

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

| | | |
|---|---|----------------------------|
| ELECTRONIC APPLICATION OF |) | |
| MCCREARY COUNTY WATER DISTRICT |) | |
| FOR AUTHORIZATION TO EXECUTE AN |) | |
| ASSISTANCE AGREEMENT WITH THE |) | |
| KENTUCKY INFRASTRUCTURE |) | CASE NO. 2020-00399 |
| AUTHORITY AND FOR A CERTIFICATE OF |) | |
| PUBLIC CONVENIENCE AND NECESSITY |) | |
| TO CONSTRUCT THE SANITARY SEWER |) | |
| COLLECTION SYSTEM EXPANSION |) | |
| PHASE 1 PROJECT |) | |

APPLICATION

Pursuant to KRS 278.020(1), KRS 278.300, 807 KAR 5:001, and 807 KAR 5:071, McCreary County Water District (“McCreary District”) applies to the Public Service Commission for an Order authorizing McCreary District to execute an assistance agreement with the Kentucky Infrastructure Authority (“KIA”) to borrow an amount not to exceed \$3,224,500 and granting a certificate of public convenience and necessity to expand its existing sewer collection system through the construction of approximately 74,6205 linear feet of various sized force main and the installation of approximately 240 grinder pump stations (“Proposed Facilities”).

In support of its Application,¹ McCreary District provides the following:

¹ To facilitate the Public Service Commission’s initial review of this Application, McCreary District has attached to this Application a “Filings Requirements List” that consists of five pages, lists each statutory and regulatory requirement for an application for a certificate of public convenience and necessity and authorization to issue evidence of indebtedness, and identifies the exhibit or paragraph that satisfies the requirement.

A. General Information

1. The full name and post office address of McCreary District is: McCreary County Water District, Post Office Box 488, Whitley City, Kentucky 42653. Its e-mail address is mcwd@mccrearywater.com.

2. Copies of all orders, pleadings and other communications related to this proceeding should be directed to:

Stephen Whitaker
Superintendent
Post Office Box 488
Whitley City, KY 42653
(270) 298-7704
stepwhitaker@gmail.com

Gerald E. Wuetcher
Stoll Keenon Ogden PLLC
2100 West Vine Street, Ste 2100
Lexington, KY 40507-1801
(859) 231-3017
gerald.wuetcher@skofirm.com²

3. McCreary District not a corporation, limited liability company or limited partnership. It has no articles of incorporation or partnership agreements.

4. McCreary District is a water district created under the provisions of KRS Chapter 74.

5. McCreary County Court created McCreary District pursuant to an order entered November 16, 1962. A copy of this Order and a subsequent Order modifying McCreary District's territory is attached as **Exhibit 1** of this Application.

² On December 10, 2020 pursuant to 807 KAR 5:001, Section 8, McCreary District notified the Public Service Commission of its election of the use of electronic filing procedures for this proceeding.

6. As of December 31, 2019, McCreary District provided retail water service to approximately 6,148 customers in McCreary County, Kentucky and had contracts to provide wholesale water service to Whitley County Water District and the City of Oneida, Tennessee.³

7. As of December 31, 2019, McCreary District provided sewer service to approximately 1,142 customers, including 860 residential customers, 159 commercial customers, five industrial customers, and 118 institutional or non-classified customers, including the United States Penitentiary McCreary, which is located at Pine Knot, Kentucky and which has a total inmate population of 1,454.⁴ It has a serviceable population of 2,420 households and approximately 5,274 persons.⁵

8. A copy of the resolution of McCreary District's Board of Commissioners authorizing the filing of this application is attached as **Exhibit 2** of this Application.

B. Sanitary Sewer Collection System Expansion Project – Phase I

9. McCreary District proposes to extend low pressure sewer force main from Stearns, Kentucky northwest along Kentucky Highway 92 to the Smithtown area of McCreary County to expand its existing sewer system.⁶ The Proposed Facilities consist primarily of: 28,750 linear feet of 1.5-inch high density polyethylene force main; 28,286 linear feet of 2-inch polyvinyl chloride ("PVC") force main; 7,185 linear feet of 3-inch PVC force main; 10,399 linear feet of 4-

³ Annual Report of McCreary County Water District to the Public Service Commission of the Commonwealth of Kentucky for Water Operations for the Calendar Year Ended December 31, 2019 ("2019 Annual Water Report") at Ref Page 27.

⁴ Annual Report of McCreary County Water District to the Public Service Commission of the Commonwealth of Kentucky for Sewer Operations for the Calendar Year Ended December 31, 2019 ("2019 Annual Water Report") at Ref Page 12; Federal Bureau of Prisons, <https://www.bop.gov/locations/institutions/mcr/> (last visited Dec. 17, 2020).

⁵ Kentucky Water Resource Information System (WRIS), Waste Water System Information on McCreary County Water District, <https://wris.ky.gov/portal/WwSysData/KY0097837> (last visited Dec. 17, 2020).

⁶ As originally proposed, the Sanitary Sewer Collection System Expansion Project – Phase I also included the extension of approximately 30,000 linear feet of 2-inch, 3-inch and 4-inch force mains south from Stearns, Kentucky to Revelo, Kentucky. This section is referred to in the certified bid tabulation as Additive Alternate No. 2 (Exhibit 12) and is reflected in Sheets 33 through 61 of the project plans (Exhibit 8).

inch PVC force main; 17,300 linear feet of 4-inch PVC gravity sewer main; and 240 grinder pump stations. Construction of the Proposed Facilities will provide a more provide a more reliable, sustainable sewer system for the southern industrial and residential section of McCreary County. The existing soil conditions in McCreary County do not favor septic lines or septic systems and have contributed to significant septic system failures that result in contaminants leaching into the soil and the water table. The Proposed Facilities will protect the local environment and improve public health conditions through the elimination of straight pipes and deteriorating septic systems. They will provide the infrastructural foundation for later expansions of McCreary District's collection system and increase the economic viability of McCreary District's sewer operations by the addition of approximately 305 customers.

10. The Kentucky Division of Water ("KDOW") has reviewed the plans and specifications for the Proposed Facilities and has approved them with respect to sanitary features of design. A copy of the letter in which the KDOW stated its approval is set forth as **Exhibit 3** of this Application.

11. A copy of the applications for permits for the excavation of public rights-of-way under the jurisdiction of the Kentucky Department of Highways for those portions of the Proposed Facilities that will be located within such rights-of-way is found as **Exhibit 4** of this Application. When these permits have been obtained, a copy will be submitted to the Commission. Some of the Proposed Facilities will be located on public rights-of-way under the jurisdiction of McCreary County Fiscal Court. Evidence of McCreary County Fiscal Court's approval of the use of these rights-of-way is found as **Exhibit 5** of this Application.

12. McCreary District does not require any easements to construct force and gravity sewer mains on state and county roads. However, grinder pump stations and appurtenances

necessary to connect those stations to mains on public rights-of-way will be located on the property of persons applying for service and will require an easement. McCreary District's tariff requires an applicant for service to provide an easement for all utility facilities necessary to serve that applicant. McCreary District will require as a condition to providing service to a property that the property owner execute an appropriate easement when applying for service.

13. A description of the Proposed Facilities' location and routes is attached as **Exhibit 6** to this Application. Maps depicting these locations and routes are attached as **Exhibit 7** of this Application.⁷

14. The Proposed Facilities will not complete with those of another public utility. Their construction will not result in the wasteful duplication of utility facilities or inefficient investment.

15. A copy of the plans for the Proposed Facilities is attached to this Application as **Exhibit 8**. A copy of its specifications is attached to this Application as **Exhibit 9**.

16. A copy of the Preliminary Engineering Report for the Proposed Facilities is attached as **Exhibit 10** of this Application.

17. A copy of the Final Engineering Report for the Proposed Facilities is attached as **Exhibit 11** of this Application.

18. The total estimated cost of the Proposed Facilities is \$3,244,500. McCreary District proposes to finance this cost with a loan in this amount from KIA's Fund A Infrastructure Revolving Loan Program.

⁷ These maps reflect the Sanitary Sewer Collection System Expansion Project – Phase I as originally proposed. As a result of the bids received on this project, the proposed facilities that are east and south of Whitley City are those that were included in Additive Alternative No. 2 and will not be constructed at this time due to funding limitation. McCreary District is not requesting a certificate of public convenience and necessity for those facilities. Detailed maps of the Proposed Facilities can be found at Exhibit 8, Sheets 3 through 32.

19. In accordance with KRS Chapter 424, McCreary District caused to be published in the November 19, 2020 edition of *The McCreary County Voice* an advertisement for bids for “Sanitary Sewer Collection System Expansion Phase 1 – Contract No. 39” (“Contract”). A copy of this advertisement is attached as **Exhibit 12**. The Contract as advertised consisted of a base bid and two additive alternates. Six firms submitted bids in response to this advertisement. All combined bids for the base bid and Additive Alternatives No. 1 and No. 2 exceeded McCreary District’s available funding. A copy of the certified bid tabulations is found as **Exhibit 13** of this Application. Under the terms of the request for bids, these bids may be withdrawn after **March 9, 2021**.

20. The lowest combined bids for the base bid and Additive Alternate No. 1 were a bid of \$2,609,316 from Frederick and May Construction Co, Inc. of West Liberty, Kentucky and a bid of \$2,623,071 from Flo-Line Contracting LLC of Monticello, Kentucky. Eclipse Engineering, the Project Engineer, investigated the qualifications of these firms and determined that Frederick and May Construction Co, Inc. was not properly qualified to perform the obligations of the Contract and recommend that its bid be rejected. A copy of the Project Engineer’s recommendation is attached as **Exhibit 14**.

21. On December 28, 2020, after considering the information that the Project Engineer provided, McCreary District’s Board awarded the Contract to perform the work in the base bid and Additive Alternate No. 1 to Flo-Line Contracting LLC, subject to the issuance of a certificate of public convenience for the Proposed Facilities’ construction and Commission authorization for McCreary District to execute an assistance agreement with KIA. A copy of the resolution of McCreary District’s Board of Commissioners awarding the Contract to Flo-Line Contracting LLC is found as **Exhibit 15**.

22. A statement of the annual cost of operation of the Proposed Facilities is found as **Exhibit 16**. McCreary District anticipates that the annual cost for the operation of the Proposed Facilities will be approximately \$9,600.

23. The Proposed Facilities will not compete with the facilities of any other public utility.

24. McCreary District is supporting this Application with the following testimony:

a. Testimony of Stephen Whitaker, Superintendent, McCreary County Water District. In his testimony, Mr. Whitaker describes the need for the Proposed Facilities and the method to finance the Proposed Facilities. A copy of this testimony is attached as **Exhibit 17** of this Application.

b. Testimony of Alan R. Robinson, President, Eclipse Engineers PLLC. In his Testimony, Mr. Robinson describes the need for the Proposed Facilities and the Proposed Facilities. A copy of this testimony is attached as **Exhibit 18** of this Application.

C. Authorization to Execute Assistance Agreement

25. To finance the cost of constructing the Proposed Facilities, McCreary District proposes to enter an assistance agreement with KIA to borrow an amount not to exceed \$3,244,500. The proposed loan will bear interest at a rate of 0.5 percent per annum and must be repaid over a period not to exceed 30 years from the date on which the Proposed Facilities begin operation. Interest on the proposed loan will accrue from the time that McCreary District begins drawing funds from KIA. The proposed loan will be secured by a pledge of McCreary District's revenues. KIA has agreed to forgive approximately \$450,000 of the principal amount upon release of liens on all contracts for construction of the Proposed Facilities and disbursement of the final draw request on assistance funds. A loan servicing fee of 0.20 percent of the outstanding loan balance

will also be assessed semi-annually. A copy of the minutes of the June 14, 2020 meeting in which the KIA Board of Directors approved the proposed loan is attached as **Exhibit 19** of this Application. On June 25, 2020, KIA issued a Conditional Commitment Letter, a copy of which is attached as **Exhibit 20** of this Application, that sets forth additional details regarding the proposed loan. Under the terms of this letter, McCreary District is required to meet the conditions for the proposed loan and enter an assistance agreement with KIA no later than June 25, 2021.

26. A description of McCreary District's water system and its property, stated at original cost by accounts, is contained in Annual Report of McCreary County Water District to the Public Service Commission for the Year Ending December 31, 2019 ("2019 Annual Report"), a copy of which McCreary District has previously been filed with the Public Service Commission and which is incorporated by reference into this Application.

27. McCreary District does not propose to issue any stock or bonds.

28. No proceeds from the proposed assistance agreement will be used to refund outstanding obligations.

29. A copy of McCreary District's written notification to the State Local Debt Officer is attached as **Exhibit 21**.

30. Pursuant to 807 KAR 5:001, Section 18(2)(a), the following information is provided:

a. For the 12-month period ending December 31, 2019, McCreary District had less than \$5,000,000 in gross annual revenues.

b. McCreary District's 2019 Annual Report is incorporated by reference into this Application. McCreary District also incorporates into this Application its audited financial

statements for the years ending December 31, 2019 and December 31, 2018, which have previously been filed with the Commission.

c. No material changes have occurred in McCreary District's financial condition since December 31, 2019.⁸

31. There are no trust deeds or mortgages applicable.

32. A map of the area in which the Proposed Facilities will be located is attached as **Exhibit 7** of this Application.

33. A detailed estimate of the acquired property, arranged according to the Uniform System of Accounts for Sewer Utilities, is attached to this Application as **Exhibit 22** of this Application.

34. Execution of the proposed assistance Agreement will not require McCreary District to seek an immediate adjustment of its rates for service. McCreary District intends to apply for an adjustment of rates pursuant to 807 KAR 5:076 no later than June 25, 2021 to comply with the Commission's Order of June 26, 2020 in Case No. 2020-00151.⁹

35. McCreary District's execution of the proposed assistance agreement with KIA to finance the cost of the Proposed Facilities is for a lawful objective within McCreary District's corporate purposes, is necessary, appropriate for and consistent with McCreary District's proper performance of its service to the public and will not impair McCreary District's ability to perform that service and is reasonably necessary and appropriate for such purpose.

⁸ In 2020 McCreary District entered a 30-year loan agreement with the Kentucky Rural Water Finance Corporation to borrow \$1,702,000 to refinance five outstanding debt obligations totaling approximately \$1,720,000. The expected savings from the refunding was \$154,000. *Electronic Application of the McCreary County Water District To Issue Securities in the Approximate Principal Amount of \$1,702,000 for the Purpose of Refunding Certain Outstanding Obligations of the District and Refinancing of a Short Term Obligation Pursuant to the Provisions of KRS 278.300 and 807 KAR 5:001*, Case No. 2020-00151 (Ky. PSC June 26, 2020).

⁹ *Id.* at 4 and 5.

D. Filing Requirements of 807 KAR 5:071

36. Pursuant to 807 KAR 5:071, Section 3(1), the following information and materials are provided:

a. In view of its status a political subdivision of the Commonwealth of Kentucky¹⁰ and longstanding Commission precedent, McCreary District has sufficient financial integrity to ensure the continuity of utility service and is not required to provide a third-party beneficiary agreement guaranteeing the continuing operation of the proposed wastewater facilities or other evidence of financial integrity.¹¹

b. A copy of the preliminary approval of the Proposed Facilities' plans and specifications is attached to this Application as **Exhibit 3**.

c. Detailed maps of the Proposed Facilities are attached to this Application as **Exhibit 7**.

d. A detailed estimated cost of construction including all capitalized costs is set forth in the Final Engineering Report, which is attached to this Application as **Exhibit 11**.

e. For its financial exhibit, McCreary District adopts and incorporates by reference the statements set forth in Paragraph 30 of this Application.

f. McCreary District proposes to finance the cost of constructing the Proposed Facilities by entering an assistance agreement with KIA to borrow an amount not to exceed \$3,244,500. The details of this proposed loan are set forth in Paragraph 25 of this Application.

¹⁰ *Louisville Extension Water District v. Diehl Pump & Supply Co. Inc.*, 246 S.W.2d 585 (Ky.1952).

¹¹ *See, e.g., Application of Mountain Water District For An Adjustment of Water and Sewer Rates*, Case No. 2014-00342, Dec. 8, 2014); *Joint Application of Lockwood Estates and Oldham County Sanitation District for Approval of the Transfer of Wastewater Treatment Facilities Pursuant To Asset Purchase Agreement Between the Parties*, Case No. 2002-00423 (Ky. PSC Jan. 23, 2003); *The Application of Reidland Water and Sewer District for Approval of the Acquisition of Wastewater Treatment Facilities in the Green Acres Subdivision and Fieldmont Estates Subdivision*, Case No. 92-473 (Ky. PSC Dec. 18, 1992); *The Joint Application of Boone County Water and Sewer District and Public Service Utilities for the Construction of Commerce Park Package Treatment Plant*, Case No. 90-337 (Ky. PSC Apr. 24, 1991).

g. McCreary District anticipates the approximate annual cost of operation for the Proposed Facilities will be \$9,600. An explanation of these costs is attached as **Exhibit 16** of this Application.

h. The Proposed Facilities are expected to serve 305 residential customers. The average monthly water usage for these customers is estimated to be 4,000 gallons.

i. A depreciation schedule for the Proposed Facilities is attached to this Application as **Exhibit 23**. The *Guide for Support of Rural Water-Wastewater Systems* was consulted to determine the appropriate service life for each asset.

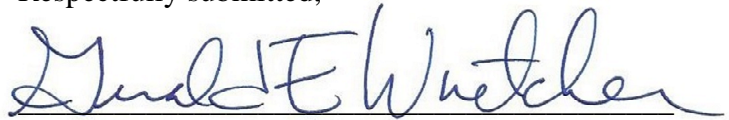
E. Requested Relief

WHEREFORE, McCreary County Water District requests that the Commission:

1. Place this Application at the head of the Public Service Commission's docket as KRS 278.300(2) requires;
2. Enter an Order
 - A. Authorizing McCreary District to enter and execute an assistance agreement with KIA to finance the construction of the Proposed Facilities;
 - B. Granting a Certificate of Public Convenience and Necessity to McCreary District to construct the Proposed Facilities;
3. Enter an Order granting the requested relief without holding an evidentiary hearing in this matter and no later **than March 5, 2021**; and,
4. Grant any and all such other relief to which McCreary District may be entitled.

