.00	840.00	100.0%	0.00	84.00	756.00
36	Best Management Practice	1	LS	8,000.00	8,000.00	0.0	1.0	1.0	0.00	8,000.00	8,000.00	100.0%	0.00	800.00	7,200.00
37	Concret Ditch Over Storm Pipe	500	SY	60.00	30,000.00	0.0	564.0	564.0	0.00	33,840.00	33,840.00	112.8%	(3,840.00)	3,384.00	30,456.00
				Subtotal:	153,680.00				0.00	113,980.80	113,980.80	74.2%	39,699.20	11,398.08	102,582.72
	CONTRACT TOTALS:				984,241.00				(4,425.00)	949,980.80	945,555.80	96.1%	38,685.20	94,555.58	851,000.22

Ft THOMAS 36" RAW WATER - BILLING WORKSHEET

ITEM NO.	DESCRIPTION	BID QTY	UNIT	UNIT COST	BID TOTAL	QTY THIS APP.	QTY PREV. APP.	QTY TOTAL	COMPLETE THIS PERIOD	FROM PREVIOUS APP.	COMPLETE TO DATE	% COMP.	BALANCE TO FINISH	10% RETAIN.	TOTAL LESS RETAIN.
	CHANGE ORDERS														
1-1	Add 3-11.25 deg bends	3	EA	4,950.00	14,850.00	0.0	3.0	3.0	0.00	14,850.00	14,850.00	100.0%	0.00	1,485.00	13,365.00
1-2	Add 1 22.5 deg bend	1	EA	5,050.00	5,050.00	0.0	1.0	1.0	0.00	5,050.00	5,050.00	100.0%	0.00	505.00	4,545.00
1-3	Added Corrosion Protect	1	LS	2,055.96	2,055.96	0.0	1.0	1.0	0.00	2,055.96	2,055.96	100.0%	0.00	205.60	1,850.36
				Subtotal:	21,955.96				0.00	21,955.96	21,955.96	100.0%	0.00	2,195.60	19,760.36
2-1	Deduct Tie-In to 36"	1	LS	(8,100.00)	(8,100.00)	0.0	1.0	1.0	0.00	(8,100.00)	(8,100.00)	100.0%	0.00	(810.00)	(7,290.00)
2-2	Deduct 36" Tee	1	EA	(8,450.00)	(8,450.00)	0.0	1.0	1.0	0.00	(8,450.00)	(8,450.00)	100.0%	0.00	(845.00)	(7,605.00)
2-3	Deduct Cathodic Protect	1	LS	(764.51)	(764.51)	0.0	1.0	1.0	0.00	(764.51)	(764.51)	100.0%	0.00	(76.45)	(688.06)
2-4	Mat & Lab for 30x36 Reducer	1	LS	6,720.82	6,720.82	0.0	1.0	1.0	0.00	6,720.82	6,720.82	100.0%	0.00	672.08	6,048.74
2-5	Single Filling Cath. Protect	1	LS	513.96	513.96	0.0	1.0	1.0	0.00	513.96	513.96	100.0%	0.00	51.40	462.56
2-6	Base asphalt - tack and seal	42	SY	45.00	1,890.00	0.0	42.0	42.0	0.00	1,890.00	1,890.00	100.0%	0.00	189.00	1,701.00
2-7	Mill & Pave	75	SY	16.00	1,200.00	0.0	75.0	75.0	0.00	1,200.00	1,200.00	100.0%	0.00	120.00	1,080.00
2-8	Concrete Curb	28	LF	60.00	1,680.00	0.0	28.0	28.0	0.00	1,680.00	1,680.00	100.0%	0.00	168.00	1,512.00
				Subtotal:	(5,309.73)				0.00	(5,309.73)	(5,309.73)	100.0%	0.00	(530.97)	(4,778.76)
3-1	Add 2-45 deg bends - 6" Pipe (D)	1	LS	425.00	425.00	0.0	1.0	1.0	0.00	425.00	425.00	100.0%	0.00	42.50	382.50
3-2	Add Concrete Wings for Paved Gutter (F)	1	LS	1,420.00	1,420.00	0.0	1.0	1.0	0.00	1,420.00	1,420.00	100.0%	0.00	142.00	1,278.00
3-3	Add Base Repair for Ring Road (H)	1	LS	4,035.20	4,035.20	0.0	1.0	1.0	0.00	4,035.20	4,035.20	100.0%	0.00	403.52	3,631.68
				Subtotal:	5,880.20				0.00	5,880.20	5,880.20	100.0%	0.00	588.02	5,292.18
4-1	Add Charge for Hydroseed	11,800	SY	0.20	2,360.00	11,800.0	0.0	11,800.0	2,360.00	0.00	2,360.00	100.0%	0.00	236.00	2,124.00
				Subtotal:	2,360.00				2,360.00	0.00	2,360.00	100.0%	0.00	236.00	2,124.00
	CHANGE ORDER TOTALS:				24,886.43				2,360.00	22,526.43	24,886.43	100.0%	0.00	2,488.64	22,397.79
	PROJECT TOTALS:				1,009,127.43				(2,065.00)	972,507.23	970,442.23	96.2%	38,685.20	97,044.22	873,398.01

AIA Document G702, APPLICATION AND CERTIFICATE FOR PAYMENT, containing Subcontractor's signed Certification is attached.

In tabulations below, amounts are stated to the nearest dollar.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO : 7
APPLICATION DATE : 06/23/15
PERIOD TO : 06/23/15
PROJECT NO :
SUBCONTRACT NO:
INVOICE #:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D + E)	TOTAL COMPLETED AND STORED TO DATE (D + E + F)	% (G / C)	BALANCE TO FINISH (C - G)	RETAINAGE 10%
			FROM PREVIOUS APPLICATIONS (D + E)	THIS PERIOD					
	Water Main	721,005.00	732,264.00	(4,425.00)	0.00	727,839.00	101%	(6,834.00)	72,783.90
	Storm Sewer	109,556.00	103,736.00	0.00	0.00	103,736.00	95%	5,820.00	10,373.60
	Misc. Items	153,680.00	113,980.80	0.00	0.00	113,980.80	74%	39,699.20	11,398.08
	Change Orders	24,886.43	22,526.43	2,360.00	0.00	24,886.43	100%	0.00	2,488.64
	Closeout	(38,685.20)	0.00	0.00	0.00				
									REDUCED
	TOTALS FOR EACH COLUMN	970,442.23	972,507.23	(2,065.00)	0.00	970,442.23	100%	38,685.20	0.00

Interoffice Requisition/Receiving Report

White Receiving Copy
Yellow Retain for Dept. Files

VENDOR NUMBER:	BUIIRR	RECEIVING DATE:	3/25/2015
VENDOR NAME:	BUILDING CRAFTS, INC.	INVOICE #:	4
ADDRESS:	2 ROSEWOOD DRIVE	REQUESTED BY:	J. Schuchter
CITY STATE ZIP	WILDER, KY 41076	DEPARTMENT	ENGINEERING

QUANTITY ORDERED	ITEM DESCRIPTION	ACCOUNT / JOB NUMBER	AMOUNT
	TAYLOR MILL WATER TREATMENT PLANT	184-0476	$246,928.00
	ELECTRICAL AND BASIN IMPROVEMENTS	Line 991	
	RETAINAGE BEING HELD #4	231-0005-000	($24,692.80)
		TOTAL:	$222,235.20

CONFIRMATION (circle one) Yes No Order Complete (circle) Yes No

ORDER DATE: _____ RECEIVED BY: _____ APPROVED: Amy Thom

COPY

ENTERED

TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvement
Project No 184-0476 DOW Loan NO DWL 13060

APPLICATION NO: 4
PERIOD TO: 3/12/2015
PROJECT NO: 4060

Distribution to:
- [ ] Owner
- [ ] Architect
- [ ] Accounting
- [ ] Field
- [ ]

FROM CONTRACTOR: Building Crafts Inc.
2 Rosewood Dr
Wilder, KY. 41076

VIA ARCHITECT: ARCADIS/Magna

CONTRACT DATE: 7/2/14
Project No : 184-0476
DOW Loan NO DWL: 13060

CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM	$3,468,997.00
2.	Net change by Change Orders	$0.00
3.	CONTRACT SUM TO DATE (Line 1 ± 2)	$3,468,997.00
4.	TOTAL COMPLETED AND STORED TO DATE (Column G on G703)	$2,100,288.75
5.	RETAINAGE:	
	a. 10 % of Completed Work (Columns D + E on G703)	$210,028.88
	b. _____% of Stored Material (Column F on G703)	$0.00
	Total Retainage (Line 5a + 5b or Total in Column J of G703)	$210,028.88
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)	$1,890,259.88
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)	$1,668,024.68
8.	CURRENT PAYMENT DUE	$222,235.20
9.	BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)	$1,578,737.13

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

BY: _____ Date: 3/17/2015

State of: Kentucky
Subscribed and sworn to before me this 17 day of March 2015

Notary Public: Shannon Stallmeyer

SHANNON STALLMEYER
My Commission Expires
NOTARY PUBLIC
01-20-2016
STATE AT LARGE KENTUCKY

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $222,235.20

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are withourt prejudice to any rights of the Owner or Contractor under this Contract.

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 4
PERIOD TO: 3/12/2015

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A	B	C	D	E	F	G		H
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION	WORK COMPLETED THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH
	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
3	Mobilization and Site Setup	$18,000.00	$18,000.00	$0.00	$0.00	$18,000.00	100%	$0.00
4	Demobilization	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
5	Div. 2 - Sitework							
	02 41 00 Demolition	$190,000.00	$190,000.00	$0.00	$0.00	$190,000.00	100%	$0.00
	Div. 3 - Concrete							
7	03 01 30 Rehabilitation of Concrete (Not in Unit Price)	$138,000.00	$138,000.00	$0.00	$0.00	$138,000.00	100%	$0.00
8	03 30 00 Cast In Place Concrete Including Sawcutting	$121,877.00	$114,407.75	$0.00	$0.00	$114,407.75	94%	$7,469.25
9	Div. 5 - Metals							
10	05 50 00 Miscellaneous Metals including handrail	$48,000.00	$44,000.00	$0.00	$0.00	$44,000.00	92%	$4,000.00
9	Div. 6 - Wood and Plastics							
11	0610 53 Miscellaneios Carpentry	$8,000.00	$6,000.00	$2,000.00	$0.00	$8,000.00	100%	$0.00
9	Div. 7 - Thermal and Moisture Protection							
	07 16 00 Capillary Waterproofing	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
	07 55 52 Modified Bitumious Roofing	$178,000.00	$0.00	$0.00	$0.00	$0.00	0%	$178,000.00
	Div. 9 - Finishes							
12	09 91 0 - Painting	$148,000.00	$135,200.00	$2,000.00	$0.00	$137,200.00	93%	$10,800.00
	Div. 23 - HVAC							
	23 00 00 Common work results for HVAC	$63,000.00	$33,000.00	$5,700.00	$0.00	$38,700.00	61%	$24,300.00
	Div. 26 - Electrical							
13	26 05 00 - Common Work Results for Electrical	$1,230,000.00	$738,500.00	$125,500.00	$0.00	$864,000.00	70%	$366,000.00
	Div. 40 - Process Inegration							
14	40 05 05 Exposed Piping	$35,000.00	$10,000.00	$15,500.00	$0.00	$25,500.00	73%	$9,500.00
15	40 05 53 Valves	$101,000.00	$15,000.00	$4,000.00	$0.00	$19,000.00	19%	$82,000.00
	Div. 43 - Process							
18	Div. 43 - Vertical Turbine Pumps	$736,000.00	$0.00	$68,500.00	$0.00	$68,500.00	9%	$667,500.00
	Div. 46 - Water and Wastewater Equiptment							
18	46 43 73 Tube Settlers	$165,000.00	$165,000.00	$0.00	$0.00	$165,000.00	100%	$0.00
	Unit Price Bid Items:							
20	Item 2 Wall Expansion Joint Repair	$31,200.00	$10,400.00	$0.00	$0.00	$10,400.00	33%	$20,800.00
21	Item 3 Trough Crack Repair	$10,000.00	$750.00	$0.00	$0.00	$750.00	8%	$9,250.00
22	Item 4 Surface Spall Repair	$44,850.00	$52,854.00	$0.00	$0.00	$52,854.00	118%	($8,004.00)
23	Item 5 Contingency Allowance	$40,000.00	$7,579.00	$0.00	$0.00	$7,579.00	19%	$32,421.00
24	Item 6 For Base Slab Crack Repair	$18,000.00	$17,100.00	$0.00	$0.00	$17,100.00	95%	$900.00
25	CO 1 Quantity adjustment for bid items 2,3,4,6	($22,946.00)	$0.00	$0.00	$0.00	$0.00	0%	($22,946.00)
26	CO 2 Additonal work associated with field order #2	$19,991.00	$16,000.00	$0.00	$0.00	$16,000.00	80%	$3,991.00
27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$5,500.00	$23,728.00	$0.00	$29,228.00	100%	$0.00
	TOTAL	$3,495,270.00	$1,853,360.75	$246,928.00	$0.00	$2,100,288.75		$1,394,981.25

Interoffice Requisition/Receiving Report

White Receiving Copy
Yellow Retain for Dept. Files

VENDOR NUMBER:	BUIIRR	RECEIVING DATE:	3/25/2015
VENDOR NAME:	BUILDING CRAFTS, INC.	INVOICE #:	5
ADDRESS:	2 ROSEWOOD DRIVE	REQUESTED BY:	J. Schuchter
CITY STATE ZIP	WILDER, KY 41076	DEPARTMENT	ENGINEERING

QUANTITY ORDERED	ITEM DESCRIPTION	ACCOUNT / JOB NUMBER	AMOUNT
	TAYLOR MILL WATER TREATMENT PLANT	184-0476	$588,678.00
	ELECTRICAL AND BASIN IMPROVEMENTS	Line 991	
	RETAINAGE BEING HELD #5	231-0005-000	($58,867.80)
		TOTAL:	$529,810.20

CONFIRMATION (circle one) Yes No Order Complete (circle) Yes No

ORDER DATE: _____ RECEIVED BY: _____ APPROVED: _____

ENTERED

COPY

TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvement
Project No 184-0476 DOW Loan NO DWL 13060

APPLICATION NO: 5
PERIOD TO: 3/12/2015
PROJECT NO: 4060

Distribution to:
- [ ] Owner
- [ ] Architect
- [ ] Accounting
- [ ] Field
- [ ]

FROM CONTRACTOR: Building Crafts Inc.
2 Rosewood Dr
Wilder, KY. 41076

VIA ARCHITECT: ARCADIS/Magna

CONTRACT DATE: 7/2/14
Project No : 184-0476
DOW Loan NO DWL: 13060

CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM		$3,468,997.00
2.	Net change by Change Orders		$0.00
3.	CONTRACT SUM TO DATE (Line 1 ± 2)		$3,468,997.00
4.	TOTAL COMPLETED AND STORED TO DATE (Column G on G703)		$2,688,966.75
5.	RETAINAGE:		
	a. 10 % of Completed Work (Columns D + E on G703)	$268,896.68	
	b. _____% of Stored Material (Column F on G703)	$0.00	
	Total Retainage (Line 5a + 5b or Total in Column J of G703)		$268,896.68
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$2,420,070.08
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$1,890,259.88
8.	CURRENT PAYMENT DUE		$529,810.20
9.	BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)		$1,048,926.93

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

BY: Date: _____

State of: Kentucky

Subscribed and sworn to before me this 22 day of April 2015

Notary Public: Shannon Stallmeyer

SHANNON STALLMEYER NOTARY PUBLIC STATE AT LARGE, KENTUCKY My Commission Expires 01-20-2016

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $529,810.20

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

184- 476

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 5
PERIOD TO: 3/12/2015

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A	B	C	D	E	F	G		H
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION	WORK COMPLETED THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH
	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
3	Mobilization and Site Setup	$18,000.00	$18,000.00	$0.00	$0.00	$18,000.00	100%	$0.00
4	Demobilization	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
5	Div. 2 - Sitework							
	02 41 00 Demolition	$190,000.00	$190,000.00	$0.00	$0.00	$190,000.00	100%	$0.00
	Div. 3 - Concrete							
7	03 01 30 Rehabilitation of Concrete (Not In Unit Price)	$138,000.00	$138,000.00	$0.00	$0.00	$138,000.00	100%	$0.00
8	03 30 00 Cast In Place Concrete Including Sawcutting	$121,877.00	$114,407.75	$6,000.00	$0.00	$120,407.75	99%	$1,469.25
9	Div. 5 - Metals							
10	05 50 00 Miscellaneous Metals Including handrail	$48,000.00	$44,000.00	$0.00	$0.00	$44,000.00	92%	$4,000.00
9	Div. 6 - Wood and Plastics							
11	0610 53 Miscellaneios Carpentry	$8,000.00	$8,000.00	$0.00	$0.00	$8,000.00	100%	$0.00
9	Div. 7 - Thermal and Moisture Protection							
	07 16 00 Capillary Waterproofing	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
	07 55 52 Modified Bitumious Roofing	$178,000.00	$0.00	$65,000.00	$0.00	$65,000.00	37%	$113,000.00
	Div. 9 - Finishes							
12	09 91 0 - Painting	$148,000.00	$137,200.00	$5,000.00	$0.00	$142,200.00	96%	$5,800.00
	Div. 23 - HVAC							
	23 00 00 Common work results for HVAC	$63,000.00	$38,700.00	$15,000.00	$0.00	$53,700.00	85%	$9,300.00
	Div. 26 - Electrical							
13	26 05 00 - Common Work Results for Electrical	$1,230,000.00	$864,000.00	$205,045.00	$0.00	$1,069,045.00	87%	$160,955.00
	Div. 40 - Process Inegration							
14	40 05 05 Exposed Piping	$35,000.00	$25,500.00	$4,500.00	$0.00	$30,000.00	86%	$5,000.00
15	40 05 53 Valves	$101,000.00	$19,000.00	$2,500.00	$0.00	$21,500.00	21%	$79,500.00
	Div. 43 - Process							
18	Div. 43 - Vertical Turbine Pumps	$736,000.00	$68,500.00	$285,633.00	$0.00	$354,133.00	48%	$381,867.00
	Div. 46 - Water and Wastewater Equiptment							
18	46 43 73 Tube Settlers	$165,000.00	$165,000.00	$0.00	$0.00	$165,000.00	100%	$0.00
	Unit Price Bid Items:							
20	Item 2 Wall Expansion Joint Repair	$31,200.00	$10,400.00	$0.00	$0.00	$10,400.00	33%	$20,800.00
21	Item 3 Trough Crack Repair	$10,000.00	$750.00	$0.00	$0.00	$750.00	8%	$9,250.00
22	Item 4 Surface Spall Repair	$44,850.00	$52,854.00	$0.00	$0.00	$52,854.00	118%	($8,004.00)
23	Item 5 Contingency Allowance	$40,000.00	$7,579.00	$0.00	$0.00	$7,579.00	19%	$32,421.00
24	Item 6 For Base Slab Crack Repair	$18,000.00	$17,100.00	$0.00	$0.00	$17,100.00	95%	$900.00
25	CO 1 Quantity adjustment for bid items 2,3,4,6	($22,946.00)	$0.00	$0.00	$0.00	$0.00	0%	($22,946.00)
26	CO 2 Additonal work associated with field order #2	$19,991.00	$16,000.00	$0.00	$0.00	$16,000.00	80%	$3,991.00
27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$29,228.00	$0.00	$0.00	$29,228.00	100%	$0.00
	TOTAL	$3,495,270.00	$2,100,288.75	$588,678.00	$0.00	$2,688,966.75		$806,303.25

Interoffice Requisition/Receiving Report

White Receiving Copy
Yellow Retain for Dept. Files

VENDOR NUMBER:	BUIIRR	RECEIVING DATE:	6/4/2015
VENDOR NAME:	BUILDING CRAFTS, INC.	INVOICE #:	6
ADDRESS:	2 ROSEWOOD DRIVE	REQUESTED BY:	J. Schuchter
CITY STATE ZIP	WILDER, KY 41076	DEPARTMENT	ENGINEERING

QUANTITY ORDERED	ITEM DESCRIPTION	ACCOUNT / JOB NUMBER	AMOUNT
	TAYLOR MILL WATER TREATMENT PLANT	184-0476	$669,222.00
	ELECTRICAL AND BASIN IMPROVEMENTS	Line 991	
	RETAINAGE BEING HELD #6	231-0005-000	($66,922.20)
		TOTAL:	$602,299.80

CONFIRMATION (circle one) Yes No Order Complete (circle) Yes No

ORDER DATE: _____ RECEIVED BY: _____ APPROVED: J. Schuchter 6-8-15

COPY

ENTERED

g:\forms filled in\Building Crafts.xls

APPLICATION AND CERTIFICATE FOR PAYMENT AIA DOCUMENT G702

TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvement
Project No 184-0476 DOW Loan NO DWL 13060

APPLICATION NO: 6
PERIOD TO: 3/12/2015
PROJECT NO: 4060

Distribution to:
- [ ] Owner
- [ ] Architect
- [ ] Accounting
- [ ] Field
- [ ]

FROM CONTRACTOR: Building Crafts Inc.
2 Rosewood Dr
Wilder, KY. 41076

VIA ARCHITECT: ARCADIS/Magna

CONTRACT DATE: 7/2/14
Project No : 184-0476
DOW Loan NO DWL: 13060

CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM		$3,468,997.00
2.	Net change by Change Orders		$0.00
3.	CONTRACT SUM TO DATE (Line 1 ± 2)		$3,468,997.00
4.	TOTAL COMPLETED AND STORED TO DATE (Column G on G703)		$3,358,188.75
5.	RETAINAGE:		
	a. 10 % of Completed Work (Columns D + E on G703)	$335,818.88	
	b. _____% of Stored Material (Column F on G703)	$0.00	
	Total Retainage (Line 5a + 5b or Total in Column J of G703)		$335,818.88
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$3,022,369.88
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$2,420,070.08
8.	CURRENT PAYMENT DUE		$602,299.80
9.	BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)		$446,627.13

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

BY: _____ Date: 5/29/15

State of: Kentucky

Subscribed and sworn to before me this 29 day of May 2015

Notary Public: Shannon Stallmeyer

SHANNON STALLMEYER NOTARY PUBLIC My Commission Expires 01-20-2016 STATE AT LARGE, KENTUCKY