Dated: January 15, 2021

Respectfully submitted,

A handwritten signature in blue ink that reads "Gerald E. Wuetcher". The signature is written in a cursive style and is positioned above a horizontal line.

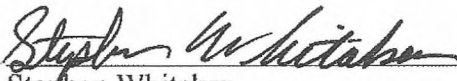
Gerald E. Wuetcher
Stoll Keenon Ogden PLLC
300 West Vine St. Suite 2100
Lexington, Kentucky 40507-1801
Telephone: (859) 231-3017
Fax: (859) 259-3517
gerald.wuetcher@skofirm.com

Counsel for McCreary County Water District

COMMONWEALTH OF KENTUCKY)
) SS
COUNTY OF MCCREARY)

The undersigned, Stephen Whitaker, being duly sworn, deposes and states that he is the Superintendent of McCreary County Water District, the Applicant in the above proceedings; that he has read this Application and has noted its contents; that the same is true of his own knowledge, except as to matters which are therein stated on information or belief, and as to those matters, he believes same to be true.

IN TESTIMONY WHEREOF, witness the signature of the undersigned on this January 15, 2021.



Stephen Whitaker
Superintendent
McCreary County Water District

Subscribed and sworn to before me by Stephen Whitaker, Superintendent, McCreary County Water District, on this January 15, 2021.



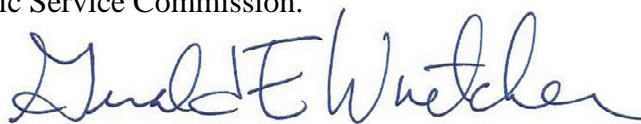
Notary Public

Notary ID: 603026

My Commission Expires: 7/13/2022

CERTIFICATE OF SERVICE

In accordance with 807 KAR 5:001, Section 8, I certify that McCreary County Water District's electronic filing of this Response is a true and accurate copy of the same document being filed in paper medium; that the electronic filing was transmitted to the Public Service Commission on January 15, 2021; that there are currently no parties that the Public Service Commission has excused from participation by electronic means in this proceeding; and that within 30 days following the end of the state of emergency announced in Executive Order 2020-215 this Response in paper medium will be delivered to the Public Service Commission.

A handwritten signature in blue ink that reads "Gerald E. Wuetcher". The signature is written in a cursive style with a horizontal line underneath the name.

Gerald E. Wuetcher

FILING REQUIREMENTS

FILING REQUIREMENTS FOR AN APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY

| Source Authority | Requirement | Location |
|------------------------------|---|--|
| 807 KAR 5:001, § 14(1) | Applicant's name, mailing address and e-mail address | Page 2, Para 1 |
| 807 KAR 5:001, § 14(1) | Statutory Reference – KRS 278.020 | Page 1 |
| 807 KAR 5:001, § 4(3) | Signature of Applicant's Attorney | Page 12 |
| 807 KAR 5:001, § 4(3) | Name, Address, Telephone Number, Fax Number, and e-mail address of Applicant's Attorney | Page 2, Para 2 |
| 807 KAR 5:001, § 14(2) | If Applicant is corporation: State and date of incorporation, attestation of good standing in state of incorporation, statement regarding authorization to transact business in Kentucky | Page 2, Para 3 Not Applicable |
| 807 KAR 5:001, § 14(3) | If Applicant is a limited liability company: State and date of organization, attestation of good standing in state of incorporation, statement regarding authorization to transact business in Kentucky | Page 2, Para 3 Not Applicable |
| 807 KAR 5:001, § 14(4) | If the Applicant is a limited partnership: a certified copy of limited partnership agreement and all amendments or statement identifying prior Commission proceedings in which limited partnership agreement and all amendments filed | Page 2, Para 3 Not Applicable |
| 807 KAR 5:001, § 15(2)(a) | The facts relied upon to show that the public convenience and necessity requires the proposed construction | Pages 3-4, Para 9 Exhibits 9,10,17,18 |
| 807 KAR 5:001, § 15(2)(b) | Copies of franchises or permits for the proposed construction or extension | Pages 4-5, Paras 10-12 |
| 807 KAR 5:001, § 15(2)(c) | A full description of the proposed location, route, or routes of the proposed construction or extension, including a description of the manner in which same will be constructed, and the names of all public utilities, corporations, or persons with whom the proposed construction or extension is likely to compete | Page 5, Para 13-14 Exhibits 6,8,10,11 |
| 807 KAR 5:001, § 15(2)(d)(1) | Maps to suitable scale showing the location or route of the proposed construction or extension, as well as the location to scale of like facilities owned by others located anywhere within the map area with adequate identification as to the ownership of the other facilities | Page 5, Para 13 Exhibits 7,8 |

| Source Authority | Requirement | Location |
|------------------------------|---|--|
| 807 KAR 5:001, § 15(2)(d)(2) | Plans and specifications and drawings of the proposed plant, equipment, and facilities | Page 5, Para 15 Exhibits 8,9 |
| 807 KAR 5:001, § 15(2)(e) | The manner in detail in which the Applicant proposes to finance the proposed construction or extension. | Page 5, Para 18 |
| 807 KAR 5:001, § 15(2)(f) | An estimated annual cost of operation after the proposed facilities are placed into service | Page 7, Para 22 Exhibit 16 |
| 807 KAR 5:071, § 3(1)(a) | A copy of a valid third-party beneficiary agreement guaranteeing the continued operation of the sewage treatment facilities or other evidence of financial integrity such as will insure the continuity of sewage service | Page 10, Para 36(a) Not Applicable |
| 807 KAR 5:071, § 3(1)(b) | A copy of a preliminary approval issued by the Division of Water Quality of the Kentucky Department for Natural Resource and Environmental Protection approving the plans and specifications of the proposed construction | Page 10, Para 36(b) Exhibit 3 |
| 807 KAR 5:071, § 3(1)(c) | A detailed map of the sewage treatment facilities showing location of plan, effluent discharge, collection mains, manholes, and utility service area | Page 10, Para 36(c) Exhibit 7,8 |
| 807 KAR 5:071, § 3(1)(d) | A detailed estimated cost of construction which should include all capitalized costs (construction, engineering, legal, administrative, etc.) | Page 10, Para 36(d) Exhibit 11 |
| 807 KAR 5:071, § 3(1)(e) | A financial exhibit as described in Section 12 of 807 KAR 5:001, Section 12 | Page 10, Para 36(e) Not Applicable |
| 807 KAR 5:071, § 3(1)(f) | The manner, in detail, in which it is proposed to finance the new construction, specifically stating amount to be invested, recouped through lot sales, or contributions (to be) received, etc. | Page 11, Para 36(f) Page 7, Para 25 |
| 807 KAR 5:071, § 3(1)(g) | An estimated cost of operation after the proposed facilities are completed | Page 11, Para 36(g) Exhibit 16 |
| 807 KAR 5:071, § 3(1)(h) | An estimate of the total number of customers to be served by the proposed sewage treatment facilities, initially and ultimately the class of customers served (i.e., residential, commercial, apartments, recreational, institutional, etc.) and the average monthly water consumption for each class of customer | Page 11, Para 36(h) |
| 807 KAR 5:071, § 3(1)(i) | A copy of the latest tax returns (federal and state, if applicable) filed by the applicant. | Not Applicable |

| Source Authority | Requirement | Location |
|--------------------------|--|---|
| 807 KAR 5:071, § 3(1)(j) | A detailed depreciation schedule of all treatment plant, property and facilities, both existing and proposed, listing all major components of “package” treatment plants separately (ignore if rates not sought) | Page 11, Para 36(i) Exhibit 23 |
| 807 KAR 5:071, § 3(1)(k) | The proposed rates to be charged for each class of customers and an estimate of the annual revenues derived from the customers using the proposed rate schedules (ignore if rates not sought) | Not Applicable |
| 807 KAR 5:071, § 3(1)(l) | A full and complete explanation of corporate or business relationships between the applicant and a parent or brother-sister corporation, subsidiary(ies), a development corporation(s), or any other party or business to afford the commission a full and complete understanding of the situation | Page 2, Para 3 Not Applicable |
| KRS 322.340 | Engineering plans, specifications, drawings, plats and reports for the proposed construction or extension prepared by a registered engineer, must be signed, sealed, and dated by an engineer registered in Kentucky | Page 5, Para 15-16 Exhibits 8-11 |

**FILING REQUIREMENTS FOR AN APPLICATION FOR A
AUTHORITY TO ISSUE EVIDENCES OF INDEBTEDNESS**

| Source Authority | Requirement | Location |
|---------------------------|---|--|
| 807 KAR 5:001, § 14(1) | Applicant's name, mailing address and e-mail address | Page 2, Para 1 |
| 807 KAR 5:001, § 14(1) | Statutory Reference – KRS 278.300 | Page 1 |
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| 807 KAR 5:001, § 14(2) | If Applicant is corporation: State and date of incorporation, attestation of good standing in state of incorporation, statement regarding authorization to transact business in Kentucky | Page 2, Para 3 Not Applicable |
| 807 KAR 5:001, § 14(3) | If Applicant is a limited liability company: State and date of organization, attestation of good standing in state of incorporation, statement regarding authorization to transact business in Kentucky | Page 2, Para 3 Not Applicable |
| 807 KAR 5:001, § 14(4) | If the Applicant is a limited partnership: a certified copy of limited partnership agreement and all amendments or statement identifying prior Commission proceedings in which limited partnership agreement and all amendments filed | Page 2, Para 3 Not Applicable |
| KRS 278.300(2) | Application is made under oath and signed on utility's behalf by its president, or by a vice president, auditor, comptroller or other executive officer having knowledge of the matters set forth and duly designated by the utility | Page S-1 |
| 807 KAR 5:001, § 18(1)(a) | Information required by 807 KAR 5:001, § 14 | See Above |
| 807 KAR 5:001, § 18(1)(b) | Description of Applicant's property and the field of its operation | Page 8, Para 26 |
| 807 KAR 5:001, § 18(1)(c) | Description of amount and kinds of stock to be issued | Page 8, Para 27 Not Applicable |
| 807 KAR 5:001, § 18(1)(c) | Description of amount, terms and interest rate of bond or note | Page 7, Para 25 |
| 807 KAR 5:001, § 18(1)(c) | Description of how bond or note will be secured | Page 7, Para 25 |
| 807 KAR 5:001, § 18(1)(d) | Statement of how proceeds are to be used | Page 7, Para 25 |
| 807 KAR 5:001, § 18(1)(e) | If proceeds will be used to acquire, construct, improve, or extend property: a detailed description of property and all contracts | Page 3, Para 9 |
| 807 KAR 5:001, § 18(1)(f) | Requirements if proceeds are to refund outstanding obligations | Page 8, Para 28 Not Applicable |
| 807 KAR 5:001, § 18(1)(g) | Applicant's written notification to state local debt officer regarding proposed issuance | Page 8, Para 29 Exhibit 21 |

| Source Authority | Requirement | Location |
|--|--|-------------------------------------|
| 807 KAR 5:001, § 18(2)(a) 807 KAR 5:001, § 12(1)(b) | Financial Exhibit | Page 8, Para 30 |
| 807 KAR 5:001, § 18(2)(b) | Copies of trust deeds or mortgages | Page 9, Para 31 |
| 807 KAR 5:001, § 18(2)(c) | If property acquired: maps and plans of property | Page 5, Paras 13,15 Exhibits 6-8 |
| 807 KAR 5:001, § 18(2)(c) | If property acquired: detailed estimates by USOA account number | Page 9, Para 33 Exhibit 22 |

EXHIBITS

TABLE OF EXHIBITS

| <u>Tab No.</u> | <u>Description</u> |
|----------------|--|
| 1 | Orders Establishing McCreary County Water District and Modifying its Territory |
| 2 | A Resolution of the Board of Commissioners of McCreary County Water District Authorizing An Application To the Kentucky Public Service Commission for Authorization to Issue An Evidence of Indebtedness, For A Certificate of Public Convenience and Necessity and Other Relief As Necessary (Dec.29, 2020) |
| 3 | Letter from Mark Rashe, Water Infrastructure Branch, Kentucky Division of Water, to Stephen Whitaker, subj: Collection Expansion Phase 1 (Oct. 23, 2020) (approves construction plans and specifications with respect to sanitary features) |
| 4 | Transportation Cabinet Encroachment Permits |
| 5 | Resolutions of McCreary County Fiscal Court authorizing the use of public roads by McCreary County Water District |
| 6 | Description of Proposed Facilities' Location and Routes |
| 7 | Maps of Proposed Facilities |
| 8 | Plans of Proposed Facilities |
| 9 | Contract Specifications for Proposed Facilities |
| 10 | Preliminary Engineering Report |
| 11 | Final Engineering Report |
| 12 | Advertisement of Request for Bids |
| 13 | Certified Bid Tabulations |
| 14 | Project Engineer's Recommendation |
| 15 | A Resolution of the Board of Commissioners of McCreary County Water District Awarding Sanitary Sewer Collection System Expansion Phase 1 - Contract No. 39 (Dec. 29, 2020) |
| 16 | Statement of Annual Cost of Operation of the Proposed Facilities |
| 17 | Testimony of Stephen Whitaker, Superintendent, McCreary County Water District |
| 18 | Testimony of Alan R. Robinson, President, Eclipse Engineers PLLC |

| <u>Tab No.</u> | <u>Description</u> |
|-----------------------|---|
| 19 | Minutes of June 14, 2020 Meeting of the Board of Directors of Kentucky Infrastructure Authority |
| 20 | KIA Conditional Commitment Letter |
| 21 | Notice to State Local Debt Officer |
| 22 | Detailed Estimate of Acquired Property, Arranged According to the Uniform Systems of Accounts for Sewer Utilities |
| 23 | Depreciation Schedule for Proposed Facilities |

EXHIBIT 1

ORDERS } _____ McCreary _____ COURT

Special Term, November Day, 5 Day of November 1962

McCreary County Court
Special Term
November 5, 1962

The said Will of John Brooks, having lain over for a period of thirty days for exceptions, none being filed same was this day approved by the Court, and same was ordered to record.

Whereupon the said Will was duly recorded on the 5 day of November 1962.

/s/ Prince L. Stephens, Judge

McCreary County Court
Special October Term
October , 1962

IN RE: MATTER OF THE ESTATE OF M. NEAL, DECEASED

ORDER APPOINTING ADMINISTRATRIX

On the application filed by Sallie Neal on the 29th day of October 1962, for the appointment as administratrix as required by law, administration of the estate of M. Neal, late of this county, is granted Sallie Neal, whereupon the said Sallie Neal took the necessary fiduciary's oath and qualified as required by law and filed herein the executed bond in the sum of \$1540.00, the amount fixed by the Court with Arnold Davenport as surety, all of which is approved by the Court and said administratrix shall hereafter assume the administration of the estate of M. Neal.

This 29th day of October 1962.

/s/ Prince L. Stephens, Judge

McCreary County Court
Special November Term
November 16, 1962

In Re: Order Establishing and Creating the McCreary County Water District:

In accordance with Chapter #74 of the Kentucky Revised Statutes, Section #74.010 thereof, a petition was filed with this Court on October 5, 1962, containing more than seventy-five (75) names of resident freeholders of the hereinafter described water district in McCreary County, Kentucky, and in said petition said free holders have prayed for the creation and establishment of the hereinafter water district in McCreary County, Kentucky,

The Court finds and determines that said petition has been filed in this Court more than thirty days, that a notice to the public has been given by publication in the McCreary County Record, a news paper published in McCreary County, Kentucky and in three issues of said paper, that no objections have been made to this Court against the creation and establishing of said water district and the time of more than thirty days having expired for objections, the Court finds and adjudges as follows:

- 1. The Court hereby sustains the allegations of the petition filed herein and by authority of the Sections of Chapter #74 of the Kentucky Revised Statutes hereby establishes a water district in McCreary County, Kentucky to be known and designated as "McCreary County Water District" and described as follows, to-wit:

ORDERS

McCreary

COURT

Special Term, November Day, 16 Day of November 19 62

Form O-TT

Beginning at a point in McCreary County, Kentucky in the center of old Highway #27, one-half mile north of Sand Hill Road and said old U. S. Highway #27 intersection and extending directly eastward for a distance of three miles; thence following a line southward and parallel to the meanders of old U. S. Highway #27 to a point two miles south of the intersection of Highway #92, east of Pine Knot, Kentucky, thence westward directly to and crossing U. S. Highway (old) #27 for a distance of three miles west of Highway #27; thence northward following a line parallel with the meanders of old U. S. Highway #27 to a point three miles directly west of the beginning point; thence turning eastward, a straight line to the beginning point, thus including an area designated as the McCreary County Water District.

In so far as this Court has authority to act, all former established water districts of McCreary County, Kentucky are hereby superseded and included in the area hereby established in the description set out herein and agreements and obligations heretofore made or entered into by reason of former water districts should be legally honored by the Commissioners hereinafter named.

The Court hereby appoints the following named as members of the McCreary County Water District, Dr. M. A. Winchester, appointed for a term of 4 years; for a term of three years, A. W. Holmes; and Eldred Musgrove for a term of 2 years who have taken oath to faithfully perform the duties of his position and executed a Bond for the faithful performace of their duties which bond is approved by the Court.

Given under my hand as Judge of McCreary County, Kentucky, this November 16, 1962.