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $602,299.80

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

184-476

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 6
PERIOD TO: 3/12/2015

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A	B	C	D	E	F	G		H
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION	WORK COMPLETED THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH
	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
3	Mobilization and Site Setup	$18,000.00	$18,000.00	$0.00	$0.00	$18,000.00	100%	$0.00
4	Demobilization	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
5	Div. 2 - Sitework							
	02 41 00 Demolition	$190,000.00	$190,000.00	$0.00	$0.00	$190,000.00	100%	$0.00
	Div. 3 - Concrete							
7	03 01 30 Rehabilitation of Concrete (Not in Unit Price)	$138,000.00	$138,000.00	$0.00	$0.00	$138,000.00	100%	$0.00
8	03 30 00 Cast in Place Concrete including Sawcutting	$121,877.00	$120,407.75	$0.00	$0.00	$120,407.75	99%	$1,469.25
9	Div. 5 - Metals							
10	05 50 00 Miscellaneous Metals including handrail	$48,000.00	$44,000.00	$0.00	$0.00	$44,000.00	92%	$4,000.00
9	Div. 6 - Wood and Plastics							
11	0610 53 Miscellaneios Carpentry	$8,000.00	$8,000.00	$0.00	$0.00	$8,000.00	100%	$0.00
9	Div. 7 - Thermal and Moisture Protection							
	07 16 00 Capillary Waterproofing	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
	07 55 52 Modified Bitumious Roofing	$178,000.00	$65,000.00	$108,500.00	$0.00	$173,500.00	97%	$4,500.00
	Div. 9 - Finishes							
12	09 91 0 - Painting	$148,000.00	$142,200.00	$0.00	$0.00	$142,200.00	96%	$5,800.00
	Div. 23 - HVAC							
	23 00 00 Common work results for HVAC	$63,000.00	$53,700.00	$6,500.00	$0.00	$60,200.00	96%	$2,800.00
	Div. 26 - Electrical							
13	26 05 00 - Common Work Results for Electrical	$1,230,000.00	$1,069,045.00	$95,000.00	$0.00	$1,164,045.00	95%	$65,955.00
	Div. 40 - Process Inegration							
14	40 05 05 Exposed Piping	$35,000.00	$30,000.00	$0.00	$0.00	$30,000.00	86%	$5,000.00
15	40 05 53 Valves	$101,000.00	$21,500.00	$0.00	$75,000.00	$96,500.00	96%	$4,500.00
	Div. 43 - Process							
18	Div. 43 - Vertical Turbine Pumps	$736,000.00	$354,133.00	$192,607.00	$166,102.00	$712,842.00	97%	$23,158.00
	Div. 46 - Water and Wastewater Equiptment							
18	46 43 73 Tube Settlers	$165,000.00	$165,000.00	$0.00	$0.00	$165,000.00	100%	$0.00
	Unit Price Bid Items:							
20	Item 2 Wall Expansion Joint Repair	$31,200.00	$10,400.00	$0.00	$0.00	$10,400.00	33%	$20,800.00
21	Item 3 Trough Crack Repair	$10,000.00	$750.00	$0.00	$0.00	$750.00	8%	$9,250.00
22	Item 4 Surface Spall Repair	$44,850.00	$52,854.00	$0.00	$0.00	$52,854.00	118%	($8,004.00)
23	Item 5 Contingency Allowance	$40,000.00	$7,579.00	$21,522.00	$0.00	$29,101.00	73%	$10,899.00
24	Item 6 For Base Slab Crack Repair	$18,000.00	$17,100.00	$0.00	$0.00	$17,100.00	95%	$900.00
25	CO 1 Quantity adjustment for bid items 2,3,4,6	($22,946.00)	$0.00	$0.00	$0.00	$0.00	0%	($22,946.00)
26	CO 2 Additonal work associated with field order #2	$19,991.00	$16,000.00	$3,991.00	$0.00	$19,991.00	100%	$0.00
27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$29,228.00	$0.00	$0.00	$29,228.00	100%	$0.00
	TOTAL	$3,495,270.00	$2,688,966.75	$428,120.00	$241,102.00	$3,358,188.75		$137,081.25

Layne Christensen

Remit to: P.O. Box 677801 Dallas, TX 75267-7801

Water Resource Division ~ Louisville, KY - Indianapolis, IN - Middletown, OH
PH: 262-246-4646 ~ FAX: 262-246-4784

INVOICE #: 89072892

SOLD TO: Building Crafts, Inc.
ATTN: Dan Breetz
2 Rosewood Drive
Wilder, KY 41076
Client Phone: 859-781-9500

INVOICE DATE: 05/20/2015
PO#: 0610-P02
LAYNE ORDER#: 31879
CLIENT#: 47950361

TERMS: NET 30 DAYS

QUANTITY	DESCRIPTION	PRICE	TOTAL
	PARTIAL PAY ESTIMATE NO. 3		
	Furnish and deliver to jobsite complete per Plans and Specifications pumps #1, #5 and #6 from proposal dated February 24, 2014.		
	Start-up/Training/Field Services $11,870.00		
	Material/Sub $672,493.00		
	Sales Tax $40,349.00		
	TOTAL CONTRACT $724,712.00		

Layne Christensen Company will institute a late payment charge at a rate of 18% per annum (unless a lower rate is required under applicable law, in which case the lower rate shall apply) for all payments not made on or before the due date. It is the policy of Layne Christensen to preserve all lien and payment bond rights where available. All notifications are sent strictly for this purpose.

Thank you for your business
Layne Christensen is an Equal Opportunity Employer

** Original **

PAYMENT ESTIMATE FORM

PROJECT Taylor Mill Water Treatment Plant Electrical & Basin Improvements

ESTIMATE PERIOD: PURCHASE ORDER 0610-P02 LAYNE PROJECT NO. 31879

FROM: April 18, 2015 DATE 5/20/2015
TO: May 15, 2015 ESTIMATE NO.: 3

ITEM NO.	DESCRIPTION	CONTRACT				PREVIOUS ESTIMATE		THIS ESTIMATE		TOTAL	
		Quant.	Unit	Price	Amt.	Quant.	Amt.	Quant.	Amt.	Quant.	Amt.
1	Pump #1	1	LS	166,102.00	166,102.00	0%	0.00	75%	124,576.50	75%	124,576.50
2	Pump #5	1	LS	316,069.00	316,069.00	100%	316,069.00	0%	0.00	100%	316,069.00
3	Pump #6	1	LS	190,322.00	190,322.00	20%	38,064.40	80%	152,257.60	100%	190,322.00
4	Start-up/Training	1	LS	11,870.00	11,870.00	0%	0.00	66%	7,834.20	66%	7,834.20
5	Sales Tax	1	LS	40,349.00	40,349.00	0%	0.00	0%	0.00	0%	0.00

TOTAL AMOUNTS

I hereby certify to the Owner that the quantities shown on this estimate are correct and the work has been performed and all material, suppliers and subcontractors have been paid to date from previous approved payments.

LAYNE CHRISTENSEN

(Contractor)

(Field Inspector)

(Engineer)

(Owner)

Work Completed to Date	638,801.70
Materials on Hand	0.00
Total	638,801.70
Less 10% Retainage	(63,880.17)
Balance	574,921.53
Less Previous Estimates	(318,720.06)
Amount Due This Estimate	256,201.47

BUILDING CRAFTS INC
2 Rosewood Drive
Wilder KY 41076

Order number/Date
439011900 / 04/24/2015

Project name
Delivery Contact is Don Ellison 859-496-7434.

Please notify Don Ellison 48 hours prior to the delivery..

Shipping marks
Pitt-Ohio PGH-5008844876

Terms of delivery: EXW Incoterms 2010 Full Freight Allowed

Item	Product Description	Quantity	Unit	Unit price	Value USD
000010	3-80-26000-020 Dwg: 81197; 85098; R-4014; RM6007; 81209 LM: H14.201-AE1; D125.RM6007-A; PRM-4014; P81197-125-250(ME3-3A-NC-8.00-16.00-G-SF-1A); P81209-55-C (Asco G74-G34) Min/Max Normal Inlet Press: _162_ PSI Pump Shut-Off Press: _250_ PSI Pump Suction Press, If Any: _110_ PSI Outlet Static System Press: _150_ PSI Voltage / Cycles: 120V / 60HZ Tram At: 5 PSI Normal Opening / Closing Speed: _60_ Seconds Emergency Closing Speed: _10_ Seconds Cylinder Mounted In Position: C Pressure Switch Set At: _155_ PSI Shop Notes: Approval Required ACB Water Cylinder with SST Tube: Hanna #ME3-3A-NC-8.00-16.00-G-SF-1A (6" Dia. Bore X 16" Stroke) Normal Solenoid: Asco #8344G74-MO w/ 100 Mesh Strainer (2) Emergency Solenoids: Asco #8219g34 X = (3) SPDT Limit Switches: LSA7c-2C; (1 Valve Full Open, 1 Valve 95% Closed, 1 Valve Full Closed) X = Stainless Steel 316 Body Seat Part #3, Seat Follower Part #6, Trunnion Part #51 & Internal/External Fasteners Part #5, #7, #18, #32, #33, #38, #54, #58, #61, #68, #74, #75, #76, #77, #78, #85, #86, #87, #88 X = SPDT Pressure Switch: Asco #SA11D / TH10A42B (Install on main valve with isolation ball valve) Back-Up Ring: R14-0309, SHOP USED STANDARD BACK-UP RUBBER WITH SHIM Product code:	2	PC	41,000.00	82,000.00
	Value for Item			41,000.00 USD	82,000.00

BUILDING CRAFTS INC
2 Rosewood Drive
Wilder KY 41076

Order number/Date
439011900 / 04/24/2015

Total amount **82,000.00**

Payment deadlines

Until 05/24/2015:	73,800.00	USD	30 days after invoice date,net
Until 08/22/2015:	8,200.00	USD	120 days after invoice net

Interoffice Requisition/Receiving Report

White Receiving Copy
Yellow Retain for Dept. Files

VENDOR NUMBER:	BUIIRR	RECEIVING DATE:	8/13/2015
VENDOR NAME:	BUILDING CRAFTS, INC.	INVOICE #:	7
ADDRESS:	2 ROSEWOOD DRIVE	REQUESTED BY:	J. Schuchter
CITY STATE ZIP	WILDER, KY 41076	DEPARTMENT	ENGINEERING

QUANTITY ORDERED	ITEM DESCRIPTION	ACCOUNT / JOB NUMBER	AMOUNT
	TAYLOR MILL WATER TREATMENT PLANT	184-0476	
	ELECTRICAL AND BASIN IMPROVEMENTS	Line 991	
	Work completed this period #7		$61,500.00
	RETAINAGE BEING HELD #7 5%	231-0005-000	($3,075.00)
	Substantial completion issued 8/4/15		
	Previous retainage held equals $335,818.88		
	Reduced retainage to 5%		
	Releasing 5% of held retainage		$167,909.43
		TOTAL:	$226,334.43

CONFIRMATION (circle one) Yes No Order Complete (circle) Yes No

ORDER DATE: _____ RECEIVED BY: Jeff Schuchter APPROVED: Amy Brown

COPY

ENTERED

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TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvement
Project No 184-0476 DOW Loan NO DWL 13060

APPLICATION NO: 7
PERIOD TO: 7/20/15
PROJECT NO: 4060

Distribution to:
☐ Owner
☐ Architect
☐ Accounting
☐ Field
☐

FROM CONTRACTOR: Building Crafts Inc.
2 Rosewood Dr
Wilder, KY. 41076

VIA ARCHITECT: ARCADIS/Magna

CONTRACT DATE: 7/2/14
Project No : 184-0476
DOW Loan NO DWL: 13060

CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM		$3,468,997.00
2.	Net change by Change Orders		$0.00
3.	CONTRACT SUM TO DATE (Line 1 ± 2)		$3,468,997.00
4.	TOTAL COMPLETED AND STORED TO DATE (Column G on G703)		$3,419,688.75
5.	RETAINAGE:		
	a. 5 % of Completed Work (Columns D + E on G703)	$170,984.44	
	b. _____% of Stored Material (Column F on G703)	$0.00	
	Total Retainage (Line 5a + 5b or Total in Column J of G703)		$170,984.44
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$3,248,704.31
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$3,022,369.88
8.	CURRENT PAYMENT DUE		$226,334.43
9.	BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)		$220,292.69

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

Date: 8/14/15

BY: Dan Breeze

State of: Kentucky

Subscribed and sworn to before me this 4th day of August 2015

Notary Public: Donna Wallace

DONNA WALLACE NOTARY ID NO. 508815 PUBLIC STATE AT LARGE, KY.