/s/ Prince L. Stephens, Judge
McCreary County, Kentucky

McCREARY COUNTY COURT

RE: ESTATE OF JOHN JOSEPH RILEY, DECEASED
TO: ORDER APPOINTING LORA WOOD ADMINISTRATRIX

This day came Lora Wood, in open Court, and offered to file and, was by the Court, permitted to file her petition for letters of administration and for appointment as Administratrix of the Estate of John Joseph Riley and, it being shown that Evadene Wood Riley, the surviving widow of decedent, has heretofore been declared incompetent and has never been restored, and that said surviving widow is the sole surviving heir of John Joseph Riley, deceased, it is now ordered by the Court that Lora Wood be, and she is hereby appointed Administratrix of the estate of John Joseph Riley, deceased. The said applicant, Lora Wood, being in open Court accepted said trust, executed bond in the penal sum of none required at present, with Dewey Spradlin as her surety, and took the oath of office and otherwise qualified as Administratrix of said estate, as required by law, and the bond offered by the said Lora Wood, with Dewey Spradlin as surety, is now and hereby approved by the Court, and Lora Wood having fully qualified, she is now and hereby appointed Administratrix of the estate of John Joseph Riley, deceased.

Witness my hand this 28 day of November 1962.

/s/ Prince L. Stephens, Judge
McCreary County Court

MCCREARY COUNTY WATER DISTRICT by Eldred E. Musgrove, Chairman of its Board of Commissioner, and R. H. Anderson and O. O. Duncan, Members of the Board.

PETITIONERS

VS.

JUDGMENT

ENLARGING THE TERRITORIAL LIMITS OF THE MCCREARY COUNTY WATER DISTRICT BY ANNEXATION.

This cause came on for a hearing on the 11th day of July, 1969, in the McCreary County Court Room at the Court House, Whitley City, Kentucky, at the hour of 10:00 A. M., with the Hon. A. W. Holmes, Judge of the McCreary County Court, presiding.

It appearing to the Court that the petition of the McCreary County Water District by Eldred E. Musgrove, Chairman of its Board of Commissioners, and R. H. Anderson and O. O. Duncan, Members of the Board, to enlarge the territorial limits of the McCreary County Water District by annexation contained a description of the territory to be annexed, set out the reasons for said annexation and otherwise met and complied with the law set out in KRS 74.110; and it further appearing that notice of the filing of the petition, containing a description of the proposed annexation, together with a notification to the public that they had 30 days in which to file objections and exceptions to the petition, and including a notice that a hearing on the petition and upon the objections would be held at the time and place set out in the first paragraph hereof was placed in the McCreary County Record, a newspaper of general circulation in McCreary County, Kentucky, in its June 19, 17 and 24, 1969, publications, pursuant to KRS. 424.130-150 on legal notices; and it further appearing that the McCreary County Water District is located in McCreary County, Kentucky, and the territory to be annexed adjoins and encompasses said district and is located exclusively in said county and state; that no defense, objection or remonstrance has been made to the petition by anyone; and that the Court has heard the testimony of the petitioners in support of their petition for annexation that the annexation was reasonably necessary for the public health, convenience, fire protection and comfort of the residents thereof and would materially enhance the economic development of the district as a whole and would benefit and profit the owners of property and the inhabitants of the area, IT IS, THEREFORE, ORDERED AND ADJUDGED THAT:

The proposed annexation be, and it is hereby created, established and annexed; that the territorial limits of said annexation, which is inclusive of and contains within its perimeter the original McCreary County Water District, is described as follows:

Situate, lying and being in McCreary County, Kentucky, and more particularly described as follows:

The geographical area and political entity of McCreary County, Kentucky, and all the lands contained within its territorial boundaries.

The entire County of McCreary of the Commonwealth of Kentucky be, and is hereby, denominated as and known by its official, corporate and business name of McCreary County Water District.

Given under my hand as Judge of the McCreary County Court, this 11th day of July, 1969.

/S/ A. W. Holmes

McCreary County Court

Whitley City, Kentucky

STATE OF KENTUCKY

COUNTY OF MCCREARY

I, Carl Barnett, Clerk of the County and State aforesaid, certify that the foregoing Judgment is a true and correct copy as appears of record here in my office in

witnessed
7th day of August, 1973

EXHIBIT 2

RESOLUTION NO. _____

**A RESOLUTION OF THE BOARD OF COMMISSIONERS OF
MCCREARY COUNTY WATER DISTRICT AUTHORIZING AN
APPLICATION TO THE KENTUCKY PUBLIC SERVICE
COMMISSION FOR AUTHORIZATION TO ISSUE AN EVIDENCE
OF INDEBTEDNESS, FOR A CERTIFICATE OF PUBLIC
CONVENIENCE AND NECESSITY AND OTHER RELIEF AS
NECESSARY**

WHEREAS, McCreary County Water District is a water district organized pursuant to the provisions of KRS Chapter 74;

WHEREAS, pursuant to KRS 278.015, the Kentucky General Assembly has declared that all water districts are “public utilities” and are subject to the regulation of the Kentucky Public Service Commission;

WHEREAS McCreary County Water District owns and operates sewage collection and treatment system that serves the residents of McCreary County, Kentucky;

WHEREAS, McCreary County Water District’s sewer operations are subject to the jurisdiction and regulation of the Kentucky Public Service Commission;

WHEREAS, McCreary County Water District proposes to expand its existing sewer system by constructing additional sewer mains and pump stations to serve persons between the Sterns and Smith Town areas of McCreary County, a project formally known as “Sanitary Sewer Collection System Expansion – Phase 1,” at an estimated total cost of \$3,244,500;

WHEREAS, McCreary County Water District proposes to finance the proposed expansion through a loan not to exceed \$3,244,500 from the Kentucky Infrastructure Authority payable over a 30-year period at an interest rate of 0.5 percent per annum and evidenced by an Assistance Agreement;

WHEREAS, KRS 278.020(1) prohibits a utility from constructing any facilities to be used to provide utility service, including those for the collection, transmission and treatment of sewage, without first obtaining a certificate of public convenience and necessity from the Kentucky Public Service Commission;

WHEREAS, KRS 278.300 prohibits a utility from issuing an evidence of indebtedness until it has been authorized to do so by an order of the Kentucky Public Service Commission;

WHEREAS, KRS 278.020(1) requires McCreary County Water District to obtain a certificate of public convenience and necessity from the Kentucky Public Service Commission prior to commencing Sanitary Sewer Collection System Expansion – Phase 1 Project; and

WHEREAS, KRS 278.300 requires McCreary County Water District to obtain authorization from the Kentucky Public Service Commission prior to executing its proposed Assistance Agreement with the Kentucky Infrastructure Authority;

NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE BOARD OF COMMISSIONERS OF MCCREARY COUNTY WATER DISTRICT AS FOLLOWS:

Section 1. The facts, recitals, and statements contained in the foregoing preamble of this Resolution are true and correct and are hereby affirmed and incorporated as a part of this Resolution.

Section 2. The General Manager, all appropriate Staff, and McCreary County Water District's attorney are hereby further authorized and directed to take any and all actions to apply to the Kentucky Public Service Commission for authorization for McCreary County Water District to execute an Assistance Agreement with the Kentucky Infrastructure Authority to borrow an amount not to exceed \$3,244,500 and payable over a 30-year period at an interest rate of 0.5 percent per annum, for a certificate of public convenience and necessity to construct the Sanitary Sewer Collection System Expansion – Phase 1 Project and to apply for such other relief as appropriate and necessary to ensure that McCreary County Water District is acting in accordance with the requirements of KRS Chapter 278.

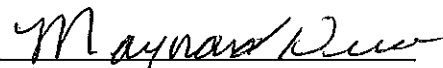
Section 3. This Resolution shall take effect upon its adoption.

ADOPTED BY THE BOARD OF COMMISSIONERS OF MCCREARY COUNTY WATER DISTRICT at a meeting held on December 29, 2020 signed by the Chairman and attested by the Secretary.



Randy Kidd, Chairman

ATTEST:



Maynard New, Secretary

CERTIFICATION

The undersigned Secretary of McCreary County Water District (the "District") hereby certifies that the foregoing is a true copy of a Resolution duly adopted by the District's Board of Commissioners at a meeting properly held on December 29, 2020, signed by the Chairman of the Board of Commissioners, attested by the Secretary of the Board of Commissioners, and is now in full force and effect.

WITNESS my hand this 29th day of December 2020.

A handwritten signature in cursive script, appearing to read "Maynard R. ...", is written over a horizontal line. Below the line, the word "Secretary" is printed in a standard serif font.

EXHIBIT 3



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

October 23, 2020

Mr. Stephen Whitaker
McCreary County Water District
456 North Highway 27
Whitley City, KY 42653

RE: Collection Expansion Ph 1
A20-047
McCreary County, KY
McCreary Co WWTP
AI #: 3089, FGL20200005

Dear Mr. Whitaker:

The Kentucky Division of Water (DOW) has reviewed for completeness and adequacy the construction plans and specifications submitted for the above referenced contract. 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 14,099 feet of 4-inch, 18,901 feet of 3-inch, and 47,610 feet of 2-inch PVC force main including eighty-seven (87) flushing connections and fifty-three (53) air release valves; 1,176 feet of 6-inch and 8-inch HDPE directional bore; 50,250 feet of 1 ½-inch HDPE force service line, 12,000 feet of 4-inch PVC sewer laterals, and four hundred and fourteen (414) grinder pump stations capable of 8 GPM @ 172 TDH including the pump stations and grinder check valve assemblies. 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 have sent 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.

Collection System Expansion Ph 1
A20-047
McCreary Co WWTP
AI #: 3089, FGL20200005
October 23, 2020
Page 2 of 3

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 call David Coe, Project Engineer, at (502) 782-6296.

Collection System Expansion Ph 1
A20-047
McCreary Co WWTP
AI #: 3089, FGL20200005
October 23, 2020
Page 3 of 3

Sincerely,



Mark Rasche, P.E.
Water Infrastructure Branch
Division of Water

MR:DRC
Enclosures

Eligible List, Ineligible List, Approval Conditions
Project Review and Cost Summary Form
1 set plans and specification

C: Monarch Engineering, Inc.
Kentucky Infrastructure Authority
Cabinet for Economic Development
McCreary County Health Department
Division of Plumbing

A20-047
McCreary County Water District

SRF ELIGIBLE ITEMS:

Contract No A20-047 Collection System Expansion:

All items 1-14 in the bid schedule are SRF eligible.

SRF INELIGIBLE ITEMS:

Contract No A20-047 Collection System Expansion:

None of the items 1-14 in the bid schedule are SRF in-eligible.

APPROVAL CONDITIONS:

1. Provide Clear Site Certificates
2. Complete and return the Project Review and Cost Summary Form.

PROJECT REVIEW AND COST SUMMARY

This questionnaire/checklist is furnished as an administrative aid and is required for use in supplying information and documents, reporting minor changes, and project status. The information and documents should be submitted to DOW as soon as possible after bid opening.

DRINKING WATER SRF

CLEAN WATER SRF

SECTION 1.

1. Project Name _____ Project Number _____

2. Changes: Have there been any changes in the project since DOW's approval of the plans and specifications?

Yes No Construction Drawings. If yes, submit revised drawings and addenda. **See Note***

Yes No Specifications. If yes, submit addenda. **See Note***

Yes No Site Changes. If so, new Clear Site Certificates are required prior to start of construction.

Yes No Authorized Representative (Mayor, City Manager, etc.). If so, provide name and title.

***Note:** Prior approval is required for changes in design, scope, type of treatment, size, capacity, time to complete the project, etc. Changes, which result in increase in the amount of a contract, must be procured in accordance with state and federal requirements, as applicable.

SECTION 2.

Date Bids Opened: _____ Date Bids Expire: _____

1. The following items should be submitted to DOW after bid opening:
 - a) Executed Project Review & Cost Summary Form (this form).
 - b) Revised (As-bid) Budget (form attached).
 - c) Original bid advertisement or copy of advertisement with affidavit of publication.
 - d) Certified Bid Tabulations with engineer's seal.
 - e) Davis-Bacon ATA Certification form (with Project Wage Rate Sheet HUD-4720 form).
 - g) Clear Site Certificates.
 - h) DBE Documentation (See Attachment No. 11 of the Supplemental General Conditions (SGC)):
 - (1) Disadvantaged Business Enterprise Participation Policy form from the successful low bidder with DBE certifications and executed subcontracts with DBEs or letters of intent signed by both parties; and documentation on the level of effort taken

to obtain DBEs including copies of correspondence with DBE contractors, requesting quotes and copies of any advertisements soliciting DBE contractors, copies of returned envelopes and certified mail receipts, telephone log, etc.

(2) Bidder's List Form from recipient and successful bidder.

2. The following items must be submitted to DOW at the Pre-construction Meeting:

- a) Executed Contract Documents (once contract is signed).
- b) Notice of Award, Notice to Proceed, Bid Bond, Payment Bond, and Performance Bond (generally included in executed contract).
- c) Technical Specification (generally included in executed contract).
- d) Contractor's Certification Regarding Lobbying (See Attachment No. 11 in the SGC).
- e) Contractor's Debarred Firm Certification (See Attachment No. 10 in the SGC).

3. A copy of the items identified in Section 2.1 and Section 2.2, above, and the following must be retained by the owner. This documentation is subject for review, by DOW, at the time of the pre-construction conference.

- a) Name and qualifications of the proposed resident inspector(s).
- b) Proposal of the successful bidder(s).
- c) EEO documentation required by Executive Order 11246 as amended. Items 1 through 11 (See Attachment No. 7 in the SGC), is required for all contracts over \$10,000 except supplier contracts. Supplier contracts require:
 - (1) Name, address, and telephone number.
 - (2) Materials to be supplied and dollar value.For contracts below \$10,000, the same information required for supplier contracts must be submitted.
- d) Engineer's letter to the loan recipient recommending award of the contract. Letter must include a description of work, dollar amount, and name of the low bidder. If award is recommended to be made to other than the low bidder, a justification indicating why the low bidder is not responsive or responsible.
- e) Contractor project construction schedule and payment schedule.
- f) Applicable wage rate determination letter.
- g) Tentative Award Resolution.

4. **Comments:** _____

I hereby certify that all documentation outlined in Section 2.1, 2.2 and 2.3 will be retained in our project files and all documentation outlined in Section 2.1 has been submitted to DOW and all documentation outlined in Section 2.2 will be submitted to DOW during the Pre-construction meeting.

Signature of Authorized Representative

Date

Print Name and Title

SRF Project Cost Summary

Project Title: _____ WRIS#: _____

Project Budget: **Estimated** enter date **As Bid** enter date **Revised** enter date

| Cost Classification | SRF KIA Loan | Funding Source 1 | Funding Source 2 | Funding Source 3 | Funding Source 4 | Funding Source 5 | Local Funds | Unfunded Costs | Total |
|---------------------|---------------------------------|------------------|------------------|------------------|------------------|------------------|-------------|----------------|-------|
| 1 | Administrative Expenses | | | | | | | | |
| 2 | Legal Expenses | | | | | | | | |
| 3 | Land, Appraisals, Easements | | | | | | | | |
| 4 | Relocation Expenses & Payments | | | | | | | | |
| 5 | Planning | | | | | | | | |
| 6 | Engineering Fees – Design | | | | | | | | |
| 7 | Engineering Fees – Construction | | | | | | | | |
| 8 | Engineering Fees – Inspection | | | | | | | | |
| 9 | Engineering Fees – Other | | | | | | | | |
| 10 | Construction | | | | | | | | |
| 11 | Equipment | | | | | | | | |
| 12 | Miscellaneous | | | | | | | | |
| 13 | Contingencies | | | | | | | | |
| | Total | | | | | | | | |

| Funding Sources | Amount | Date Committed |
|-----------------|--------------|----------------|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| | Total | |

| Local Funding Sources | Amount | Date Committed |
|-----------------------|--------------|----------------|
| 1 | | |
| 2 | | |
| 3 | | |
| | Total | |

Total Funding \$ _____

| Cost Categories | Funding Source | Total Cost |
|--|--------------------|------------|
| Treatment (DW) | | |
| Transmission and Distribution (DW) | | |
| Storage (DW) | | |
| WWTP Secondary Portion (CW) | | |
| WWTP Advanced Portion (CW) | | |
| Inflow and Infiltration Correction (CW) | | |
| Major Sewer Rehabilitation (CW) | | |
| Collector Sewers (CW) | | |
| Interceptor Sewers including Pump Station (CW) | | |
| Combined Sewer Overflow Correction (CW) | | |
| Purchase of Systems (DW and CW) | | |
| Restructuring (DW and CW) | | |
| Land Acquisition (DW and CW) | | |
| | Total Costs | |

Sewer Line Construction
McCreary Co WWTP
Facility Requirements

Activity ID No.:APE20200003

Submittal/Action Requirements:

| Condition No. | Item ID | Condition |
|---------------|---|---|
| S-1 | GACT7 (Collection System Expansion Ph 1) | When this project is completed, the applicant shall submit written certification: Due 30 calendar days after Completion of Construction to the Division of Water that the facilities have been constructed and tested in accordance with the approved plans and specifications and the approval conditions. Such certification shall be signed by a registered professional engineer. Failure to certify may result in penalty assessment and/or future approvals being withheld. [401 KAR 5:005 Section 24(2)] |

Sewer Line Construction
McCreary Co WWTP
Facility Requirements

Activity ID No.:APE20200003

Narrative Requirements:

| Condition No. | Item ID | Condition |
|---------------|---|---|
| T-1 | GACT7 (Collection System Expansion Ph 1) | The plans and specifications submitted for the project are approved by the Department of Environmental Protection as to sanitary features, subject to the requirements contained within the permit. [401 KAR 5:005 Section 24(3)] |
| T-2 | GACT7 (Collection System Expansion Ph 1) | Authority to construct these sewers is hereby granted. This approval is issued under the provisions of KRS Chapter 224.10-100 (19) regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any permits or licenses required by this cabinet and other state, federal, and local agencies. [401 KAR 5:005 Section 24(3)(c)2] |
| T-3 | GACT7 (Collection System Expansion Ph 1) | A permit to construct a facility shall be effective and valid for twenty-four (24) months upon issuance unless otherwise conditioned. If construction has not commenced within twenty-four (24) months following a permit's issuance, a new permit shall be obtained before construction may begin. [401 KAR 5:005 Section 24(1)] |
| T-4 | GACT7 (Collection System Expansion Ph 1) | The permit is issued to the applicant, and the permittee shall remain the responsible party for compliance with all applicable statutes and administrative regulations until a notarized applicable change in ownership certification is submitted and the transfer of ownership is acknowledged by the cabinet. [401 KAR 5:005 Section 28(1)] |
| T-5 | GACT7 (Collection System Expansion Ph 1) | The issuance of a permit by the cabinet does not convey any property rights of any kind or any exclusive privilege. [401 KAR 5:005 Section 24(5)] |
| T-6 | GACT7 (Collection System Expansion Ph 1) | There shall be no deviations from the plans and specifications submitted with the application or the conditions specified, unless authorized in writing by the cabinet. [401 KAR 5:005 Section 24(3)(b)1] |

Sewer Line Construction
McCreary Co WWTP
Facility Requirements

Activity ID No.:APE20200003

Narrative Requirements:

| Condition No. | Item ID | Condition |
|---------------|---|--|
| T-7 | GACT7 (Collection System Expansion Ph 1) | <p>For subfluvial pipe crossings, a floodplain construction permit will not be required pursuant to KRS 151.250, if the following requirements of 401 KAR 4:050 Section 2 are met:</p> <ol style="list-style-type: none">1) During the construction of the crossing, no material may be placed in the stream or in the flood plain of the stream to form construction pads, coffer dams, access roads, etc., unless prior approval has been obtained from the cabinet.2) The trench shall be backfilled as closely as possible to the original contour. All excess material from construction of the trench shall be disposed of outside of the flood plain, unless the applicant has received prior approval from the cabinet to fill within the flood plain.3) For subfluvial crossings of erodible channels, there shall be at least thirty (30) inches of clear cover above the top of the pipe or conduit at all points.4) For subfluvial crossings of nonerodible channels, there shall be at least six (6) inches of clear cover above the top of the pipe or conduit at all points, and the pipe or conduit shall be encased on all sides by at least six (6) inches of concrete.5) The weight of a pipe and its contents during normal operating conditions at all points must exceed that of an equal volume of water, or the applicant must provide the division with sufficient information to show that the pipe and joints have sufficient strength. |
| T-8 | GACT7 (Collection System Expansion Ph 1) | <p>Contact the Floodplain Management Section of the Surface Water Permits Branch at (502) 564-3410 with any question on these requirements. [KRS 151.250 & 401 KAR 4:060]</p> <p>If any portion of the sewer project will be constructed in or along a stream or wetland, contact the Water Quality Certification Section, located within the Water Quality Branch, at 502-564-3410, to determine if a 401 certification will be required. [KRS 224.16-050]</p> |
| T-9 | GACT7 (Collection System Expansion Ph 1) | <p>Facilities shall be designed and constructed in accordance with the "Recommended Standards for Wastewater Facilities" of the Great Lakes-Lipper Mississippi River Board of State Public Health and Environmental Managers, commonly referred to as "Ten States' Standards", 2004 edition. [401 KAR 5:005 Section 7(1)(a)]</p> |

Sewer Line Construction
McCreary Co WWTP
Facility Requirements

Activity ID No.:APE20200003

Narrative Requirements:

| Condition No. | Item ID | Condition |
|---------------|---|---|
| T-10 | GACT7 (Collection System Expansion Ph 1) | Gravity sewer lines and force mains shall be designed and constructed to give mean velocities, when flowing full, of not less than two (2) feet per second. Velocity calculations shall incorporate roughness coefficients pursuant to 401 KAR 5:005 Section 8(8). [401 KAR 5:005 Section 8(8)] |
| T-11 | GACT7 (Collection System Expansion Ph 1) | Sewer line pipe material, joints, fittings, and installation shall conform to the latest ASTM specifications. [Ten States (WW) 33.7-33.9] |
| T-12 | GACT7 (Collection System Expansion Ph 1) | Gravity sewer lines and force mains shall have a minimum of thirty (30) inches of cover or provide comparable protection. [401 KAR 5:005 Section 8(9)] |
| T-13 | GACT7 (Collection System Expansion Ph 1) | Sewer lines crossing water mains shall be laid to provide a vertical distance of eighteen (18) inches between the outside of the water main and the outside of the sewer line. This shall be the case where the water main is either above or below the sewer line. The crossing shall be arranged so that the sewer line joints are equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer line to prevent damage to the water main. [Ten States (WW) 38.32] |
| T-14 | GACT7 (Collection System Expansion Ph 1) | Sewer lines shall be laid at least ten (10) feet horizontally from any existing or proposed water main. The distance shall be measured from edge to edge. [Ten States (WW) 38.31] |
| T-15 | GACT7 (Collection System Expansion Ph 1) | If gravity sewer lines and force mains are to be constructed in fill areas, the fill areas shall be compacted to ninety-five (95) percent density as determined by the Standard Proctor Density test or to a minimum of ninety (90) percent density as determined by the Modified Proctor Density test prior to the installation of the sewer lines. [401 KAR 5:005 Section 8(10)] |

Sewer Line Construction
McCreary Co WWTP
Facility Requirements

Activity ID No.:APE20200003

Narrative Requirements:

| Condition No. | Item ID | Condition |
|---------------|--|---|
| T-16 | GACT7 (Collection System Expansion Ph 1) | An audible and visible alarm shall be provided at any proposed wastewater pump station. [Ten States (WW) 46] |
| T-17 | GACT7 (Collection System Expansion Ph 1) | All proposed pump station wetwells shall be sized such that, based on the average flow, the time to fill the wetwell from the pump-off elevation to the pump-on elevation shall not exceed thirty (30) minutes. [401 KAR 5:005 Section 8(6)] |
| T-18 | GACT7 (Collection System Expansion Ph 1) | All pump stations shall provide a minimum of two (2) hours of detention time, based on the average design flow, above the high level alarm elevation or provide an alternate source of power with wetwell storage providing sufficient time for the alternate power source to be activated. [401 KAR 5:005 Section 8(18)] |
| T-19 | PORT47 (Collection System Expansion Ph 1) | The integrity of any proposed force main shall be verified by leakage tests. The specifications shall include testing methods and leakage limits. [401 KAR 5:005 Section 8(6)(b)] |
| T-20 | PORT47 (Collection System Expansion Ph 1) | Each high point in the sewer force main shall have an automatic air release valve. [401 KAR 5:005 Section 8(19)] |
| T-21 | PORT47 (Collection System Expansion Ph 1) | Adequate thrust blocks shall be provided at all significant bends in any proposed sewer force main, in order to prevent movement of the main. [Ten States (WW) 49.4] |

Sewer Line Construction
McCreary Co WWTP
Facility Requirements

Activity ID No.:APE20200003

Narrative Requirements:

| Condition No. | Item ID | Condition |
|---------------|--|--|
| T-22 | PORT48 (Collection System Expansion Ph 1) | Pumps and force mains handling raw wastewater shall be capable of passing spheres of at least three (3) inches in diameter. Pump suction and discharge openings, as well as sewer force main pipe, shall be a minimum of four (4) inches in diameter. The above requirements do not apply to grinder pump stations or force mains directly connected to grinder pump stations. [Ten States (WW) 42.33, 49.1] |
| T-23 | PORT48 (Collection System Expansion Ph 1) | A simplex design shall be used only for pump stations which serve an individual residence or business, and a spare pump shall be available for immediate installation. [401 KAR 5:005 Section 8] |

EXHIBIT 4



COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET

transportation.ky.gov

Andy Beshear
GOVERNOR

Jim Gray
SECRETARY

McCreary County Water District
456 North Hwy 27
Whitley City, KY 42653

Subject: McCreary County
KY 92
MP 074-0092-13.1
Permit: 08-2020-00306

Dear Sir:

The attached is your copy of the approved encroachment permit application. One copy is to be submitted to your contractor. This permit is to remain on the project until the permitted work is complete.

You are to shape and seed any disturbed areas on the State's right of way. All work and materials are to comply with the Department's Standard Specification for Road and Bridge Construction- 2019 Edition. Signs, barricades, lights, etc. if required, are to be installed in accordance with the Manual on Uniform Traffic Control Devices.

Please notify this office when permitted work begins. When work has been completed, the Notice of Completion of Encroachment Permit Work must be completed and returned so an inspection can be made by personnel from this office. If all work has been completed satisfactorily, your indemnity will then be released.

Yours truly,

Adam Dixon

Adam Dixon, P.E.
Transportation Engineer I
District 8- Somerset

12/8/2020
Date

JJ/cm



Kentucky Transportation Cabinet
 Department of Highways
 Division of Maintenance
 Permits Branch

TC 99-1 (B)
 07/2018
 Page 1 of 1

ENCROACHMENT PERMIT

KYTC KEPT #: 08-2020-00306
Permittee: McCreary County Water District
Permit Type / Subtype: Utilities / Sewer
Work Completion Date: 9/3/2021

| INDEMNITIES | | |
|---------------------|-----------------|-----------------|
| Type | Amount Required | Tracking Number |
| Performance Bond | \$0.00 | |
| Cash / Check | \$0.00 | |
| Self-Insured | \$0.00 | |
| Payment Bond | \$0.00 | |
| Liability Insurance | \$0.00 | |

This permit has been: **APPROVED** **DENIED**

| | | |
|------------------|--------------|-------------|
| Adam Dixon | D8 Permits | 12/10/2020 |
| SIGNATURE | TITLE | 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.

| LOCATION(S) | | | |
|-------------|--------------------|-----------|------------|
| Description | County - Route | Latitude | Longitude |
| | McCreary - KY 1651 | 36.681541 | -84.461110 |
| | McCreary - KY 701 | 36.705621 | -84.494944 |
| | McCreary - KY 92 | 36.709200 | -84.512003 |



To Submit a Locate Request
 24 Hours a Day, Seven Days a Week:
 Call 811 or 800-752-6007

Kentucky Transportation Cabinet – District 8
Permit No. 08-2020-00306

Applicant to parallel underground left of KY 92 from mile point 13.1 to 13.2 and right from mile points 13.3 to 13.5 and 13.55 to 15.25 in McCreary County with 4 inch sewer line as per attached plans and encroachment terms.

Applicant to parallel underground left of KY 701 from mile point 0.15 to 1.0 in McCreary County with a 4 inch sewer line as per attached plans and encroachment terms.

Applicant to parallel underground left of KY 1651 from mile points 2.25 to 4.85 in McCreary County with a 4 inch sewer line as per attached plans and encroachment terms.

Applicant to bore across KY 92 at mile point 13.1, 13.2, 13.5, 13.55, 13.65, 13.95, 14.55, 14.95, 15.05, 15.15, and 15.25 in McCreary County for a 2, 3, and 4 inch sewer line with 4, 6, and 8 inch encasements as shown on attached plans, encroachment terms, and Typical Highway Boring Detail.

Applicant to bore across KY 701 at mile points 0.15, 0.8 1.08 and 1.1 in McCreary County for a 2, 3, and 4 inch sewer line with 4, 6, and 8 inch encasements as shown on attached plans, encroachment terms, and Typical Highway Boring Detail.

Applicant to bore across KY 1651 at mile points 2.25, 2.6, 2.8, 2.95, 3.15, 3.25, 3.75, 3.95, and 4.85 in McCreary county for a 2, 3, and 4 inch sewer line with 4, 6, and 8 inch encasement pipes as shown on attached plans, encroachment terms, and Typical Highway Boring Detail.

Locations where utility line crosses paved or concrete driveways, the utility line shall be bored to prevent disturbance to the driving surface unless prior written approval is obtained from the property owners.

Underground utility crossing shall be constructed with 42 inches of cover from the top of the pipe to the low spot of the ditch or toe of slope as shown on the attached Typical Highway Boring Crossing Detail.

Parallel utility lines shall be constructed between back of slope of ditch line or toe of slope and the right of way line and shall have a minimum of 42 inches cover above the top of pipe or conduit.

Roadway drainage shall be maintained at all times, with silt checks placed in the roadway ditch where needed and near the inlet of all culvert and entrance pipe to control erosion and prevent silt from settling inside of pipe.

No change shall be made contrary to this permit and the applicant's plans without first notifying and being approved by the Permit Engineer.

Construction of the utility shall not interfere with any construction or maintenance operations of the Kentucky Transportation Cabinet.

All work and materials shall meet or exceed the Kentucky Department of Highways Standard Specifications.

All disturbed portions of the right-of-way are to be restored to grass as per Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, 2019 edition. A satisfactory turf, as determined by the Department, is to be established by the permittee prior to release of indemnity.

The minimum rate of application for seeding and protection method II per 1,000 square feet shall be applied as follows:

2.5 lbs of seed mixture
12 lbs of 20-10-10 fertilizer
150 lbs of agricultural limestone

Work area within the Kentucky Department of Highways right of way shall be signed and flagged in accordance to the Manual on Uniform Traffic Control Devices before any work is to begin on the Kentucky Department of Highways right of way.

Contractor's equipment or other vehicles shall not be permitted to park on the roadway shoulders during the construction of this project without compliant traffic control.

This permit will be terminated and work will stop immediately at anytime the Department of Highways discovers or is notified of any unsafe or hazardous condition until corrections have been made.



ENCROACHMENT PERMIT GENERAL NOTES & SPECIFICATIONS

Permit No. 08-2020-00306

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 8:30 AM and 4:00 PM
- The traveled-way and shoulders shall be kept clear of mud and other construction debris at all times during construction of the permitted facility.
- No nonconstruction equipment or vehicles or office trailers shall be allowed on the right of way during working hours.
- The right of way shall be left free and clear of equipment, material, and vehicles during non-working hours.

B. Explosives

- No explosive devices or explosive material shall be used within state right of way without proper license and approval of the Kentucky Department of Mines and Minerals, Explosive Division.

C. Other Safety Requirements

- All workers must wear OSHA conforming personal protection items at all times when work is performed on the KYTC right of way. All traffic control must conform to the latest edition of the Manual on Uniform Traffic Control Devices

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 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 42-inch cover above top of pipe or conduit.
- All pavement cuts shall be restored per attached encroachment terms.
- 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:

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

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:

| | |
|-----------------------|---|
| Slopes 3:1 or flatter | 90% Kentucky 31 Tall Fescue 10% White Dutch Clover |
|-----------------------|---|

| | |
|-------------------------|---------------------------------------|
| Slopes steeper than 3:1 | 70% KY 31 Fescue 30% Partridge Pea |
|-------------------------|---------------------------------------|

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, rock 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:

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 accomodate 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).
- 48 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, 8 inches in thickness across the entrances, 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.

X. RIGHT-OF-WAY FENCE REPLACEMENT

- The replacement fence shall be a height of at least 48 inches and shall be of sufficient density to contain all animals (if applicable).

- The replacement fence shall be a minimum of 1 foot outside the right-of-way line. The fence materials and
- design shall meet accepted industry standards and be treated as paintable.
- The permittee shall be required to maintain the fence in a high state of repair.
- The existing fence shall be removed by permittee and stored at the Department's maintenance storage yard for future reuse by the Department.
- The control of access shall not be diminished as a result of replacement of the fence.
- Miscellaneous:

NOTICE TO PERMITTEE

THE PERMITTEE AGREES THAT ALL WORK WITHIN THE EXISTING RIGHT OF WAY SHALL BE DONE IN ACCORDANCE WITH THE PLANS AS APPROVED AND PERMITTED BY AN ENCROACHMENT PERMIT. ANY CHANGES OR VARIANCES MADE AT THE TIME OF CONSTRUCTION WITHOUT WRITTEN APPROVAL FROM THE DEPARTMENT OF HIGHWAYS SHALL BE REMOVED BY THE PERMITTEE AT NO EXPENSE TO THE DEPARTMENT OF HIGHWAYS AND SHALL BE REDONE BY THE PERMITTEE TO CONFORM WITH THE APPROVED PLANS.