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $226,334.43

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are withourt prejudice to any rights of the Owner or Contractor under this Contract.

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 7
PERIOD TO: 7/20/15

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A	B	C	D	E	F	G		H
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION	WORK COMPLETED THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH
	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
3	Mobilization and Site Setup	$18,000.00	$18,000.00	$0.00	$0.00	$18,000.00	100%	$0.00
4	Demobilization	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
5	Div. 2 - Sitework							
	02 41 00 Demolition	$190,000.00	$190,000.00	$0.00	$0.00	$190,000.00	100%	$0.00
	Div. 3 - Concrete							
7	03 01 30 Rehabilitation of Concrete (Not In Unit Price)	$138,000.00	$138,000.00	$0.00	$0.00	$138,000.00	100%	$0.00
8	03 30 00 Cast In Place Concrete Including Sawcutting	$121,877.00	$120,407.75	$0.00	$0.00	$120,407.75	99%	$1,469.25
9	Div. 5 - Metals							
10	05 50 00 Miscellaneous Metals including handrail	$48,000.00	$44,000.00	$0.00	$0.00	$44,000.00	92%	$4,000.00
9	Div. 6 - Wood and Plastics							
11	0610 53 Miscellaneios Carpentry	$8,000.00	$8,000.00	$0.00	$0.00	$8,000.00	100%	$0.00
9	Div. 7 - Thermal and Moisture Protection							
	07 16 00 Capillary Waterproofing	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
	07 55 52 Modified Bitumious Roofing	$178,000.00	$173,500.00	$4,500.00	$0.00	$178,000.00	100%	$0.00
	Div. 9 - Finishes							
12	09 91 0 - Painting	$148,000.00	$142,200.00	$0.00	$0.00	$142,200.00	96%	$5,800.00
	Div. 23 - HVAC							
	23 00 00 Common work results for HVAC	$63,000.00	$60,200.00	$0.00	$0.00	$60,200.00	96%	$2,800.00
	Div. 26 - Electrical							
13	26 05 00 - Common Work Results for Electrical	$1,230,000.00	$1,164,045.00	$45,000.00	$0.00	$1,209,045.00	98%	$20,955.00
	Div. 40 - Process Inegration							
14	40 05 05 Exposed Piping	$35,000.00	$30,000.00	$0.00	$0.00	$30,000.00	86%	$5,000.00
15	40 05 53 Valves	$101,000.00	$96,500.00	$0.00	$0.00	$96,500.00	96%	$4,500.00
	Div. 43 - Process							
18	Div. 43 - Vertical Turbine Pumps	$736,000.00	$712,842.00	$12,000.00	$0.00	$724,842.00	98%	$11,158.00
	Div. 46 - Water and Wastewater Equiptment							
18	46 43 73 Tube Settlers	$165,000.00	$165,000.00	$0.00	$0.00	$165,000.00	100%	$0.00
	Unit Price Bid Items:							
20	Item 2 Wall Expansion Joint Repair	$31,200.00	$10,400.00	$0.00	$0.00	$10,400.00	33%	$20,800.00
21	Item 3 Trough Crack Repair	$10,000.00	$750.00	$0.00	$0.00	$750.00	8%	$9,250.00
22	Item 4 Surface Spall Repair	$44,850.00	$52,854.00	$0.00	$0.00	$52,854.00	118%	($8,004.00)
23	Item 5 Contingency Allowance	$40,000.00	$29,101.00	$0.00	$0.00	$29,101.00	73%	$10,899.00
24	Item 6 For Base Slab Crack Repair	$18,000.00	$17,100.00	$0.00	$0.00	$17,100.00	95%	$900.00
25	CO 1 Quantity adjustment for bid items 2,3,4,6	($22,946.00)	$0.00	$0.00	$0.00	$0.00	0%	($22,946.00)
26	CO 2 Additonal work associated with field order #2	$19,991.00	$19,991.00	$0.00	$0.00	$19,991.00	100%	$0.00
27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$29,228.00	$0.00	$0.00	$29,228.00	100%	$0.00
	TOTAL	$3,495,270.00	$3,358,168.75	$61,500.00	$0.00	$3,419,668.75		$75,581.25

Northern Kentucky
Water District

March 7, 2016

Brandi Norton
Financial Analyst
Kentucky Infrastructure Authority
1024 Capital Center Drive, Suite 340
Frankfort, Kentucky 40601

Subject: Fund F13-012

Dear Ms. Norton:

Please find enclosed Request No. 4 for the Northern Kentucky Water District Kenton and Campbell County Water Main Projects in the amount of $151,295.69 for SRF F13-012, Contract 3 - Taylor Mill Treatment Plant Electrical and Basin Improvements. Contract 1 - 36" Raw Water Main Replacement is complete. Contract 2 is still waiting to advertise for bids pending scheduled CSX railroad crossing permit review that is underway.

Attached to the request form are payment requests No. 8 and 9 from Building Crafts, Inc. along with supporting documentation and DBE forms.

If you have any questions, please do not hesitate to call me at (859) 426-2734.

Sincerely,

Amy Kramer

Amy Kramer, P.E.
V.P. Engineering, Production & Distribution

akk

cc: Cathy Arnett

FUND F

EXHIBIT B

REQUEST FOR PAYMENT WITH RESPECT TO
ASSISTANCE AGREEMENT DATED AUGUST 1, 2014

Request No. 3 Dated March 6, 2016

Original to: Kentucky Infrastructure Authority
1024 Capital Center Drive, Suite 340
Frankfort, Kentucky 40601

Copy to: Division of Water
Resource Planning and Program Support Branch
200 Fair Oaks Lane
Fourth Floor
Frankfort, Kentucky 40601
ATTN: Cathy Arnett

From: Northern Kentucky Water District ("Governmental Agency")

Ladies and Gentlemen:

The above-identified Governmental Agency has entered into an Assistance Agreement with the Kentucky Infrastructure Authority (the "Authority") for the acquisition, planning, design, and construction of facilities described in the Assistance Agreement as the "Project."

Pursuant to the Assistance Agreement, we here by certify that we have incurred the following expenses in connection with the Project and that the Authority's funding share of these expenses is in the amount so denoted in this request totaling $151,295.69.

Documentation supporting the expenses incurred and identified per this request is attached.

ELIGIBLE PROJECT EXPENSES INCURRED

Contractor	Expenses This Request	Expenses To Date
Welsh Excavation (complete)		$ 928,000.00
Building Crafts, Inc. – Payment Request #8	$75,217.44	
Building Crafts, Inc. – Payment Request #9	$76,078.25 (of $220,153.25)	$3,400,000.00
TOTAL	$151,295.69	$4,328,000.00

The District requested a total of $928,000 of Contract #1 (Welsh) be funded by SRF.
The District is requesting $3,400,000 of Contract #2 (Building Crafts) be funded by SRF.
The District will be requesting $3,672,000 for Contract #3 be funded by SRF.
The amount requested in Draw #4 is $151,295.69.

ALLOCATION OF FUNDING FOR EXPENSES

Funding Source	Portion of Expenses This Request	Portion of Expenses Total to Date
Fund F Project 13-012	$ 151,295.69	$4,328,000.00
Local Funds	$ 156,526.25	$ 593,036.51
Totals	$ 307,821.50	$4,921,036.51

The Governmental Agency certifies it has also paid Project expenses or has submitted requisitions to the applicable funding sources for Project expenses, which have not been identified in any previous Request for Payment, as follows:

Funding Source	Amount of Payment or Requisition	Date of Payment or Requisition

Respectfully submitted,

Northern Kentucky Water District
Governmental Agency

By Amy Kramer
Amy Kramer
Title V. P., Engineering, Production & Distribution

CERTIFICATE OF CONSULTING ENGINEERS
AS TO
PAYMENT REQUEST

The undersigned, a duly qualified and licensed Engineer hereby certifies that he or she represents the Governmental Agency submitting this SRF Fund F request dated March 6, 2016 in connection with the "Eligible Project" and that all expenses represented in this request were duly incurred for the "Project," that the Authority's funding share of these expenses is accurately represented and that such expenses have not been the subject of any request for disbursement previously submitted.

Engineer/Consultant

ARCADIS U.S., Inc.
Firm Name

Interoffice Requisition/Receiving Report

White Receiving Copy
Yellow Retain for Dept. Files

VENDOR NUMBER:	BUIIRR	RECEIVING DATE:	12/2/2015
VENDOR NAME:	BUILDING CRAFTS, INC.	INVOICE #:	8
ADDRESS:	2 ROSEWOOD DRIVE	REQUESTED BY:	J. Schuchter
CITY STATE ZIP	WILDER, KY 41076	DEPARTMENT	ENGINEERING

QUANTITY ORDERED	ITEM DESCRIPTION	ACCOUNT / JOB NUMBER	AMOUNT
	TMTP Electrical & Basin Improvements	184-476	$79,176.24
		Line 991	
	RETAINAGE BEING HELD (Application #8)	231-0005-000	($3,958.80)
	Holding 5%		
		TOTAL:	$75,217.44

CONFIRMATION (circle one) Yes No Order Complete (circle) Yes No

ORDER DATE: _____ RECEIVED BY: _____ APPROVED: JJ 12-3-15

ENTERED

COPY

APPLICATION AND CERTIFICATE FOR PAYMENT AIA DOCUMENT G702

TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvement
Project No 184-0476 DOW Loan NO DWL 13060

APPLICATION NO: 8
PERIOD TO: 10/15/15
PROJECT NO: 4060

Distribution to:
- Owner
- Architect
- Accounting
- Field

FROM CONTRACTOR: Building Crafts Inc.
2 Rosewood Dr
Wilder, KY. 41076

VIA ARCHITECT: ARCADIS/Magna

CONTRACT DATE: 7/2/14
Project No : 184-0476
DOW Loan NO DWL: 13060

CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM		$3,468,997.00
2.	Net change by Change Orders		$0.00 #24,868
3.	CONTRACT SUM TO DATE (Line 1 ± 2)		$3,468,997.00
4.	TOTAL COMPLETED AND STORED TO DATE (Column G on G703)		$3,498,865.00
5.	RETAINAGE:		
	a. 5 % of Completed Work (Columns D + E on G703)	$174,943.25	
	b. _____% of Stored Material (Column F on G703)	$0.00	
	Total Retainage (Line 5a + 5b or Total in Column J of G703)		$174,943.25
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$3,323,921.75
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$3,248,704.31
8.	CURRENT PAYMENT DUE		$75,217.44
9.	BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)		$145,075.25

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

BY: DAN BREETZ Date: 11/9/15

State of: Kentucky

Subscribed and sworn to before me this 9th day of November 2015

Notary Public: Donna Wallace

DONNA WALLACE NOTARY ID NO. 508815 PUBLIC STATE AT LARGE, KY.