**TYPICAL HIGHWAY BORE DETAIL
 - FOR NON-FULLY CONTROLLED HIGHWAYS -**

KYTC KEPT #: _____

SECTION 1: HIGHWAY INFORMATION

| | | | |
|---------------------------|-------------------------|---|----------------------------------|
| COUNTY McCreary | ROUTE KY 1651 | MILE POINT 4.85, 3.95, 3.75, 3.25, 3.15, 2.95, 2.8, 2.6 2.25 | PAVEMENT WIDTH 22 feet |
|---------------------------|-------------------------|---|----------------------------------|

SECTION 2: UTILITY INFORMATION

| | | |
|--|-------------------------|-------------------------------|
| UTILITY TYPE Sanitary Sewer Force Main | PIPE TYPE PVC | DIAMETER 2", 3", 4" |
|--|-------------------------|-------------------------------|

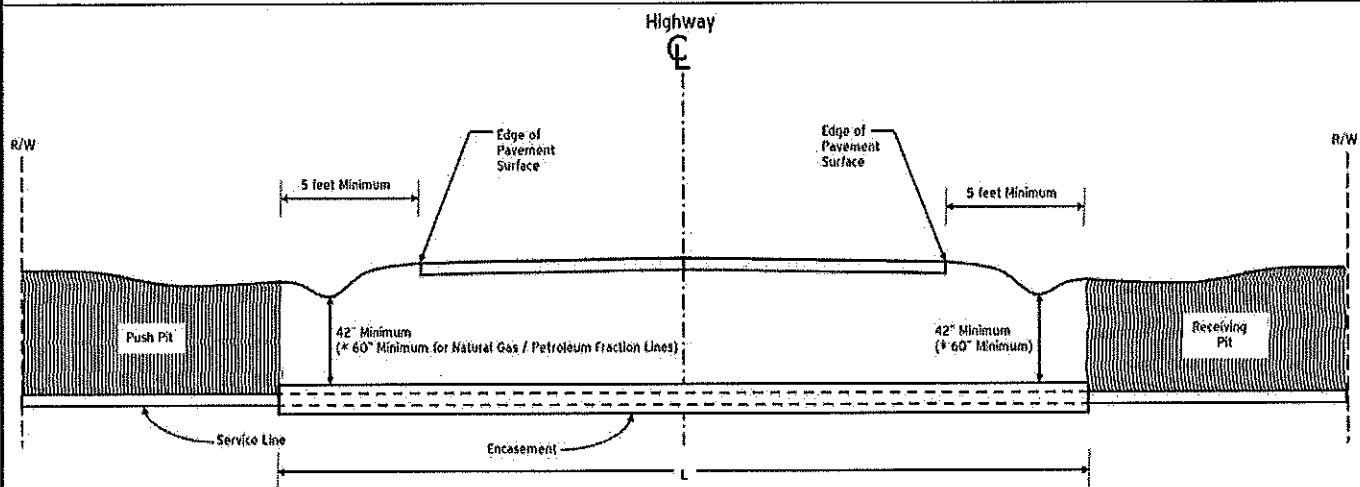
SECTION 3: ENCASEMENT INFORMATION

| | |
|--------------------------------|-------------------------------|
| ENCASEMENT TYPE HDPE | DIAMETER 4", 6", 8" |
|--------------------------------|-------------------------------|

SECTION 4: BORE INFORMATION

| | | |
|---------------------------------------|---------------------------------------|-------------------------------|
| BORE TYPE Directional Drill | LENGTH (L) varies, 32' min. | DIAMETER 4", 6", 8" |
|---------------------------------------|---------------------------------------|-------------------------------|

SECTION 5: DETAIL FOR NON-FULLY CONTROLLED HIGHWAYS



SECTION 6: GENERAL NOTES

- Push Pit and Receiving Pit shall be backfilled and thoroughly compacted.
- All ditch lines are to remain open at all times and restored to original condition.
- Shape, Seed and Straw all disturbed areas immediately after completing the work.
- Provide traffic control as required to insured the safety of the traveling public in accordance with the current edition of the *Manual on Uniform Traffic Control Devices*.
- The minimum depth for underground utilities is **42"** under roadways, ramps, and ditch lines, except for natural gas and petroleum fraction lines which shall have a minimum of **60"** cover.
- See KYTC Permits Manual for all requirements and specifications.



**TYPICAL HIGHWAY BORE DETAIL
 - FOR NON-FULLY CONTROLLED HIGHWAYS -**

KYTC KEPT #: _____

SECTION 1: HIGHWAY INFORMATION

| | | | |
|---------------------------|------------------------|---|----------------------------------|
| COUNTY McCreary | ROUTE KY 742 | MILE POINT Sheet 39 (2), sheet 42 (1) | PAVEMENT WIDTH 22 feet |
|---------------------------|------------------------|---|----------------------------------|

SECTION 2: UTILITY INFORMATION

| | | |
|--|-------------------------|---------------------------|
| UTILITY TYPE Sanitary Sewer Force Main | PIPE TYPE PVC | DIAMETER 2", 3" |
|--|-------------------------|---------------------------|

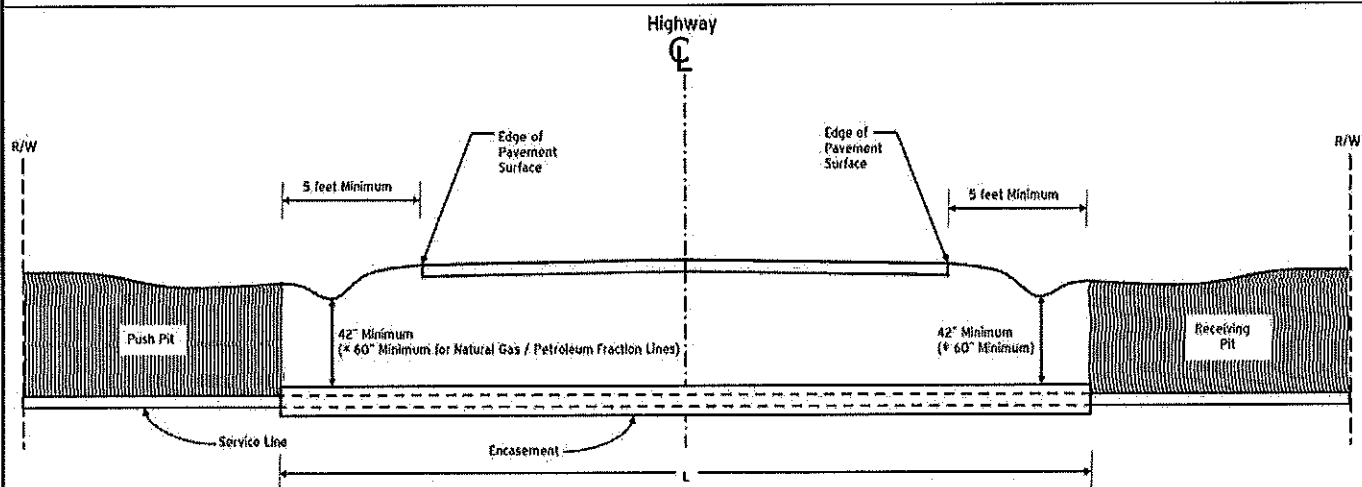
SECTION 3: ENCASEMENT INFORMATION

| | |
|--------------------------------|---------------------------|
| ENCASEMENT TYPE HDPE | DIAMETER 4", 6" |
|--------------------------------|---------------------------|

SECTION 4: BORE INFORMATION

| | | |
|---------------------------------------|---------------------------------------|---------------------------|
| BORE TYPE Directional Drill | LENGTH (L) varies, 32' min. | DIAMETER 4", 6" |
|---------------------------------------|---------------------------------------|---------------------------|

SECTION 5: DETAIL FOR NON-FULLY CONTROLLED HIGHWAYS



SECTION 6: GENERAL NOTES

- Push Pit and Receiving Pit shall be backfilled and thoroughly compacted.
- All ditch lines are to remain open at all times and restored to original condition.
- Shape, Seed and Straw all disturbed areas immediately after completing the work.
- Provide traffic control as required to insured the safety of the traveling public in accordance with the current edition of the *Manual on Uniform Traffic Control Devices*.
- The minimum depth for underground utilities is **42"** under roadways, ramps, and ditch lines, except for natural gas and petroleum fraction lines which shall have a minimum of **60"** cover.
- See KYTC Permits Manual for all requirements and specifications.



**TYPICAL HIGHWAY BORE DETAIL
 - FOR NON-FULLY CONTROLLED HIGHWAYS -**

KYTC KEPT #: _____

SECTION 1: HIGHWAY INFORMATION

| | | | |
|---------------------------|------------------------|--|----------------------------------|
| COUNTY McCreary | ROUTE KY 741 | MILE POINT Sheets 36 (1), 38 (1) | PAVEMENT WIDTH 22 feet |
|---------------------------|------------------------|--|----------------------------------|

SECTION 2: UTILITY INFORMATION

| | | |
|--|-------------------------|---------------------------|
| UTILITY TYPE Sanitary Sewer Force Main | PIPE TYPE PVC | DIAMETER 2", 4" |
|--|-------------------------|---------------------------|

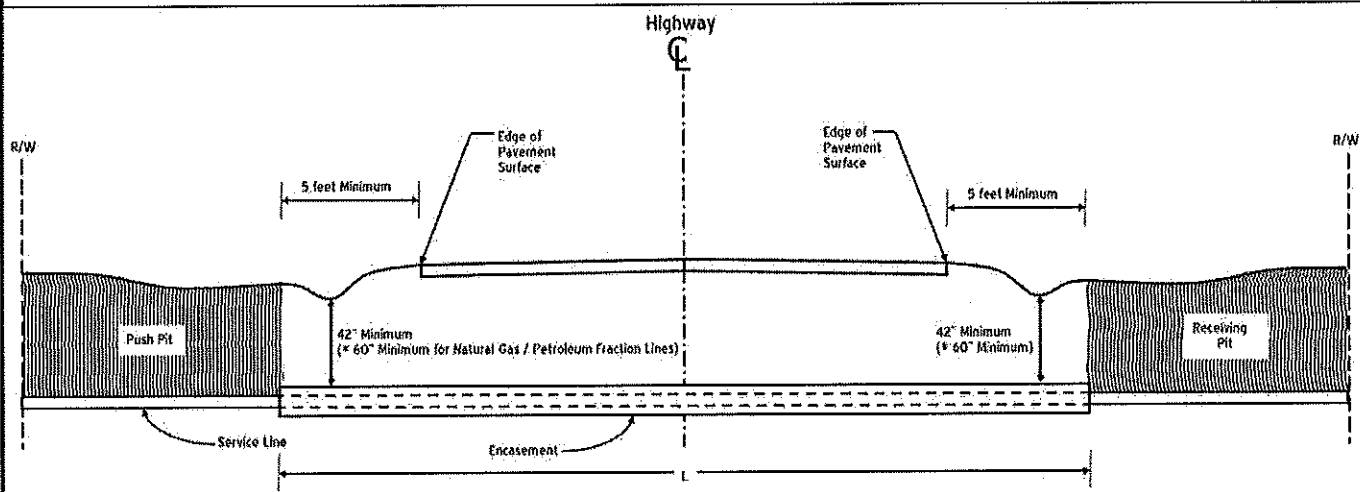
SECTION 3: ENCASEMENT INFORMATION

| | |
|--------------------------------|---------------------------|
| ENCASEMENT TYPE HDPE | DIAMETER 4", 8" |
|--------------------------------|---------------------------|

SECTION 4: BORE INFORMATION

| | | |
|---------------------------------------|---------------------------------------|---------------------------|
| BORE TYPE Directional Drill | LENGTH (L) varies, 32' min. | DIAMETER 4", 8" |
|---------------------------------------|---------------------------------------|---------------------------|

SECTION 5: DETAIL FOR NON-FULLY CONTROLLED HIGHWAYS



SECTION 6: GENERAL NOTES

- Push Pit and Receiving Pit shall be backfilled and thoroughly compacted.
- All ditch lines are to remain open at all times and restored to original condition.
- Shape, Seed and Straw all disturbed areas immediately after completing the work.
- Provide traffic control as required to insured the safety of the traveling public in accordance with the current edition of the *Manual on Uniform Traffic Control Devices*.
- The minimum depth for underground utilities is **42"** under roadways, ramps, and ditch lines, except for natural gas and petroleum fraction lines which shall have a minimum of **60"** cover.
- See KYTC Permits Manual for all requirements and specifications.



**TYPICAL HIGHWAY BORE DETAIL
 - FOR NON-FULLY CONTROLLED HIGHWAYS -**

KYTC KEPT #: _____

SECTION 1: HIGHWAY INFORMATION

| | | | |
|--------------------|-----------------|------------------------------------|---------------------------|
| COUNTY McCreary | ROUTE KY 701 | MILE POINT 0.15, 0.8, 1.08, 1.1 | PAVEMENT WIDTH 22 feet |
|--------------------|-----------------|------------------------------------|---------------------------|

SECTION 2: UTILITY INFORMATION

| | | |
|---|------------------|--------------------|
| UTILITY TYPE Sanitary Sewer Force Main | PIPE TYPE PVC | DIAMETER 2", 4" |
|---|------------------|--------------------|

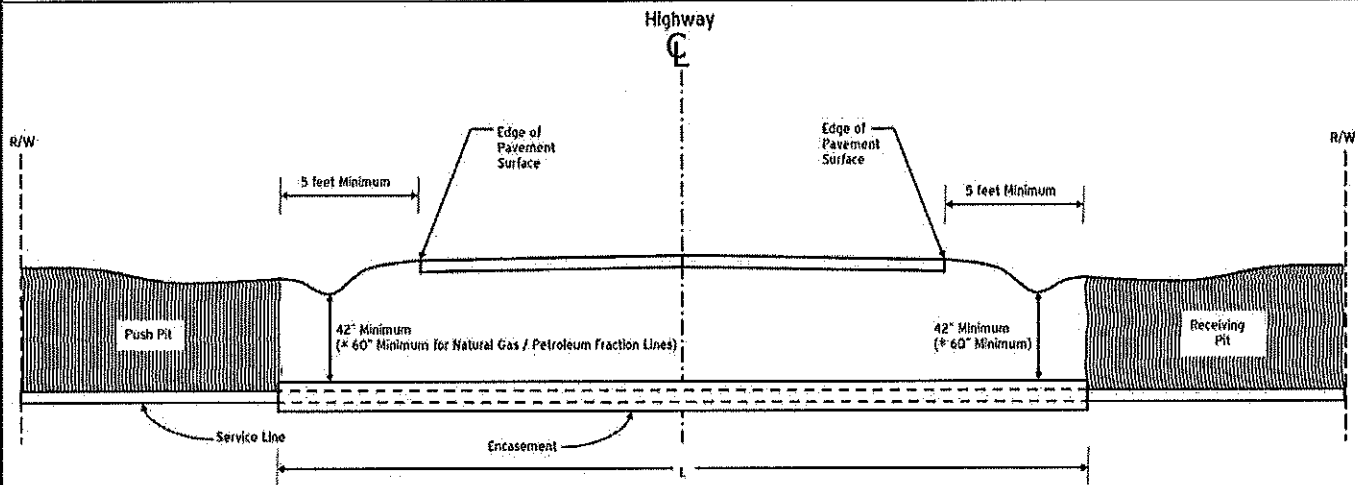
SECTION 3: ENCASEMENT INFORMATION

| | |
|-------------------------|--------------------|
| ENCASEMENT TYPE HDPE | DIAMETER 4", 8" |
|-------------------------|--------------------|

SECTION 4: BORE INFORMATION

| | | |
|--------------------------------|--------------------------------|--------------------|
| BORE TYPE Directional Drill | LENGTH (L) varies, 32' min. | DIAMETER 4", 8" |
|--------------------------------|--------------------------------|--------------------|

SECTION 5: DETAIL FOR NON-FULLY CONTROLLED HIGHWAYS



SECTION 6: GENERAL NOTES

- Push Pit and Receiving Pit shall be backfilled and thoroughly compacted.
- All ditch lines are to remain open at all times and restored to original condition.
- Shape, Seed and Straw all disturbed areas immediately after completing the work.
- Provide traffic control as required to insured the safety of the traveling public in accordance with the current edition of the *Manual on Uniform Traffic Control Devices*.
- The minimum depth for underground utilities is 42" under roadways, ramps, and ditch lines, except for natural gas and petroleum fraction lines which shall have a minimum of 60" cover.
- See KYTC Permits Manual for all requirements and specifications.



**TYPICAL HIGHWAY BORE DETAIL
 - FOR NON-FULLY CONTROLLED HIGHWAYS -**

KYTC KEPT #: _____

SECTION 1: HIGHWAY INFORMATION

| | | | |
|--------------------|----------------|---|---------------------------|
| COUNTY McCreary | ROUTE KY 92 | MILE POINT 13.1, 13.2, 13.5, 13.5, 13.55, 13.65, 13.95, 14.55, 14.95, 15.05, 15.15, 15.25 | PAVEMENT WIDTH 22 feet |
|--------------------|----------------|---|---------------------------|

SECTION 2: UTILITY INFORMATION

| | | |
|---|------------------|------------------------|
| UTILITY TYPE Sanitary Sewer Force Main | PIPE TYPE PVC | DIAMETER 2", 3", 4" |
|---|------------------|------------------------|

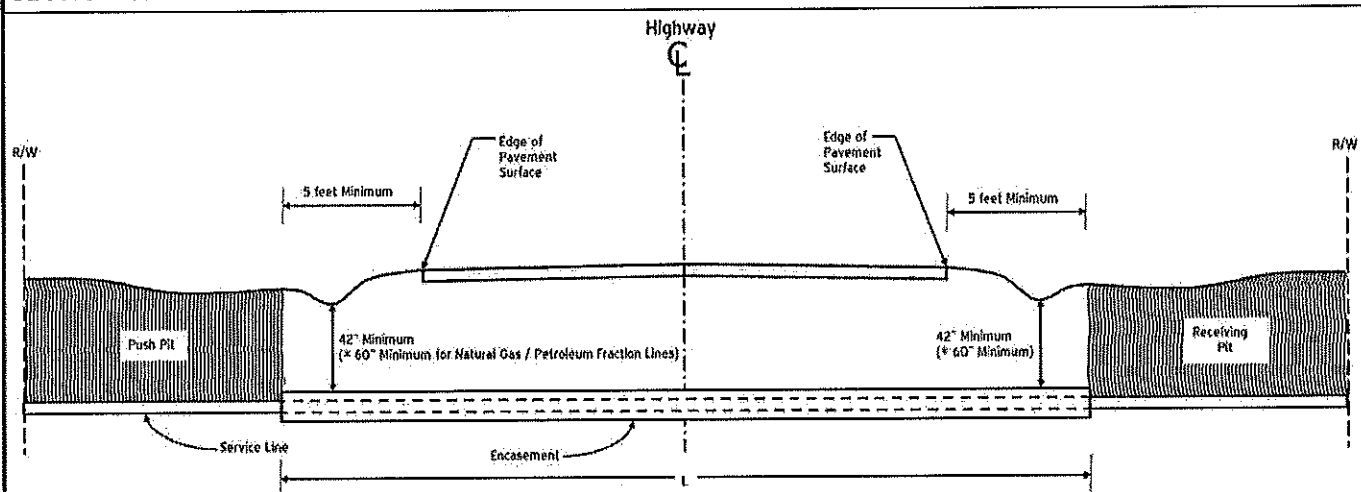
SECTION 3: ENCASEMENT INFORMATION

| | |
|-------------------------|------------------------|
| ENCASEMENT TYPE HDPE | DIAMETER 4", 6", 8" |
|-------------------------|------------------------|

SECTION 4: BORE INFORMATION

| | | |
|--------------------------------|--------------------------------|------------------------|
| BORE TYPE Directional Drill | LENGTH (L) varies, 32' min. | DIAMETER 4", 6", 8" |
|--------------------------------|--------------------------------|------------------------|

SECTION 5: DETAIL FOR NON-FULLY CONTROLLED HIGHWAYS

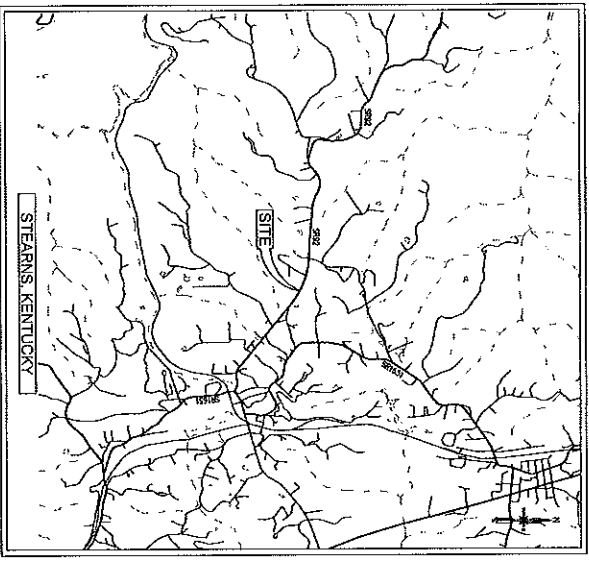


SECTION 6: GENERAL NOTES

- Push Pit and Receiving Pit shall be backfilled and thoroughly compacted.
- All ditch lines are to remain open at all times and restored to original condition.
- Shape, Seed and Straw all disturbed areas immediately after completing the work.
- Provide traffic control as required to insured the safety of the traveling public in accordance with the current edition of the *Manual on Uniform Traffic Control Devices*.
- The minimum depth for underground utilities is **42"** under roadways, ramps, and ditch lines, except for natural gas and petroleum fraction lines which shall have a minimum of **60"** cover.
- See KYTC Permits Manual for all requirements and specifications.

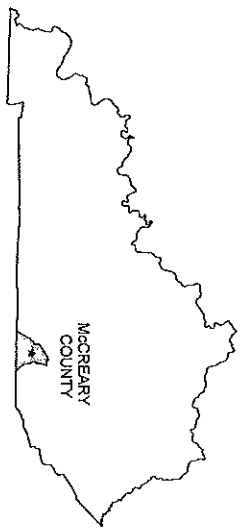
SANITARY SEWER COLLECTION SYSTEM EXPANSION - PHASE ONE CONTRACT No. 39

LOCATION

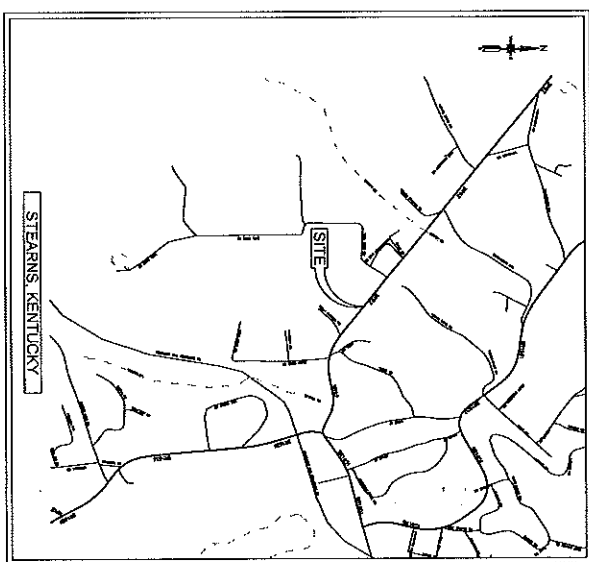


NOVEMBER 2020

Prepared For:
McCREARY COUNTY WATER DISTRICT
 456 N. HWY 27
 WHITLEY CITY, KENTUCKY 42853



LOCATION



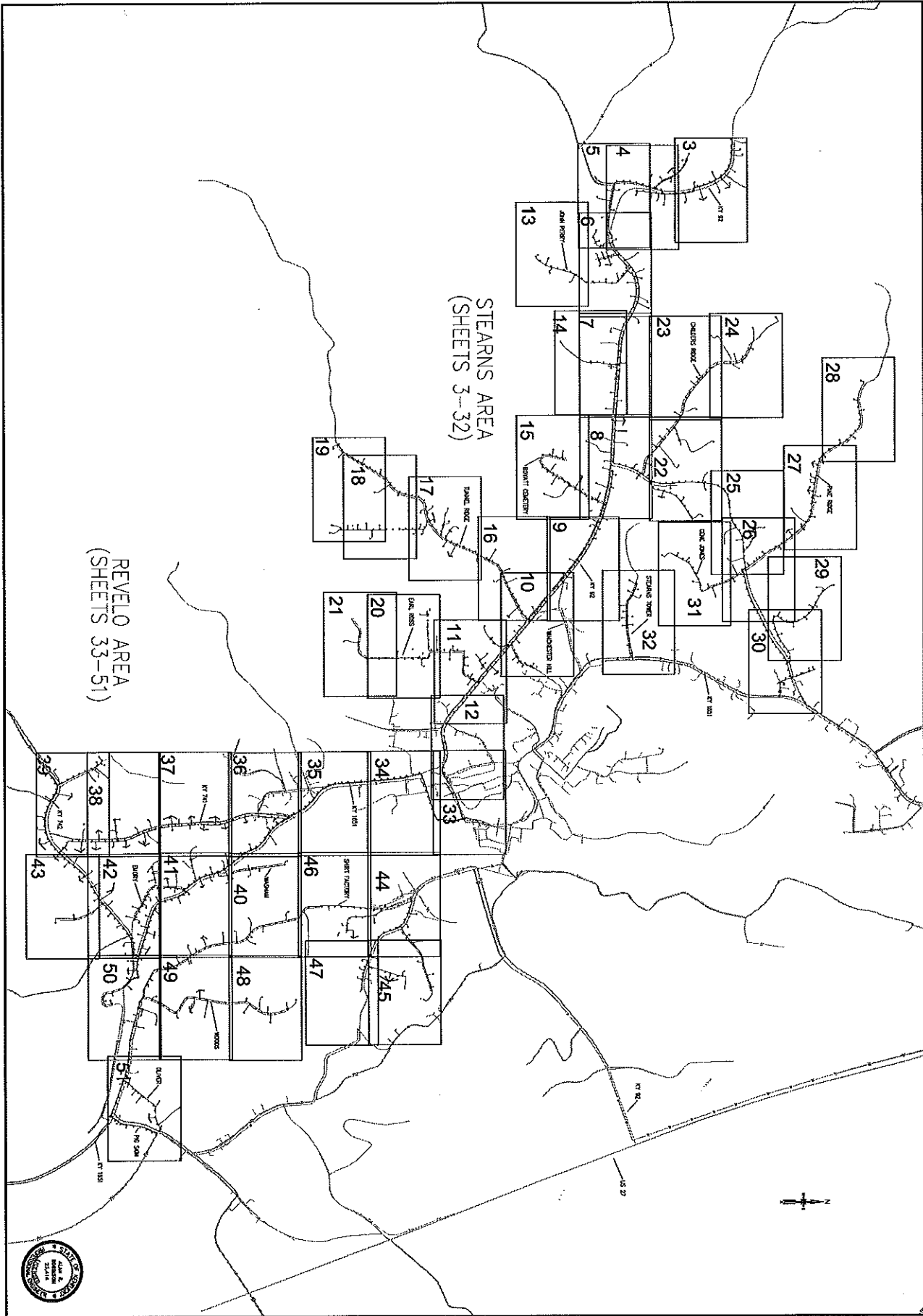
BOARD OF COMMISSIONERS

- RANDY KIDD, CHAIRMAN
- MANWARD NEW
- DOUG SEXTON
- COY TAYLOR
- RANDY TAYLOR
- STEPHEN WHITAGER, SUPERINTENDENT

INDEX OF DRAWINGS

- | | |
|-------|--|
| 1 | COVER |
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| 2A | OVERALL SHEET LAYOUT |
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| 33-51 | REVELO AREA SITE PLANS |
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| 94-95 | STANDARD DETAILS |





REVELO AREA
(SHEETS 33-51)

STEARNS AREA
(SHEETS 3-32)



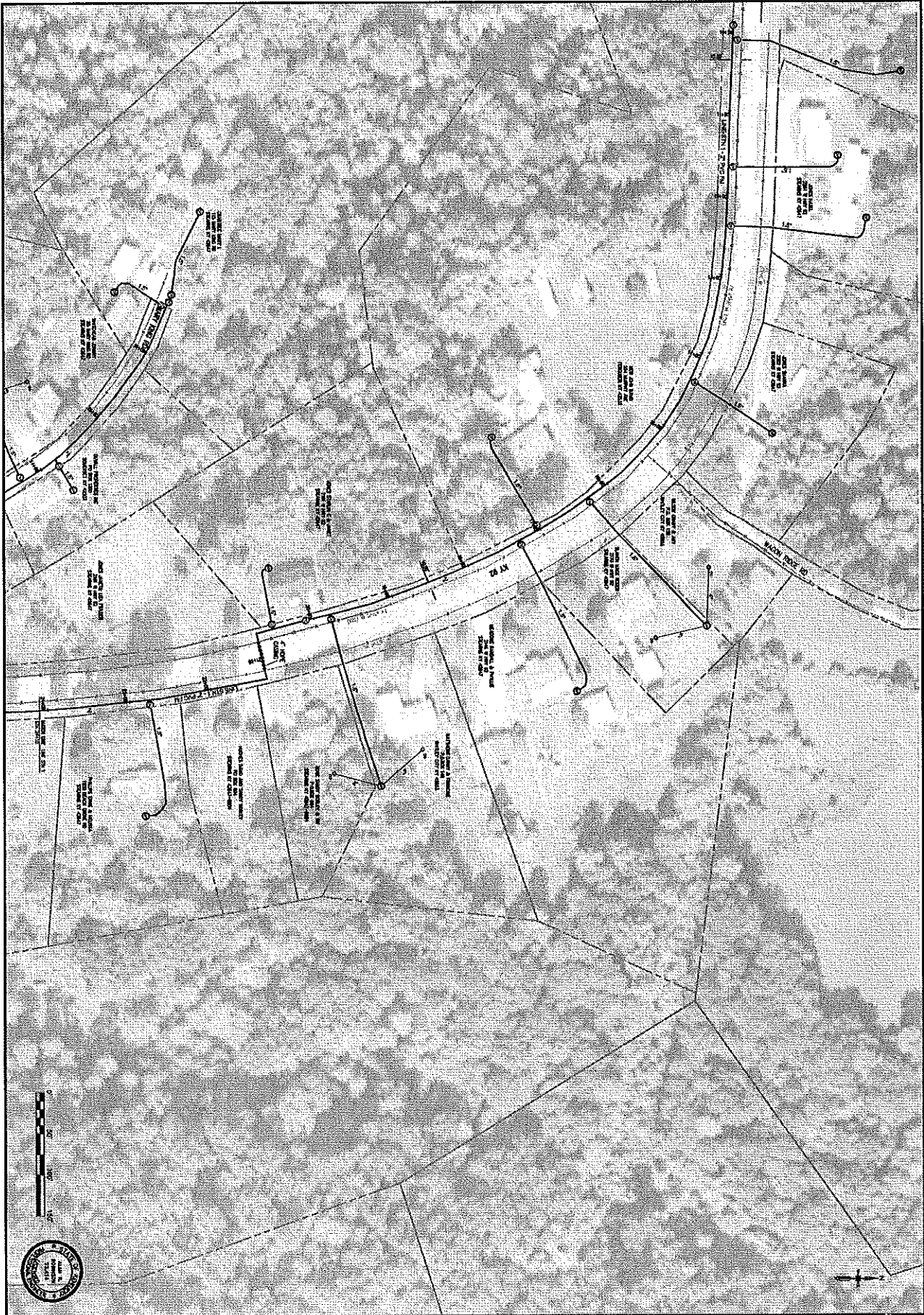
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OVERALL SHEET LAYOUT
 McCREARY COUNTY
 WATER DISTRICT
 SANITARY SEWER COLLECTION SYSTEM EXPANSION
 PHASE ONE - CONTRACT No. 39

456 N. HWY 27
 WHITLEY CITY, KENTUCKY 42653

| | | | | | | | | | |
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| REVISION: | | BY: | | DATE: | | | | | |

ECLIPSE ENGINEERS, PLLC
 83 WEST 4TH STREET
 SHELBYVILLE, KY 40381
 PHONE: 502-451-0959



3
DATE: 8/1/2008

PLAN
 SANITARY SEWER COLLECTION SYSTEM EXPANSION
 PHASE ONE - CONTRACT No. 39

McCREARY COUNTY
 WATER DISTRICT
 408 N. HWY 97
 WHITLEY CITY, KENTUCKY 42663

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| SCALE: | 1"=60' | REVISION: | BY: | DATE: |
| DESIGNED BY: | ARR | | | |
| DRAWN BY: | WSD | | | |
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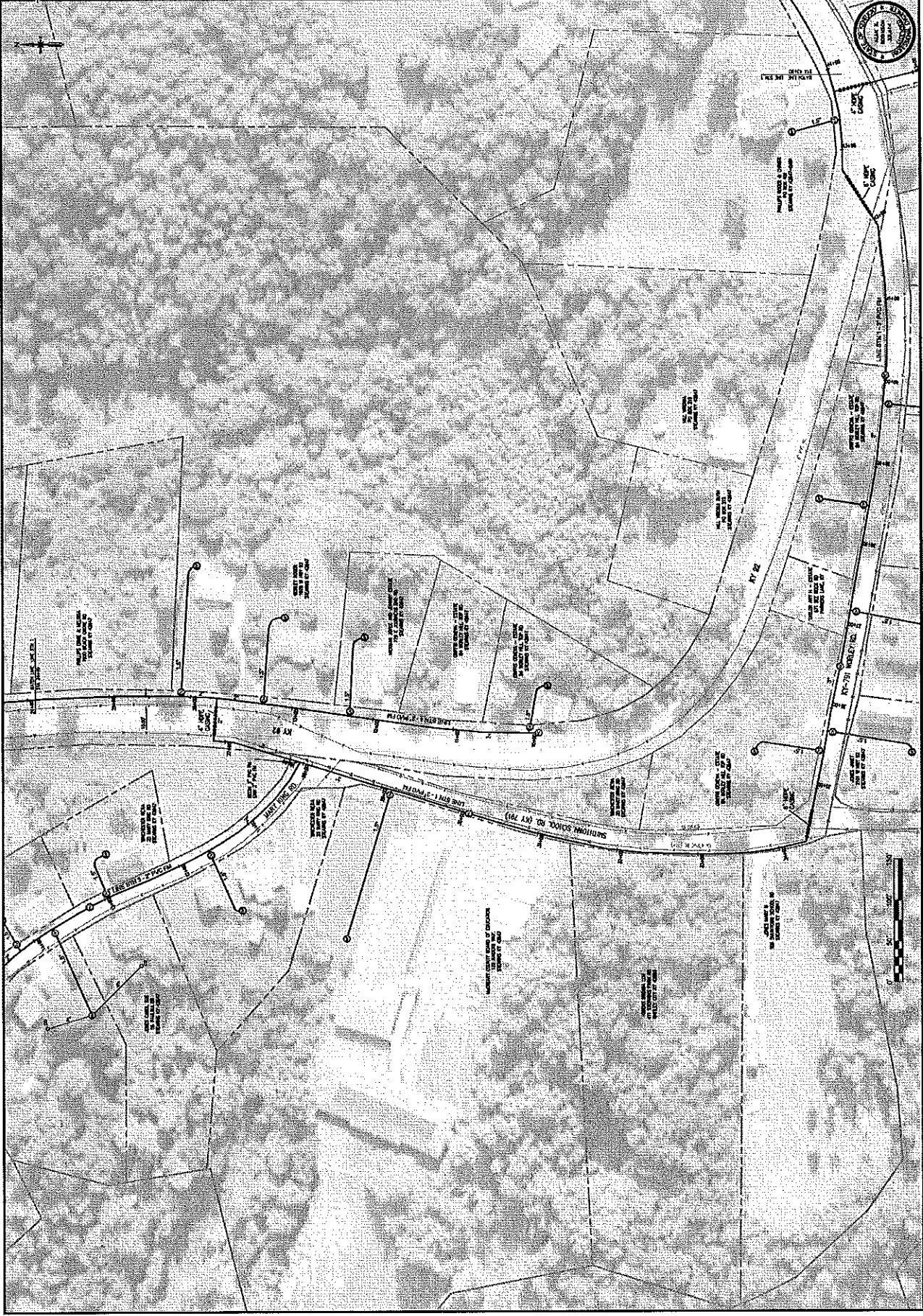
ECLIPSE ENGINEERS, PLLC