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $75,217.44

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

184-476

RECEIVED
NOV 10 2015
ON THIS DATE

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 8
PERIOD TO: 10/15/2015

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A	B	C	D	E	F	G		H
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH
			FROM PREVIOUS APPLICATION	THIS PERIOD				
	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
3	Mobilization and Site Setup	$18,000.00	$18,000.00	$0.00	$0.00	$18,000.00	100%	$0.00
4	Demobilization	$4,500.00	$0.00	$4,500.00	$0.00	$4,500.00	100%	$0.00
5	Div. 2 - Sitework							
	02 41 00 Demolition	$180,000.00	$180,000.00	$0.00	$0.00	$180,000.00	100%	$0.00
	Div. 3 - Concrete							
7	03 01 30 Rehabilitation of Concrete (Not In Unit Price)	$138,000.00	$138,000.00	$0.00	$0.00	$138,000.00	100%	$0.00
8	03 30 00 Cast In Place Concrete Including Sawcutting	$121,877.00	$120,407.75	$1,469.25	$0.00	$121,877.00	100%	$0.00
9	Div. 5 - Metals							
10	05 50 00 Miscellaneous Metals Including handrail	$48,000.00	$44,000.00	$4,000.00	$0.00	$48,000.00	100%	$0.00
9	Div. 6 - Wood and Plastics							
11	0610 53 Miscellaneios Carpentry	$8,000.00	$8,000.00	$0.00	$0.00	$8,000.00	100%	$0.00
9	Div. 7 - Thermal and Moisture Protection							
	07 16 00 Capillary Waterproofing	$4,500.00	$0.00	$0.00	$0.00	$0.00	0%	$4,500.00
	07 55 52 Modified Bitumious Roofing	$178,000.00	$178,000.00	$0.00	$0.00	$178,000.00	100%	$0.00
	Div. 9 - Finishes							
12	09 91 0 - Painting	$148,000.00	$142,200.00	$5,800.00	$0.00	$148,000.00	100%	$0.00
	Div. 23 - HVAC							
	23 00 00 Common work results for HVAC	$83,000.00	$80,200.00	$2,800.00	$0.00	$83,000.00	100%	$0.00
	Div. 26 - Electrical							
13	26 05 00 - Common Work Results for Electrical	$1,230,000.00	$1,209,045.00	$20,955.00	$0.00	$1,230,000.00	100%	$0.00
	Div. 40 - Process Inegration							
14	40 05 05 Exposed Piping	$35,000.00	$30,000.00	$5,000.00	$0.00	$35,000.00	100%	$0.00
15	40 05 53 Valves	$101,000.00	$96,500.00	$4,500.00	$0.00	$101,000.00	100%	$0.00
	Div. 43 - Process							
18	Div. 43 - Vertical Turbine Pumps	$736,000.00	$724,842.00	$11,158.00	$0.00	$736,000.00	100%	$0.00
	Div. 46 - Water and Wastewater Equipment							
18	46 43 73 Tube Settlers	$165,000.00	$165,000.00	$0.00	$0.00	$165,000.00	100%	$0.00
	Unit Price Bid Items:							
20	Item 2 Wall Expansion Joint Repair	$31,200.00	$10,400.00	$0.00	$0.00	$10,400.00	33%	$20,800.00
21	Item 3 Trough Crack Repair	$10,000.00	$750.00	$0.00	$0.00	$750.00	8%	$9,250.00
22	Item 4 Surface Spall Repair	$44,850.00	$52,854.00	$0.00	$0.00	$52,854.00	118%	($8,004.00)
23	Item 5 Contingency Allowance	$40,000.00	$29,101.00	$0.00	$0.00	$29,101.00	73%	$10,899.00
24	Item 6 For Base Slab Crack Repair	$18,000.00	$17,100.00	$0.00	$0.00	$17,100.00	95%	$900.00
25	CO 1 Quantity adjustment for bid items 2,3,4,6	($22,946.00)	$0.00	$0.00	$0.00	$0.00	0%	($22,946.00)
26	CO 2 Additonal work associated with field order #2	$19,991.00	$19,991.00	$0.00	$0.00	$19,991.00	100%	$0.00
27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$29,228.00	$0.00	$0.00	$29,228.00	100%	$0.00
28	CO 4 Add Roof Hatch	$1,931.00	$0.00	$1,931.00	$0.00	$1,931.00	100%	$0.00
29	CO 5 No Cost 38 day time extension	$0.00	$0.00	$0.00	$0.00	$0.00	0%	$0.00
30	CO 6 Upgrade Condutor to Sludge Building	$13,329.00	$0.00	$13,329.00	$0.00	$13,329.00	100%	$0.00
31	CO 7 Install Duct work and Temp Sensor	$3,734.00	$0.00	$3,734.00	$0.00	$3,734.00	100%	$0.00
	TOTAL	$3,514,264.00	$3,419,688.75	$79,176.25	$0.00	$3,498,865.00		$15,399.00

TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvement
Project No 184-0476 DOW Loan NO DWL 13060

APPLICATION NO: 8
PERIOD TO: 10/15/15
PROJECT NO: 4060

Distribution to:
[ ] Owner
[ ] Architect
[ ] Accounting
[ ] Field
[ ]

FROM CONTRACTOR: Building Crafts Inc.
2 Rosewood Dr
Wilder, KY. 41076

VIA ARCHITECT: ARCADIS/Magna

CONTRACT DATE: 7/2/14
Project No : 184-0476
DOW Loan NO DWL: 13060

CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM		$3,468,997.00
2.	Net change by Change Orders		$0.00
3.	CONTRACT SUM TO DATE (Line 1 ± 2)		$3,468,997.00
4.	TOTAL COMPLETED AND STORED TO DATE (Column G on G703)		$3,498,865.00
5.	RETAINAGE:		
	a. 5 % of Completed Work (Columns D + E on G703)	$174,943.25	
	b. _____% of Stored Material (Column F on G703)	$0.00	
	Total Retainage (Line 5a + 5b or Total in Column J of G703)		$174,943.25
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$3,323,921.75
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$3,248,704.31
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Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

BY: DAN BREETZ Date: 11/9/15

State of: Kentucky

Subscribed and sworn to before me this 9th day of November 2015

Notary Public: _____

DONNA WALLACE NOTARY ID NO. 508815 PUBLIC STATE AT LARGE KY

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $75,217.44

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 8
PERIOD TO: 10/15/2015

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

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	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
3	Mobilization and Site Setup	$18,000.00	$18,000.00	$0.00	$0.00	$18,000.00	100%	$0.00
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	Unit Price Bid Items:							
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27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$29,228.00	$0.00	$0.00	$29,228.00	100%	$0.00
28	CO 4 Add Roof Hatch	$1,931.00	$0.00	$1,931.00	$0.00	$1,931.00	100%	$0.00
29	CO 5 No Cost 38 day time extension	$0.00	$0.00	$0.00	$0.00	$0.00	0%	$0.00
30	CO 6 Upgrade Condutor to Sludge Building	$13,329.00	$0.00	$13,329.00	$0.00	$13,329.00	100%	$0.00
31	CO 7 Install Duct work and Temp Sensor	$3,734.00	$0.00	$3,734.00	$0.00	$3,734.00	100%	$0.00
	TOTAL	$3,514,264.00	$3,419,888.75	$79,176.25	$0.00	$3,498,865.00		$15,399.00

Interoffice Requisition/Receiving Report

White Receiving Copy
Yellow Retain for Dept. Files

VENDOR NUMBER:	BUIIRR	RECEIVING DATE:	1/20/2016
VENDOR NAME:	BUILDING CRAFTS, INC.	INVOICE #:	9
ADDRESS:	2 ROSEWOOD DRIVE	REQUESTED BY:	J. Schuchter
CITY STATE ZIP	WILDER, KY 41076	DEPARTMENT	ENGINEERING

QUANTITY ORDERED	ITEM DESCRIPTION	ACCOUNT / JOB NUMBER	AMOUNT
	TMTP ELECTRICAL & BASIN IMPROVEMENTS	184-476	$270,153.25
		Line 991	
	RETAINAGE BEING HELD (Application #9)	231-0005-000	($50,000.00)
	Holding $50,000.00 in total retainage		
		TOTAL:	$220,153.25

CONFIRMATION (circle one) Yes No Order Complete (circle) Yes No

ORDER DATE: _____ RECEIVED BY: _____ APPROVED: 1-29-16

ENTERED

COPY

TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road -
Erlanger, KY 41017

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvement
Project No 184-0476 DOW Loan NO DWL 13060

APPLICATION NO: 9
PERIOD TO: 1/13/16
PROJECT NO: 4060

Distribution to:
☐ Owner
☐ Architect
☐ Accounting
☐ Field
☐

FROM CONTRACTOR: Building Crafts Inc.
2 Rosewood Dr
Wilder, KY. 41076

VIA ARCHITECT: ARCADIS/Magna

CONTRACT DATE: 7/2/14
Project No : 184-0476
DOW Loan NO DWL: 13060

CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM		$3,468,997.00
2.	Net change by Change Orders		$125,078.00
3.	CONTRACT SUM TO DATE (Line 1 ± 2)		$3,594,075.00
4.	TOTAL COMPLETED AND STORED TO DATE (Column G on G703)		$3,594,075.00
5.	RETAINAGE:		
	a. 5 % of Completed Work (Columns D + E on G703)	$50,000.00	
	b. _____% of Stored Material (Column F on G703)	$0.00	
	Total Retainage (Line 5a + 5b or Total in Column J of G703)		$50,000.00
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$3,544,075.00
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$3,323,921.75
8.	CURRENT PAYMENT DUE		$220,153.25
9.	BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)		$50,000.00

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

BY: DAN BRETZ 1/18/16 Date: _____

State of: Kentucky

Subscribed and sworn to before me this 18th day of January 2016

Notary Public: Donna Wallace

DONNA WALLACE NOTARY ID NO. 508815 PUBLIC STATE AT LARGE, KY.