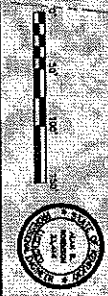
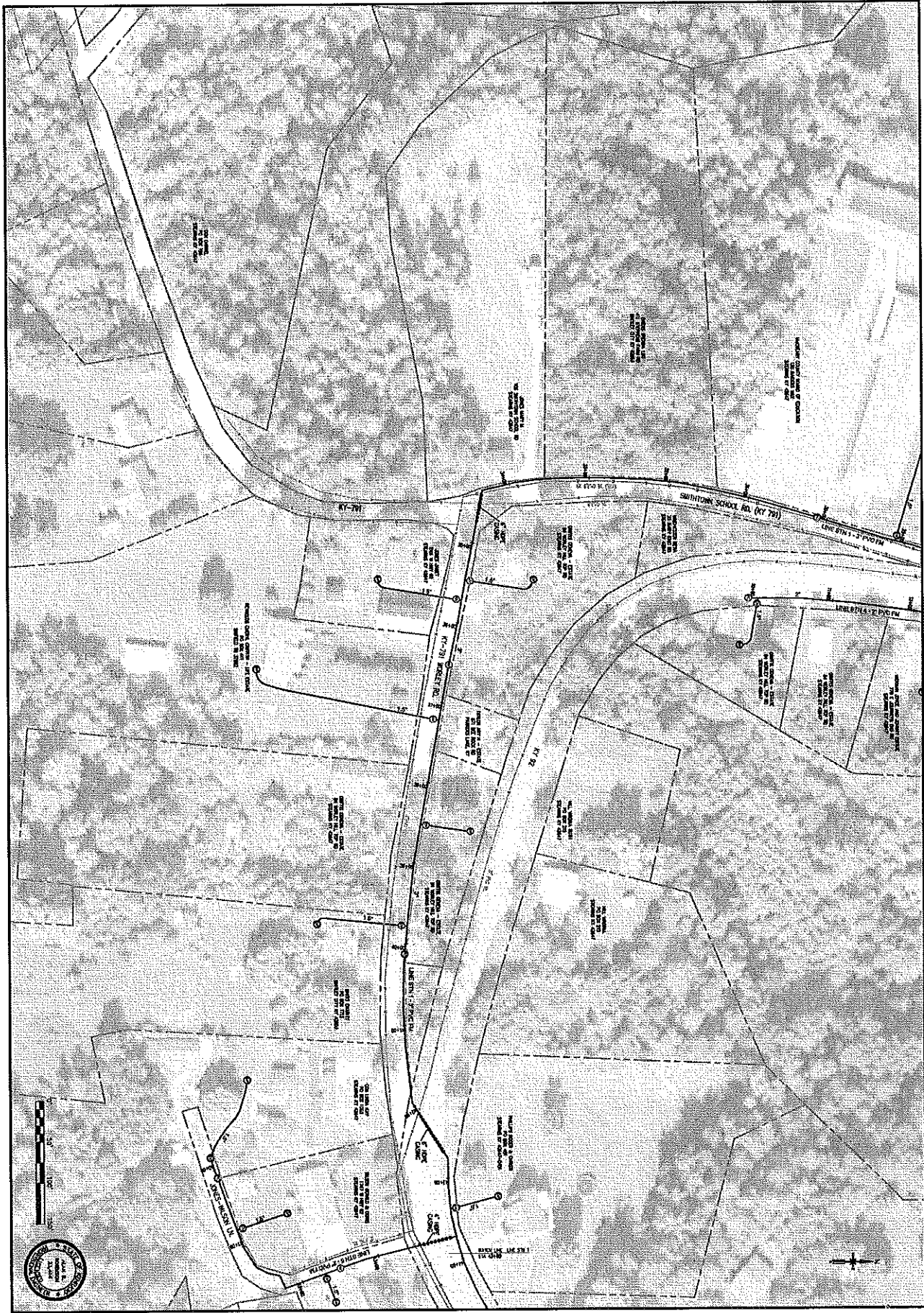
13 WEST HIG. 1380 SOUTH STREET
 COWARSET, KENTUCKY 42304
 606.555.0050

PLAN
SANITARY SEWER COLLECTION SYSTEM EXPANSION
PHASE ONE - CONTRACT NO. 39

MACREARY COUNTY
WATER DISTRICT
WATERLEY CITY, KENTUCKY 40663
DATE: _____
PROJECT NO.: _____
DRAWN BY: _____
CHECKED BY: _____
SCALE: _____
1"=60'
REVISIONS: _____
DATE: _____

ECLIPSE ENGINEERS, PLLC
100 EAST MAIN STREET
KENTUCKY 40302
PHONES: 606-338-2222



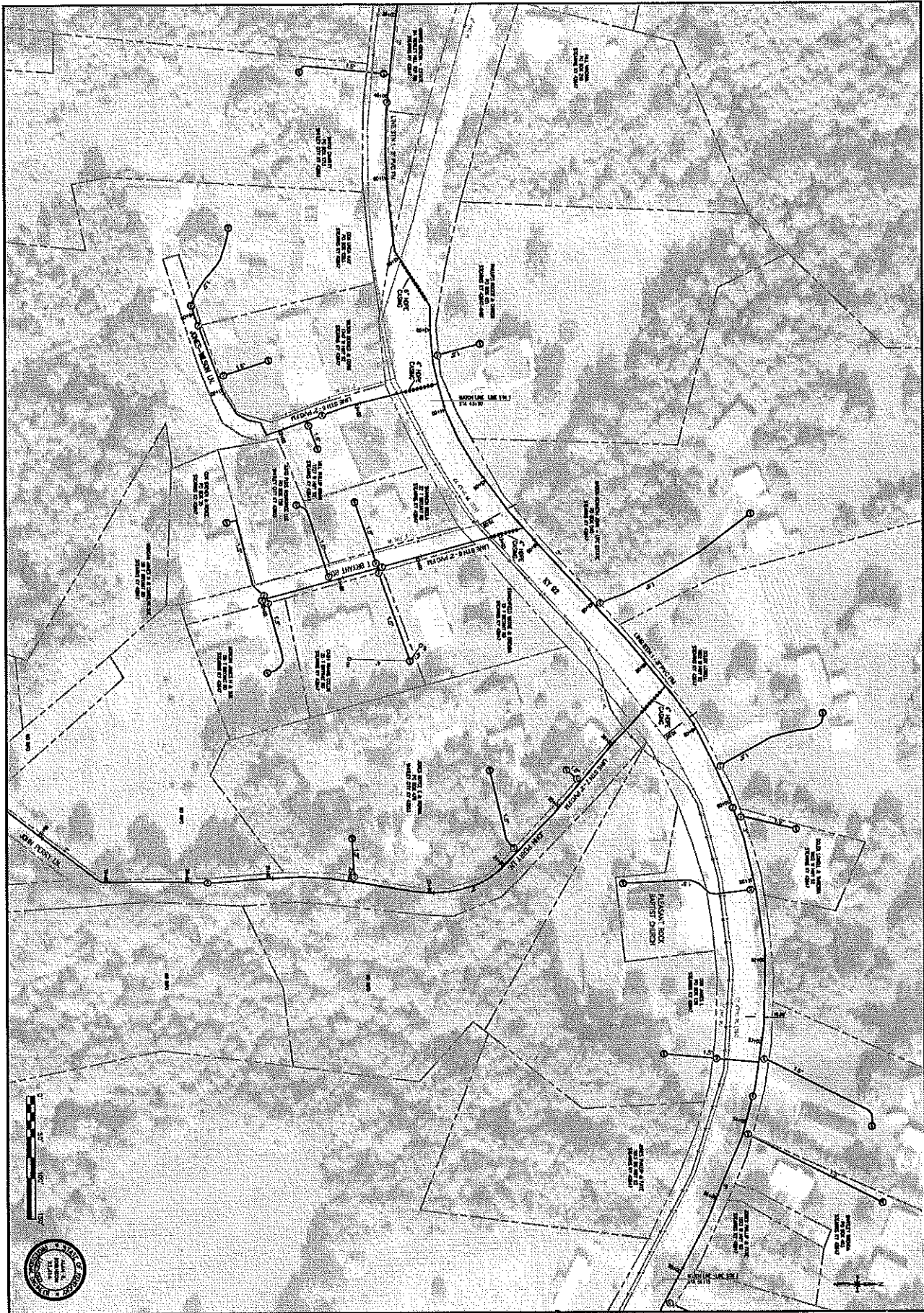


PLAN
 SANITARY SEWER COLLECTION SYSTEM EXPANSION
 PHASE ONE - CONTRACT No. 39

MCCRERY COUNTY
 WATER DISTRICT
 458 N. HWY 27
 WHITLEY CITY, KENTUCKY 42653

| SCALE: | 1"=50' | REVISIONS | BY: | DATE: |
|--------------|--------------|-----------|-----|-------|
| DESIGNED BY: | AJR | | | |
| DRAWN BY: | WSD | | | |
| CHECKED BY: | AJC | | | |
| PROJECT NOS. | 19018 | | | |
| DATE: | AUGUST 2020 | | | |
| CAD DWG NO.: | 20190401.DWG | | | |

ECLIPSE ENGINEERS, PLLC
 13 WEST AVE. VERBOCK STREET
 PROVERSE, KENTUCKY 40364
 PHONE: 502-431-6639



6
SHEET NUMBER

PLAN
SANITARY SEWER COLLECTION SYSTEM EXPANSION
PHASE ONE - CONTRACT No. 39

McCREARY COUNTY
WATER DISTRICT
458 N. HWY 27
WIRTLEY CITY, KENTUCKY 42653

| | | | | |
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| SCALE: | 1"=50' | REVISION: | BY: | DATE: |
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| DATE: | AUGUST 2020 | | | |
| CAD DWG ID: | 208 200 000 001 0001 | | | |

ECLIPSE ENGINEERS, LLC
181 WEST 11th, VERDE STREET
SOUTHWEST, KENTUCKY 42301
PHONE: 502-431-0559

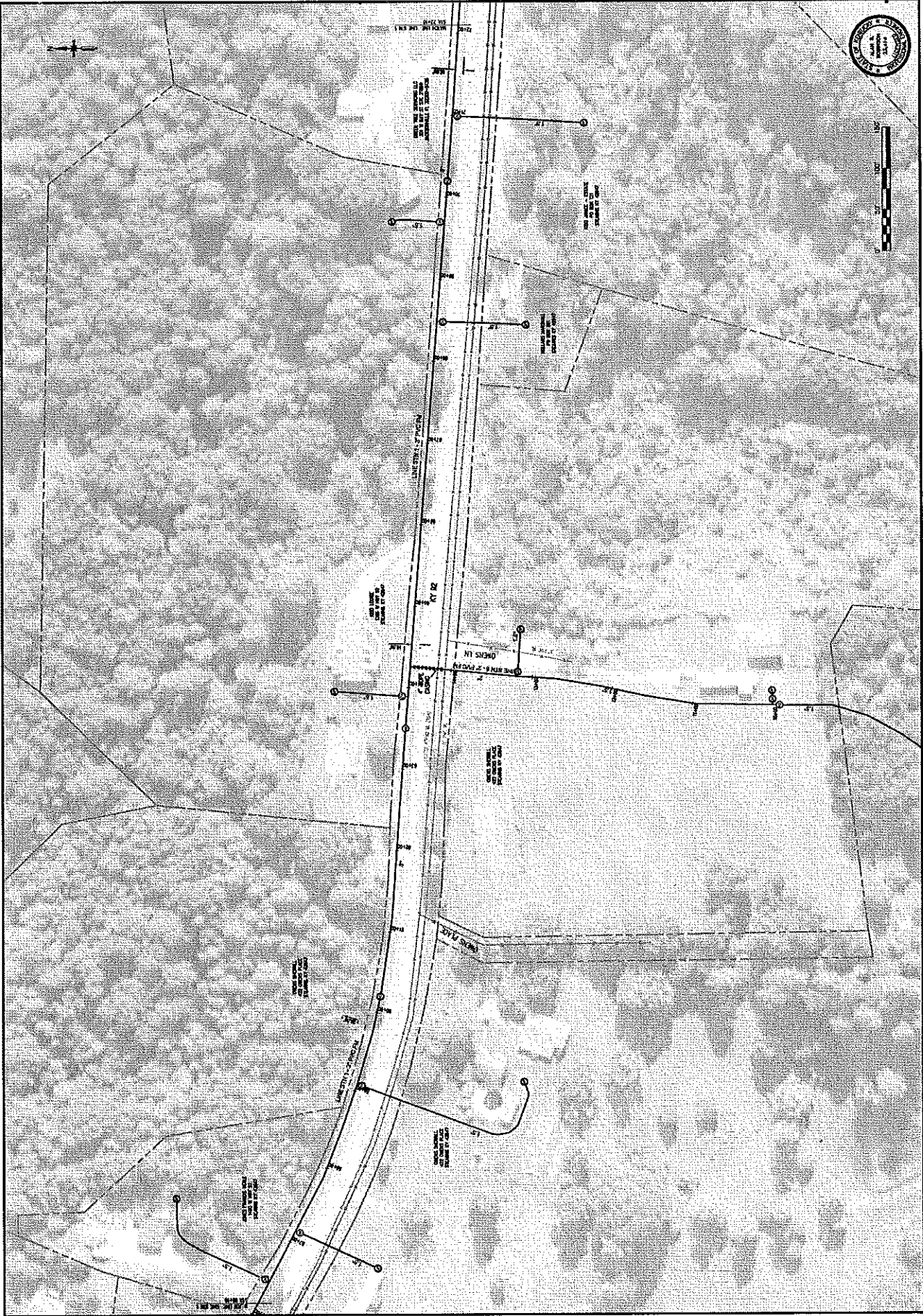
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McCREARY COUNTY
WATER DISTRICT
SANITARY SEWER COLLECTION SYSTEM EXPANSION
PHASE ONE - CONTRACT NO. 99

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| DESIGNED BY: | APPROVED BY: |
| DRAWN BY: | CHECKED BY: |
| AREA: | PROJECT NO.: |
| DATE: | CLIENT: |

ECLIPSE ENGINEERS, PLLC

1000 S. MAIN STREET
PO BOX 400
MADISON, KY 40001

SANITARY SEWER COLLECTION SYSTEM EXPANSION
PHASE ONE - CONTRACT NO. 39

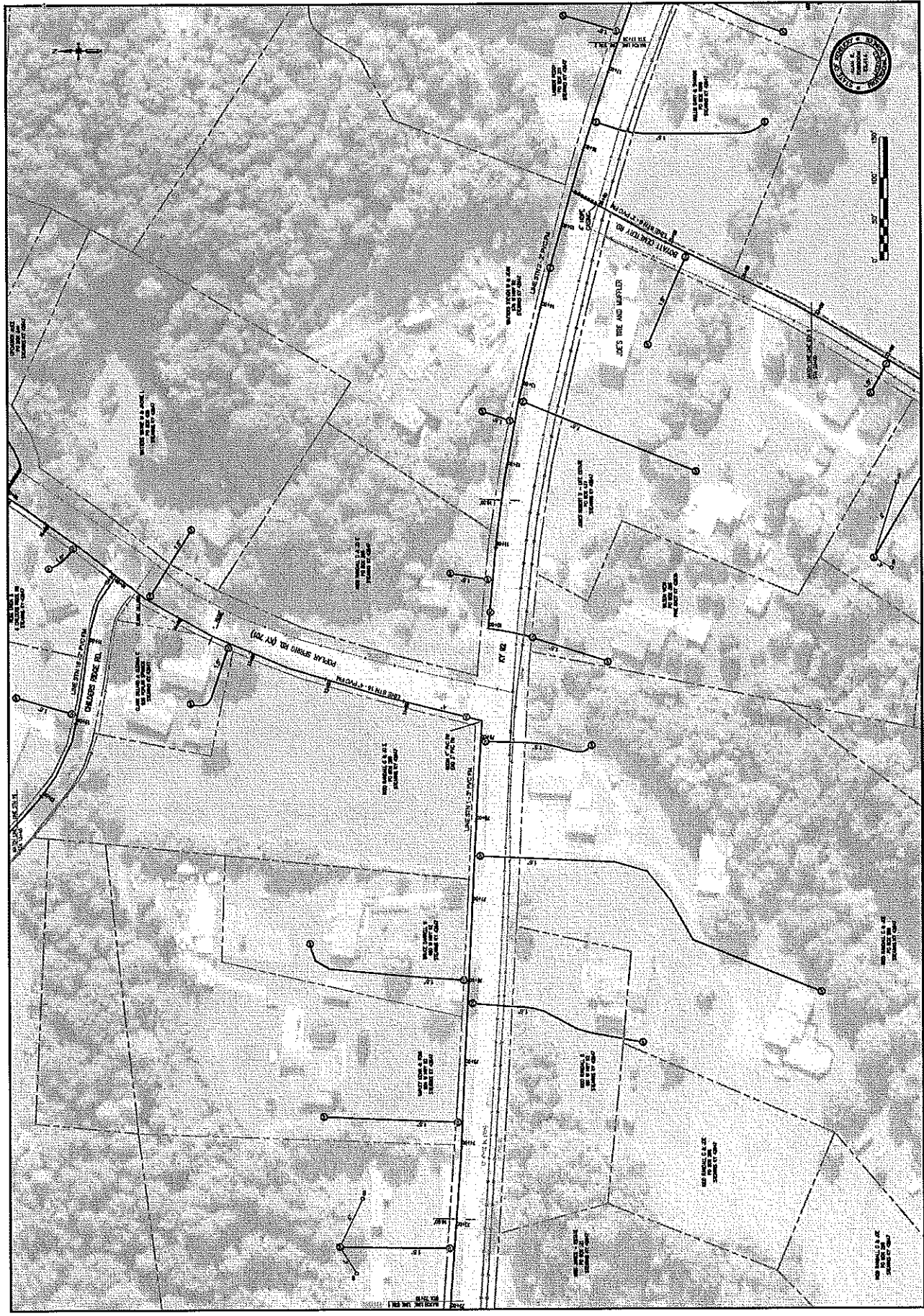
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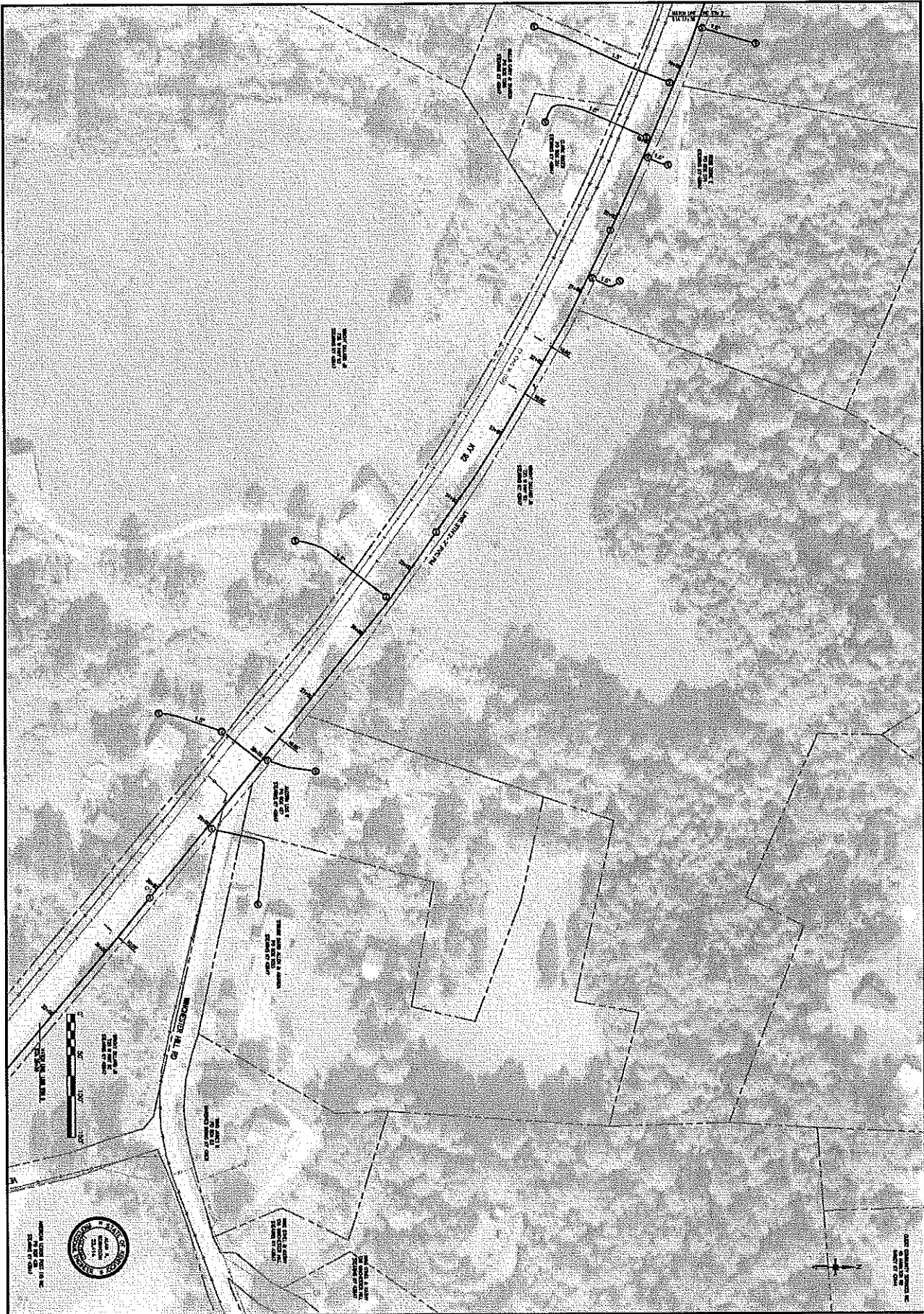
MACREARY COUNTY
WATER DISTRICT
456 N. HWY 27
WENTLEY CITY, KENTUCKY 40383