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $220,153.25

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

184-476

RECEIVED
JAN 18 2016
ON THIS DATE

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 9
PERIOD TO: 1/13/2016

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A	B	C	D	E	F	G		H
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION	WORK COMPLETED THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH
	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
3	Mobilization and Site Setup	$18,000.00	$18,000.00	$0.00	$0.00	$18,000.00	100%	$0.00
4	Demobilization	$4,500.00	$4,500.00	$0.00	$0.00	$4,500.00	100%	$0.00
5	Div. 2 - Sitework							
	02 41 00 Demolition	$190,000.00	$190,000.00	$0.00	$0.00	$190,000.00	100%	$0.00
	Div. 3 - Concrete							
7	03 01 30 Rehabilitation of Concrete (Not in Unit Price)	$138,000.00	$138,000.00	$0.00	$0.00	$138,000.00	100%	$0.00
8	03 30 00 Cast in Place Concrete including Sawcutting	$121,877.00	$121,877.00	$0.00	$0.00	$121,877.00	100%	$0.00
9	Div. 5 - Metals							
10	05 50 00 Miscellaneous Metals including handrail	$48,000.00	$48,000.00	$0.00	$0.00	$48,000.00	100%	$0.00
9	Div. 6 - Wood and Plastics							
11	0610 53 Miscellaneios Carpentry	$8,000.00	$8,000.00	$0.00	$0.00	$8,000.00	100%	$0.00
9	Div. 7 - Thermal and Moisture Protection							
	07 16 00 Capillary Waterproofing	$4,500.00	$0.00	$4,500.00	$0.00	$4,500.00	100%	$0.00
	07 55 52 Modified Bitumious Roofing	$178,000.00	$178,000.00	$0.00	$0.00	$178,000.00	100%	$0.00
	Div. 9 - Finishes							
12	09 91 0 - Painting	$148,000.00	$148,000.00	$0.00	$0.00	$148,000.00	100%	$0.00
	Div. 23 - HVAC							
	23 00 00 Common work results for HVAC	$63,000.00	$63,000.00	$0.00	$0.00	$63,000.00	100%	$0.00
	Div. 26 - Electrical							
13	26 05 00 - Common Work Results for Electrical	$1,230,000.00	$1,230,000.00	$0.00	$0.00	$1,230,000.00	100%	$0.00
	Div. 40 - Process Inegration							
14	40 05 05 Exposed Piping	$35,000.00	$35,000.00	$0.00	$0.00	$35,000.00	100%	$0.00
15	40 05 53 Valves	$101,000.00	$101,000.00	$0.00	$0.00	$101,000.00	100%	$0.00
	Div. 43 - Process							
18	Div. 43 - Vertical Turbine Pumps	$736,000.00	$736,000.00	$0.00	$0.00	$736,000.00	100%	$0.00
	Div. 46 - Water and Wastewater Equipment							
18	46 43 73 Tube Settlers	$165,000.00	$165,000.00	$0.00	$0.00	$165,000.00	100%	$0.00
	Unit Price Bid Items:							
20	Item 2 Wall Expansion Joint Repair	$31,200.00	$10,400.00	$0.00	$0.00	$10,400.00	33%	$20,800.00
21	Item 3 Trough Crack Repair	$10,000.00	$750.00	$0.00	$0.00	$750.00	8%	$9,250.00
22	Item 4 Surface Spall Repair	$44,850.00	$52,854.00	$0.00	$0.00	$52,854.00	118%	($8,004.00)
23	Item 5 Contingency Allowance	$40,000.00	$29,101.00	$10,899.00	$0.00	$40,000.00	100%	$0.00
24	Item 6 For Base Slab Crack Repair	$18,000.00	$17,100.00	$0.00	$0.00	$17,100.00	95%	$900.00
25	CO 1 Quantity adjustment for bid items 2,3,4,6	($22,946.00)	$0.00	$0.00	$0.00	$0.00	0%	($22,946.00)
26	CO 2 Additonal work associated with field order #2	$19,991.00	$19,991.00	$0.00	$0.00	$19,991.00	100%	$0.00
27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$29,228.00	$0.00	$0.00	$29,228.00	100%	$0.00
28	CO 4 Add Roof Hatch	$1,931.00	$1,931.00	$0.00	$0.00	$1,931.00	100%	$0.00
29	CO 5 No Cost 38 day time extension	$0.00	$0.00	$0.00	$0.00	$0.00	0%	$0.00
30	CO 6 Upgrade Condutor to Sludge Building	$13,329.00	$13,329.00	$0.00	$0.00	$13,329.00	100%	$0.00
31	CO 7 Install Duct work and Temp Sensor	$3,734.00	$3,734.00	$0.00	$0.00	$3,734.00	100%	$0.00
	CO 8 Sandblast and Coat Tunnel Walls	$70,007.00	$0.00	$70,007.00	$0.00	$70,007.00	100%	$0.00
	CO 9 EJ Repair	$6,212.00	$0.00	$6,212.00	$0.00	$6,212.00	100%	$0.00
	CO 10 hot gas bypass valve	$3,592.00	$0.00	$3,592.00	$0.00	$3,592.00	100%	$0.00
	TOTAL	$3,594,075.00	$3,498,865.00	$95,210.00	$0.00	$3,594,075.00		$0.00

TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvement
Project No 184-0476 DOW Loan NO DWL 13060

APPLICATION NO: 9
PERIOD TO: 1/13/16
PROJECT NO: 4060

CONTRACT DATE: 7/2/14
Project No : 184-0476
DOW Loan NO DWL: 13060

Distribution to:
- Owner
- Architect
- Accounting
- Field

FROM CONTRACTOR: Building Crafts Inc.
2 Rosewood Dr
Wilder, KY. 41076

VIA ARCHITECT: ARCADIS/Magna

CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM		$3,468,997.00
2.	Net change by Change Orders		$125,078.00
3.	CONTRACT SUM TO DATE (Line 1 ± 2)		$3,594,075.00
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CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

BY: [signature] 1/18/16 Date: _____

State of: Kentucky

Subscribed and sworn to before me this 18th day of January 2016

Notary Public: [signature]

DONNA WALLACE NOTARY PUBLIC STATE AT LARGE, KY ID NO. 508815

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $220,153.25

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are withourt prejudice to any rights of the Owner or Contractor under this Contract.

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 9
PERIOD TO: 1/13/2016

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

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			FROM PREVIOUS APPLICATION	THIS PERIOD				
	Div. 1 - General Requirements							
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23	Item 5 Contingency Allowance	$40,000.00	$29,101.00	$10,899.00	$0.00	$40,000.00	100%	$0.00
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27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$29,228.00	$0.00	$0.00	$29,228.00	100%	$0.00
28	CO 4 Add Roof Hatch	$1,931.00	$1,931.00	$0.00	$0.00	$1,931.00	100%	$0.00
29	CO 5 No Cost 38 day time extension	$0.00	$0.00	$0.00	$0.00	$0.00	0%	$0.00
30	CO 6 Upgrade Condutor to Sludge Building	$13,329.00	$13,329.00	$0.00	$0.00	$13,329.00	100%	$0.00
31	CO 7 Install Duct work and Temp Sensor	$3,734.00	$3,734.00	$0.00	$0.00	$3,734.00	100%	$0.00
	CO 8 Sandblast and Coat Tunnel Walls	$70,007.00	$0.00	$70,007.00	$0.00	$70,007.00	100%	$0.00
	CO 9 EJ Repair	$6,212.00	$0.00	$6,212.00	$0.00	$6,212.00	100%	$0.00
	CO 10 hot gas bypass valve	$3,592.00	$0.00	$3,592.00	$0.00	$3,592.00	100%	$0.00
	TOTAL	$3,594,075.00	$3,498,865.00	$95,210.00	$0.00	$3,594,075.00		$0.00

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No 184-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 8/14/2015

DBE Subcontractor's Name: None

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (equipment):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (services):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (materials/supplies):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Dan Breetz Digitally signed by Dan Breetz DN: cn=Dan Breetz, o, ou, email=dbreetz@buildingcrafts.com, c=US Date: 2015.03.17 10:56:58 -04'00'

Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No 184-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 9/14/2015

DBE Subcontractor's Name: None

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
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Prime Contractor's Signature: Dan Breetz Digitally signed by Dan Breetz DN: cn=Dan Breetz, o, ou, email=dbreetz@buildingcrafts.com, c=US Date: 2015.03.17 10:56:58 -04'00'

Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No 184-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 10/14/2015

Attach Invoices

DBE Subcontractor's Name: None

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (equipment):	$_____	$_____
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Prime Contractor's Signature: Dan Breetz Digitally signed by Dan Breetz DN: cn=Dan Breetz, o, ou, email=dbreetz@buildingcrafts.com, c=US Date: 2015.03.17 10:56:58 -04'00'

Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No I84-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 11/14/2015

DBE Subcontractor's Name: None

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (equipment):	$_____	$_____
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Total dollar amount for this reporting period:	$_____	$_____

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Dan Breetz Digitally signed by Dan Breetz DN: cn=Dan Breetz, o, ou, email=dbreetz@buildingcrafts.com, c=US Date: 2015.03.17 10:56:58 -04'00'

Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No 184-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 12/14/2015

DBE Subcontractor's Name: None

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (equipment):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (services):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (materials/supplies):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

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Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No 184-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 1/14/2016

DBE Subcontractor's Name: None

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (equipment):	$_____	$_____
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Prime Contractor's Signature: Dan Breetz Digitally signed by Dan Breetz DN: cn=Dan Breetz, o, ou, email=dbreetz@buildingcrafts.com, c=US Date: 2015.03.17 10:56:58 -04'00'

Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

FUND F

EXHIBIT B

REQUEST FOR PAYMENT WITH RESPECT TO
ASSISTANCE AGREEMENT DATED AUGUST 1, 2014

Request No. 5 (SFR13-012) Dated August 8, 2016

Original to: Kentucky Infrastructure Authority
1024 Capital Center Drive, Suite 340
Frankfort, Kentucky 40601

Copy to: Division of Water
Resource Planning and Program Support Branch
200 Fair Oaks Lane
Fourth Floor
Frankfort, Kentucky 40601
ATTN: Cathy Arnett

From: Northern Kentucky Water District ("Governmental Agency")

Ladies and Gentlemen:

The above-identified Governmental Agency has entered into an Assistance Agreement with the Kentucky Infrastructure Authority (the "Authority") for the acquisition, planning, design, and construction of facilities described in the Assistance Agreement as the "Project."

Pursuant to the Assistance Agreement, we here by certify that we have incurred the following expenses in connection with the Project and that the Authority's funding share of these expenses is in the amount so denoted in this request totaling $195,000.00.

Documentation supporting the expenses incurred and identified per this request is attached.

ELIGIBLE PROJECT EXPENSES INCURRED

Contractor	Expenses This Request	Expenses To Date
Welsh Excavation (complete)		$ 928,000.00
Building Crafts, Inc. – Payment Request #9	$143,990.00	
Building Crafts, Inc. – Payment Request #10	$ 51,010.00	$3,595,000.00
TOTAL	$195,000.00	$4,523,000.00

The District requested a total of $928,000 of Contract #1 (Welsh) be funded by SRF.
The District will be requesting $3,477,000 for Contract #2 be funded by SRF.
The District is requesting $3,595,000 of Contract #3 (Building Crafts) be funded by SRF.
The amount requested in Draw #5 is $195,000.00.

ALLOCATION OF FUNDING FOR EXPENSES

Funding Source	Portion of Expenses This Request	Portion of Expenses Total to Date
Fund F Project 13-012	$ 195,000.00	$4,523,000.00
Local Funds	$ 0	$ 399,690.17
Totals	$ 195,000.00	$4,922,690.17

The Governmental Agency certifies it has also paid Project expenses or has submitted requisitions to the applicable funding sources for Project expenses, which have not been identified in any previous Request for Payment, as follows:

Funding Source	Amount of Payment or Requisition	Date of Payment or Requisition

Respectfully submitted,

Northern Kentucky Water District
Governmental Agency

By _____
Amy Kramer
Title V. P., Engineering, Production & Distribution

CERTIFICATE OF CONSULTING ENGINEERS
AS TO
PAYMENT REQUEST

The undersigned, a duly qualified and licensed Engineer hereby certifies that he or she represents the Governmental Agency submitting this SRF Fund F request dated June 1, 2016 in connection with the "Eligible Project" and that all expenses represented in this request were duly incurred for the "Project," that the Authority's funding share of these expenses is accurately represented and that such expenses have not been the subject of any request for disbursement previously submitted.

Engineer/Consultant

ARCADIS U.S., Inc.
Firm Name

Interoffice Requisition/Receiving Report

White Receiving Copy
Yellow Retain for Dept. Files

VENDOR NUMBER:	BUIIRR	RECEIVING DATE:	1/20/2016
VENDOR NAME:	BUILDING CRAFTS, INC.	INVOICE #:	9
ADDRESS:	2 ROSEWOOD DRIVE	REQUESTED BY:	J. Schuchter
CITY STATE ZIP	WILDER, KY 41076	DEPARTMENT	ENGINEERING

QUANTITY ORDERED	ITEM DESCRIPTION	ACCOUNT / JOB NUMBER	AMOUNT
	TMTP ELECTRICAL & BASIN IMPROVEMENTS	184-476	$270,153.25
		Line 991	
	RETAINAGE BEING HELD (Application #9)	231-0005-000	($50,000.00)
	Holding $50,000.00 in total retainage		
		TOTAL:	$220,153.25

CONFIRMATION (circle one) Yes No Order Complete (circle) Yes No

ORDER DATE: _____ RECEIVED BY: _____ APPROVED: Jeff Schuchter 1-29-16

ENTERED

COPY

APPLICATION AND CERTIFICATE FOR PAYMENT AIA DOCUMENT G702

#9

TO OWNER: Northern Kentuck Water District 2835 Crescent Springs Road · Erlanger, KY 41017	PROJECT:	Taylor Mill Water Treatment Plant Electrical and Basin Improvement Project No 184-0476 DOW Loan NO DWL 13060	APPLICATION NO: PERIOD TO: PROJECT NO:	9 1/13/16 4060	Distribution to: Owner Architect Accounting
FROM CONTRACTOR: Building Crafts Inc. 2 Rosewood Dr Wilder, KY. 41076	VIA ARCHITECT:	ARCADIS/Magna	CONTRACT DATE: Project No : DOW Loan NO DWL:	7/2/14 184-0476 13060	Field
CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No 184-0476 DOW Loan NO DWL 13060					

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM		$3,468,997.00
2.	Net change by Change Orders		$125,078.00
3.	CONTRACT SUM TO DATE (Line 1 ± 2)		$3,594,075.00
4.	TOTAL COMPLETED AND STORED TO DATE (Column G on G703)		$3,594,075.00
5.	RETAINAGE:		
	a. 5 % of Completed Work (Columns D + E on G703)	$50,000.00	
	b. _____% of Stored Material (Column F on G703)	$0.00	
	Total Retainage (Line 5a + 5b or Total in Column J of G703)		$50,000.00
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$3,544,075.00
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$3,323,921.75
8.	CURRENT PAYMENT DUE		$220,153.25
9.	BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)		$50,000.00

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

BY: DAN BRETZ 1/18/16 Date: _____

State of: Kentucky

Subscribed and sworn to before me this 18th day of January 2016

Notary Public: Donna Wallace

DONNA WALLACE NOTARY ID NO. 508815 PUBLIC STATE AT LARGE, KY.

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $220,153.25

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

184-476

RECEIVED
JAN 18 2016
ON THIS DATE

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 9
PERIOD TO: 1/13/2016

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A	B	C	D	E	F	G		H
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION	WORK COMPLETED THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH
	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
3	Mobilization and Site Setup	$18,000.00	$18,000.00	$0.00	$0.00	$18,000.00	100%	$0.00
4	Demobilization	$4,500.00	$4,500.00	$0.00	$0.00	$4,500.00	100%	$0.00
5	Div. 2 - Sitework							
	02 41 00 Demolition	$190,000.00	$190,000.00	$0.00	$0.00	$190,000.00	100%	$0.00
	Div. 3 - Concrete							
7	03 01 30 Rehabilitation of Concrete (Not in Unit Price)	$138,000.00	$138,000.00	$0.00	$0.00	$138,000.00	100%	$0.00
8	03 30 00 Cast in Place Concrete Including Sawcutting	$121,877.00	$121,877.00	$0.00	$0.00	$121,877.00	100%	$0.00
9	Div. 5 - Metals							
10	05 50 00 Miscellaneous Metals including handrail	$48,000.00	$48,000.00	$0.00	$0.00	$48,000.00	100%	$0.00
9	Div. 6 - Wood and Plastics							
11	0610 53 Miscellaneios Carpentry	$8,000.00	$8,000.00	$0.00	$0.00	$8,000.00	100%	$0.00
9	Div. 7 - Thermal and Moisture Protection							
	07 16 00 Capillary Waterproofing	$4,500.00	$0.00	$4,500.00	$0.00	$4,500.00	100%	$0.00
	07 55 52 Modified Bitumious Roofing	$178,000.00	$178,000.00	$0.00	$0.00	$178,000.00	100%	$0.00
	Div. 9 - Finishes							
12	09 91 0 - Painting	$148,000.00	$148,000.00	$0.00	$0.00	$148,000.00	100%	$0.00
	Div. 23 - HVAC							
	23 00 00 Common work results for HVAC	$63,000.00	$63,000.00	$0.00	$0.00	$63,000.00	100%	$0.00
	Div. 26 - Electrical							
13	26 05 00 - Common Work Results for Electrical	$1,230,000.00	$1,230,000.00	$0.00	$0.00	$1,230,000.00	100%	$0.00
	Div. 40 - Process Inegration							
14	40 05 05 Exposed Piping	$35,000.00	$35,000.00	$0.00	$0.00	$35,000.00	100%	$0.00
15	40 05 53 Valves	$101,000.00	$101,000.00	$0.00	$0.00	$101,000.00	100%	$0.00
	Div. 43 - Process							
18	Div. 43 - Vertical Turbine Pumps	$736,000.00	$736,000.00	$0.00	$0.00	$736,000.00	100%	$0.00
	Div. 46 - Water and Wastewater Equipment							
18	46 43 73 Tube Settlers	$165,000.00	$165,000.00	$0.00	$0.00	$165,000.00	100%	$0.00
	Unit Price Bid Items:							
20	Item 2 Wall Expansion Joint Repair	$31,200.00	$10,400.00	$0.00	$0.00	$10,400.00	33%	$20,800.00
21	Item 3 Trough Crack Repair	$10,000.00	$750.00	$0.00	$0.00	$750.00	8%	$9,250.00
22	Item 4 Surface Spall Repair	$44,850.00	$52,854.00	$0.00	$0.00	$52,854.00	118%	($8,004.00)
23	Item 5 Contingency Allowance	$40,000.00	$29,101.00	$10,899.00	$0.00	$40,000.00	100%	$0.00
24	Item 6 For Base Slab Crack Repair	$18,000.00	$17,100.00	$0.00	$0.00	$17,100.00	95%	$900.00
25	CO 1 Quantity adjustment for bid items 2,3,4,6	($22,946.00)	$0.00	$0.00	$0.00	$0.00	0%	($22,946.00)
26	CO 2 Additonal work associated with field order #2	$19,991.00	$19,991.00	$0.00	$0.00	$19,991.00	100%	$0.00
27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$29,228.00	$0.00	$0.00	$29,228.00	100%	$0.00
28	CO 4 Add Roof Hatch	$1,931.00	$1,931.00	$0.00	$0.00	$1,931.00	100%	$0.00
29	CO 5 No Cost 38 day time extension	$0.00	$0.00	$0.00	$0.00	$0.00	0%	$0.00
30	CO 6 Upgrade Condutor to Sludge Building	$13,329.00	$13,329.00	$0.00	$0.00	$13,329.00	100%	$0.00
31	CO 7 Install Duct work and Temp Sensor	$3,734.00	$3,734.00	$0.00	$0.00	$3,734.00	100%	$0.00
	CO 8 Sandblast and Coat Tunnel Walls	$70,007.00	$0.00	$70,007.00	$0.00	$70,007.00	100%	$0.00
	CO 9 EJ Repair	$6,212.00	$0.00	$6,212.00	$0.00	$6,212.00	100%	$0.00
	CO 10 hot gas bypass valve	$3,592.00	$0.00	$3,592.00	$0.00	$3,592.00	100%	$0.00
	TOTAL	$3,594,075.00	$3,498,865.00	$95,210.00	$0.00	$3,594,075.00		$0.00

APPLICATION AND CERTIFICATE FOR PAYMENT AIA DOCUMENT G702

TO OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvement
Project No 184-0476 DOW Loan NO DWL 13060

APPLICATION NO: 9
PERIOD TO: 1/13/16
PROJECT NO: 4060

Distribution to:
- [ ] Owner
- [ ] Architect
- [ ] Accounting
- [ ] Field
- [ ]

FROM CONTRACTOR: Building Crafts Inc.
2 Rosewood Dr
Wilder, KY. 41076

VIA ARCHITECT: ARCADIS/Magna

CONTRACT DATE: 7/2/14
Project No : 184-0476
DOW Loan NO DWL: 13060

CONTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below in connection with the contract.
Continuation Sheet, AIA Document G703, is attached.

1.	ORIGINAL CONTRACT SUM		$3,468,997.00
2.	Net change by Change Orders		$125,078.00
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5.	RETAINAGE:		
	a. 5 % of Completed Work (Columns D + E on G703)	$50,000.00	
	b. _____% of Stored Material (Column F on G703)	$0.00	
	Total Retainage (Line 5a + 5b or Total in Column J of G703)		$50,000.00
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)		$3,544,075.00
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$3,323,921.75
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Total changes approved in previous months by owner		0.00
Total approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
Net Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

BY: Dan Boertz 1/18/16 Date: _____

State of: Kentucky
Subscribed and sworn to before me this 18th day of January 2016

Notary Public: Donna Wallace

DONNA WALLACE NOTARY ID NO. 508815 PUBLIC STATE AT LARGE, KY.

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $220,153.25

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 9
PERIOD TO: 1/13/2016

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A	B	C	D	E	F	G		H
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH
			FROM PREVIOUS APPLICATION	THIS PERIOD				
	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
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	07 16 00 Capillary Waterproofing	$4,500.00	$0.00	$4,500.00	$0.00	$4,500.00	100%	$0.00
	07 55 52 Modified Bitumious Roofing	$178,000.00	$178,000.00	$0.00	$0.00	$178,000.00	100%	$0.00
	Div. 9 - Finishes							
12	09 91 0 - Painting	$148,000.00	$148,000.00	$0.00	$0.00	$148,000.00	100%	$0.00
	Div. 23 - HVAC							
	23 00 00 Common work results for HVAC	$63,000.00	$63,000.00	$0.00	$0.00	$63,000.00	100%	$0.00
	Div. 26 - Electrical							
13	26 05 00 - Common Work Results for Electrical	$1,230,000.00	$1,230,000.00	$0.00	$0.00	$1,230,000.00	100%	$0.00
	Div. 40 - Process Inegration							
14	40 05 05 Exposed Piping	$35,000.00	$35,000.00	$0.00	$0.00	$35,000.00	100%	$0.00
15	40 05 53 Valves	$101,000.00	$101,000.00	$0.00	$0.00	$101,000.00	100%	$0.00
	Div. 43 - Process							
18	Div. 43 - Vertical Turbine Pumps	$736,000.00	$736,000.00	$0.00	$0.00	$736,000.00	100%	$0.00
	Div. 46 - Water and Wastewater Equiptment							
18	46 43 73 Tube Settlers	$165,000.00	$165,000.00	$0.00	$0.00	$165,000.00	100%	$0.00
	Unit Price Bid Items:							
20	Item 2 Wall Expansion Joint Repair	$31,200.00	$10,400.00	$0.00	$0.00	$10,400.00	33%	$20,800.00
21	Item 3 Trough Crack Repair	$10,000.00	$750.00	$0.00	$0.00	$750.00	8%	$9,250.00
22	Item 4 Surface Spall Repair	$44,850.00	$52,854.00	$0.00	$0.00	$52,854.00	118%	($8,004.00)
23	Item 5 Contingency Allowance	$40,000.00	$29,101.00	$10,899.00	$0.00	$40,000.00	100%	$0.00
24	Item 6 For Base Slab Crack Repair	$18,000.00	$17,100.00	$0.00	$0.00	$17,100.00	95%	$900.00
25	CO 1 Quantity adjustment for bid items 2,3,4,6	($22,946.00)	$0.00	$0.00	$0.00	$0.00	0%	($22,946.00)
26	CO 2 Additonal work associated with field order #2	$19,991.00	$19,991.00	$0.00	$0.00	$19,991.00	100%	$0.00
27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$29,228.00	$0.00	$0.00	$29,228.00	100%	$0.00
28	CO 4 Add Roof Hatch	$1,931.00	$1,931.00	$0.00	$0.00	$1,931.00	100%	$0.00
29	CO 5 No Cost 38 day time extension	$0.00	$0.00	$0.00	$0.00	$0.00	0%	$0.00
30	CO 6 Upgrade Condutor to Sludge Building	$13,329.00	$13,329.00	$0.00	$0.00	$13,329.00	100%	$0.00
31	CO 7 Install Duct work and Temp Sensor	$3,734.00	$3,734.00	$0.00	$0.00	$3,734.00	100%	$0.00
	CO 8 Sandblast and Coat Tunnel Walls	$70,007.00	$0.00	$70,007.00	$0.00	$70,007.00	100%	$0.00
	CO 9 EJ Repair	$6,212.00	$0.00	$6,212.00	$0.00	$6,212.00	100%	$0.00
	CO 10 hot gas bypass valve	$3,592.00	$0.00	$3,592.00	$0.00	$3,592.00	100%	$0.00
	TOTAL	$3,594,075.00	$3,498,865.00	$95,210.00	$0.00	$3,594,075.00		$0.00

Interoffice Requisition/Receiving Report

White Receiving Copy
Yellow Retain for Dept. Files

VENDOR NUMBER:	BUIIRR	RECEIVING DATE:	7/5/2016
VENDOR NAME:	BUILDING CRAFTS, INC.	INVOICE #:	10 (Final Payment)
ADDRESS:	2 ROSEWOOD DRIVE	REQUESTED BY:	J. Schuchter
CITY STATE ZIP	WILDER, KY 41076	DEPARTMENT	ENGINEERING

QUANTITY ORDERED	ITEM DESCRIPTION	ACCOUNT / JOB NUMBER	AMOUNT
	TMTP ELECTRICAL & BASIN IMPROVEMENT PROJECT	184-476	
		Line 991	
	Retainage being paid (Final Payment)	231-0005-000	$51,010.00
		TOTAL:	$51,010.00

CONFIRMATION (circle one) Yes No Order Complete (circle) Yes No

ORDER DATE: _____ RECEIVED BY: _____ APPROVED: 7-6-16

PLEASE GIVE CHECK TO JEFF SCHUCHTER

RECEIVED

g:\forms filled in\Building Crafts.xls

) OWNER: Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvement
Project No 184-0476 DOW Loan NO DWL 13060

APPLICATION NO: 10
PERIOD TO: 6/1/16
PROJECT NO: 4060

Distribution to:
Owner
Architect
Accounting
Field

ıOM CONTRACTOR: Building Crafts Inc.
2 Rosewood Dr
Wilder, KY. 41076

VIA ARCHITECT: ARCADIS/Magna

CONTRACT DATE: 7/2/14
Project No : 184-0476
DOW Loan NO DWL: 13060

)NTRACT FOR: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

)NTRACTOR'S APPLICATION FOR PAYMENT
ıplication is made for payment, as shown below in connection with the contract.
ıntinuation Sheet, AIA Document G703, is attached.

ORIGINAL CONTRACT SUM	$3,468,997.00
Net change by Change Orders	$126,088.00
CONTRACT SUM TO DATE (Line 1 ± 2)	$3,595,085.00
TOTAL COMPLETED AND STORED TO DATE (Column G on G703)	$3,595,085.00
RETAINAGE:	
a. 5 % of Completed Work (Columns D + E on G703)	$0.00
b. _____% of Stored Material (Column F on G703)	$0.00
Total Retainage (Line 5a + 5b or Total in Column J of G703)	$0.00
TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)	$3,595,085.00
LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)	$3,544,075.00
CURRENT PAYMENT DUE	$51,010.00
BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)	$0.00

HANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
ıtal changes approved in evious months by owner		0.00
ıtal approved this Month	0.00	0.00
TOTALS	$0.00	$0.00
ıt Changes by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner and that Current Payment shown herein is now due.

CONTRACTOR: Building Crafts Inc.

BY: _____ Date: 6/14/2016

State of: Kentucky

Subscribed and sworn to before me this 14th day of June 2016

Notary Public: _____

DONNA WALLACE NOTARY ID NO. 508815 PUBLIC STATE AT LARGE, KY.

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $51,010.00

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herin. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

184-476
Final Payment - give check to Jeff S.

TO OWNER Northern Kentuck Water District
2835 Crescent Springs Road
Erlanger, KY 41017

FROM CONTRACTOR: Building Crafts, Inc.
2 Rosewood Drive
Wilder, KY 41076

APPPLICATION NO: 10
PERIOD TO: 6/1/2016

PROJECT: Taylor Mill Water Treatment Plant Electrical and Basin Improvements
Project No 184-0476 DOW Loan NO DWL 13060

A	B	C	D	E	F	G		H
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH
			FROM PREVIOUS APPLICATION	THIS PERIOD				
	Div. 1 - General Requirements							
1	Performance Bond	$104,070.00	$104,070.00	$0.00	$0.00	$104,070.00	100%	$0.00
2	Insurance	$32,000.00	$32,000.00	$0.00	$0.00	$32,000.00	100%	$0.00
3	Mobilization and Site Setup	$18,000.00	$18,000.00	$0.00	$0.00	$18,000.00	100%	$0.00
4	Demobilization	$4,500.00	$4,500.00	$0.00	$0.00	$4,500.00	100%	$0.00
5	Div. 2 - Sitework							
	02 41 00 Demolition	$190,000.00	$190,000.00	$0.00	$0.00	$190,000.00	100%	$0.00
	Div. 3 - Concrete							
7	03 01 30 Rehabilitation of Concrete (Not in Unit Price)	$138,000.00	$138,000.00	$0.00	$0.00	$138,000.00	100%	$0.00
8	03 30 00 Cast in Place Concrete Including Sawcutting	$121,877.00	$121,877.00	$0.00	$0.00	$121,877.00	100%	$0.00
9	Div. 5 - Metals							
10	05 50 00 Miscellaneous Metals including handrail	$48,000.00	$48,000.00	$0.00	$0.00	$48,000.00	100%	$0.00
9	Div. 6 - Wood and Plastics							
11	0610 53 Miscellaneios Carpentry	$8,000.00	$8,000.00	$0.00	$0.00	$8,000.00	100%	$0.00
9	Div. 7 - Thermal and Moisture Protection							
	07 16 00 Capillary Waterproofing	$4,500.00	$4,500.00	$0.00	$0.00	$4,500.00	100%	$0.00
	07 55 52 Modified Bitumious Roofing	$178,000.00	$178,000.00	$0.00	$0.00	$178,000.00	100%	$0.00
	Div. 9 - Finishes							
12	09 91 0 - Painting	$148,000.00	$148,000.00	$0.00	$0.00	$148,000.00	100%	$0.00
	Div. 23 - HVAC							
	23 00 00 Common work results for HVAC	$63,000.00	$63,000.00	$0.00	$0.00	$63,000.00	100%	$0.00
	Div. 26 - Electrical							
13	26 05 00 - Common Work Results for Electrical	$1,230,000.00	$1,230,000.00	$0.00	$0.00	$1,230,000.00	100%	$0.00
	Div. 40 - Process Inegration							
14	40 05 05 Exposed Piping	$35,000.00	$35,000.00	$0.00	$0.00	$35,000.00	100%	$0.00
15	40 05 53 Valves	$101,000.00	$101,000.00	$0.00	$0.00	$101,000.00	100%	$0.00
	Div. 43 - Process							
18	Div. 43 - Vertical Turbine Pumps	$736,000.00	$736,000.00	$0.00	$0.00	$736,000.00	100%	$0.00
	Div. 46 - Water and Wastewater Equiptment							
18	46 43 73 Tube Settlers	$165,000.00	$165,000.00	$0.00	$0.00	$165,000.00	100%	$0.00
	Unit Price Bid Items:							
20	Item 2 Wall Expansion Joint Repair	$31,200.00	$10,400.00	$0.00	$0.00	$10,400.00	33%	$20,800.00
21	Item 3 Trough Crack Repair	$10,000.00	$750.00	$0.00	$0.00	$750.00	8%	$9,250.00
22	Item 4 Surface Spall Repair	$44,850.00	$52,854.00	$0.00	$0.00	$52,854.00	118%	($8,004.00)
23	Item 5 Contingency Allowance	$40,000.00	$40,000.00	$0.00	$0.00	$40,000.00	100%	$0.00
24	Item 6 For Base Slab Crack Repair	$18,000.00	$17,100.00	$0.00	$0.00	$17,100.00	95%	$900.00
25	CO 1 Quantity adjustment for bid items 2,3,4,6	($22,946.00)	$0.00	$0.00	$0.00	$0.00	0%	($22,946.00)
26	CO 2 Additonal work associated with field order #2	$19,991.00	$19,991.00	$0.00	$0.00	$19,991.00	100%	$0.00
27	CO 3 Replace clearwell hypalon with stainless	$29,228.00	$29,228.00	$0.00	$0.00	$29,228.00	100%	$0.00
28	CO 4 Add Roof Hatch	$1,931.00	$1,931.00	$0.00	$0.00	$1,931.00	100%	$0.00
29	CO 5 No Cost 38 day time extension	$0.00	$0.00	$0.00	$0.00	$0.00	0%	$0.00
30	CO 6 Upgrade Condutor to Sludge Building	$13,329.00	$13,329.00	$0.00	$0.00	$13,329.00	100%	$0.00
31	CO 7 Install Duct work and Temp Sensor	$3,734.00	$3,734.00	$0.00	$0.00	$3,734.00	100%	$0.00
	CO 8 Sandblast and Coat Tunnel Walls	$70,007.00	$70,007.00	$0.00	$0.00	$70,007.00	100%	$0.00
	CO 9 EJ Repair	$6,212.00	$6,212.00	$0.00	$0.00	$6,212.00	100%	$0.00
	CO 10 hot gas bypass valve	$3,592.00	$3,592.00	$0.00	$0.00	$3,592.00	100%	$0.00
	CO 11 timing relay	$1,010.00	$0.00	$1,010.00	$0.00	$1,010.00	100%	$0.00
	TOTAL	$3,595,085.00	$3,594,075.00	$1,010.00	$0.00	$3,595,085.00		$0.00

KIA STATE REVOLVING FUND

DBE UTILIZATION

Contract No./Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements/Project No 184-0476 DOW Loan NO DWL 13060

Project Name: Taylor Mill Water Treatment Plant Electrical and Basin Improvements Project No.: _____

Reporting Period: Ending 6/01/2016

DBE Subcontractor's Name: None

Attach Invoices

	MBE	WBE
Total dollar amount of subcontract:	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (construction):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (equipment):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (services):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____
Total dollar amount of subcontract (materials/supplies):	$_____	$_____
Total dollar amount for this reporting period:	$_____	$_____

*** If no money was paid to a DBE subcontractor during this pay period, please note this.**

Prime Contractor's Signature: Dan Breetz Digitally signed by Dan Breetz DN: cn=Dan Breetz, o, ou, email=dbreetz@buildingcrafts.com, c=US Date: 2015.03.17 10:56:58 -04'00'

Prime Contractor's Title: Project Manager

Prime Contractor's Phone: 859-781-9500

Prime Contractor's E-mail: dbreetz@buildingcrafts.com

Northern Kentucky Water District

EXHIBIT H

AFFIDAVIT

Northern Kentucky Water District

AFFIDAVIT

Comes now the affiant, LINDSEY RECHTIN, after first being duly sworn and cautioned, states as follows:

1. That she is the Incoming President/CEO and Vice President of Finance and Support Services;

2. That she is authorized to submit this Application on behalf of the Northern Kentucky Water District;

3. That the information contained in the Application and its Exhibits are true and correct to the best of her knowledge and belief except as to those matters that are based on information provided to her and as to those she believes to be true and correct.

Further Affiant sayeth naught.

July 22, 2022
Date

Lindsey Rechtin

COMMONWEALTH OF KENTUCKY :
: SS
COUNTY OF KENTON :

The foregoing instrument was subscribed and sworn before me by Lindsey Rechtin this 22 day of July, 20 22.

Notary Public, Kentucky at Large
Notary ID Number: KYNP17828
My Commission Expires: 12/21/2024