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ECLIPSE
ENGINEERS, PLLC

100 WEST 4TH AVENUE SUITE 200
DENVER, CO 80202
PHONE: 303-733-0950



6
 SOUTHWESTERN
 ENGINEERS & ARCHITECTS

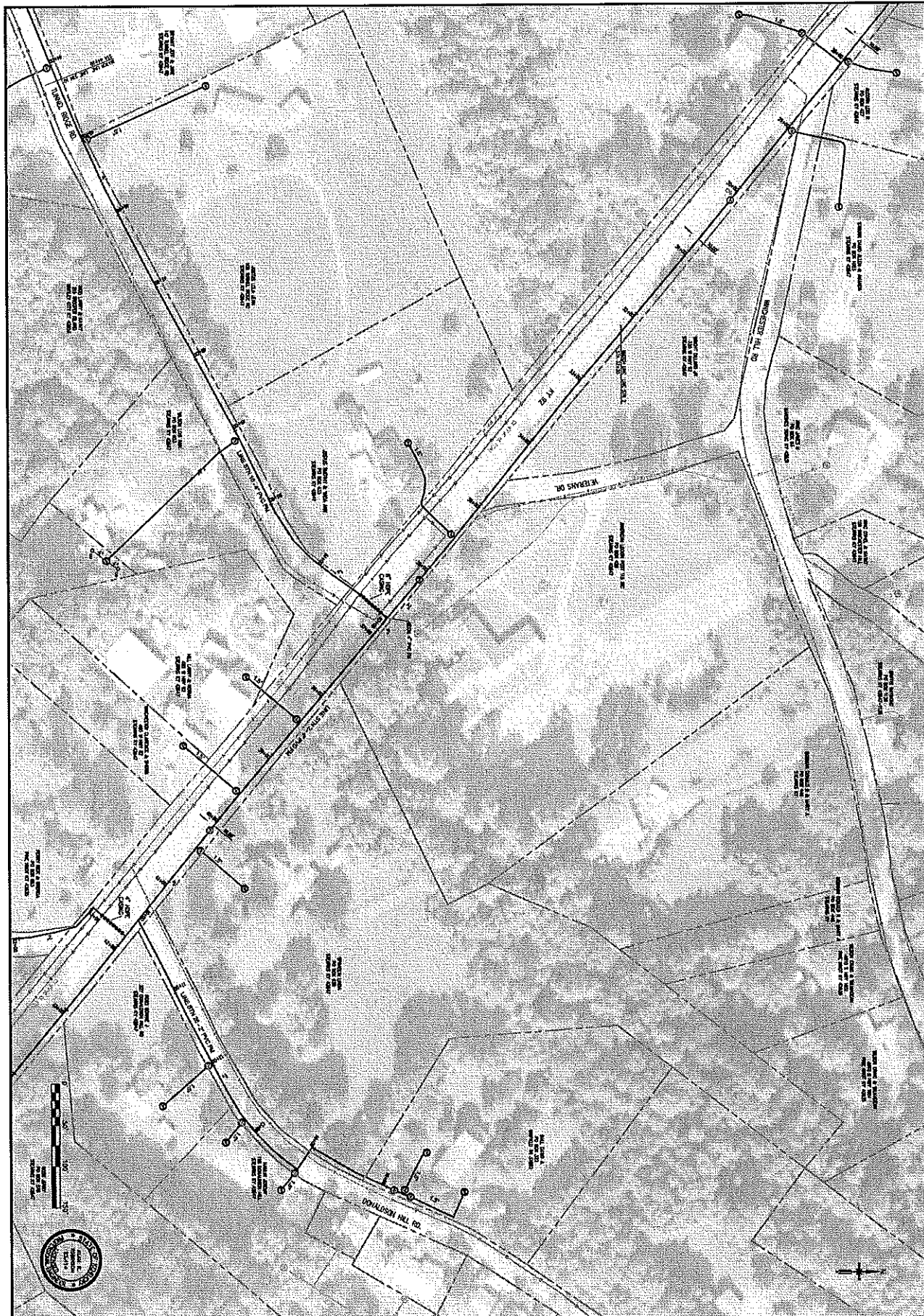
PLAN
 SANITARY SEWER COLLECTION SYSTEM EXPANSION
 PHASE ONE - CONTRACT No. 39

MCCREARY COUNTY
 WATER DISTRICT
 458 N. HWY 27
 WHITLEY CITY, KENTUCKY 42603

| SCALE: | 1"=50' | REVISION: | NO. | DATE: |
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| DESIGNED BY: | RAK | | | |
| DRAWN BY: | WRD | | | |
| CHECKED BY: | APR | | | |
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| DATE: | AUGUST 2020 | | | |
| CAD DWG NO.: | 20 08 000 0001 | | | |



ECLIPSE ENGINEERS, LLC
 10 WEST MT. VERMILION STREET
 COLUMBUS, KENTUCKY 42501
 PHONE: 502-451-0659



01
SHEET NO.

PLAN
SANITARY SEWER COLLECTION SYSTEM EXPANSION
 PHASE ONE - CONTRACT No. 39

McCREARY COUNTY
WATER DISTRICT
 450 N. HWY 27
 WINTLEY CITY, KENTUCKY 42853

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| SCALE: | 1"=50' | REVISIONS | BY: | DATE: |
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| DRAWN BY: | WSD | | | |
| CHEKED BY: | ARR | | | |
| PROJECT NO: | 19016 | | | |
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ECLIPSE ENGINEERS, P.L.L.C.

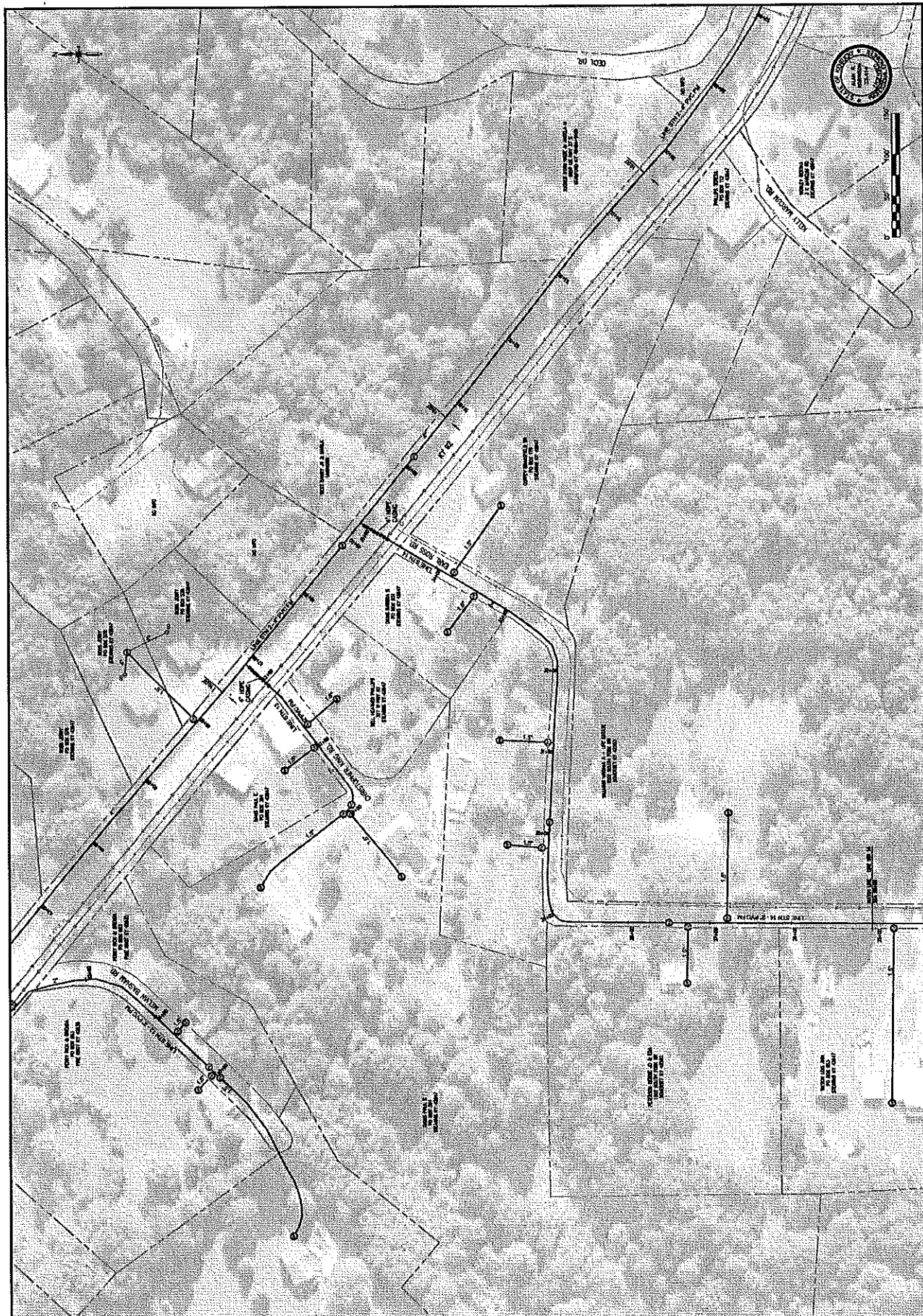
101 WEST HILL VICTORIA STREET
 DANVERS, KENTUCKY 40301
 PHONE: 606-451-0038

PLAN
SANITARY SEWER COLLECTION SYSTEM EXPANSION
PHASE ONE - CONTRACT NO. 39

MCCREARY COUNTY
WATER DISTRICT
466 N. HWY 27
VANDY VILLAGE, KENTUCKY 42643

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| 1"=50' | APPROVED: |
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| NO. 3 | DATE: |
| NO. 4 | DATE: |
| NO. 5 | DATE: |
| NO. 6 | DATE: |
| NO. 7 | DATE: |
| NO. 8 | DATE: |
| NO. 9 | DATE: |
| NO. 10 | DATE: |

ECLIPSE ENGINEERS, PLLC
10001 W. CENTRAL AVENUE
SUITE 100
MEMPHIS, TENNESSEE 38114
PH: 901.596.0000
FAX: 901.596.0001



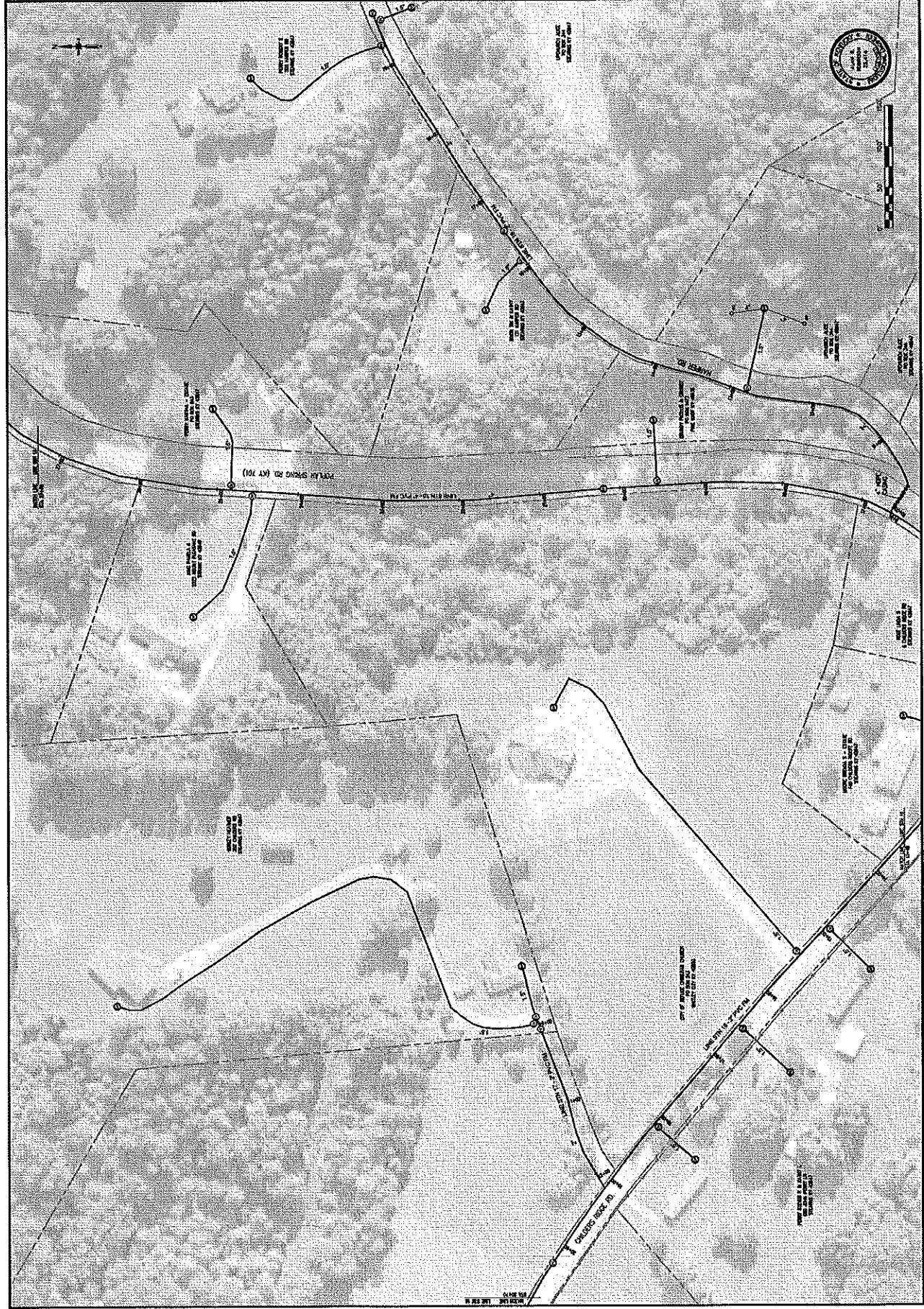
SANITARY SEWER COLLECTION SYSTEM EXPANSION
PHASE ONE - CONTRACT NO. 39

PLAN

McCREARY COUNTY
WATER DISTRICT

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| AREA: | |
| APP.: | |
| REVISION: | |
| DATE: | |

ECLIPSE ENGINEERS, P.L.L.C.
 100 WEST 10TH STREET
 CINCINNATI, OHIO 45202
 PHONE: 513-524-8888



ECLIPSE
ENGINEERS, PLLC
100 WEST 1000 NORTH
SALT LAKE CITY, UT 84119
PHONE: 801-488-0050

| | |
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MCCREARY COUNTY
WATER DISTRICT
450 N. HAVY ST
VANDERBILT, KENTUCKY 40443

SANITARY SEWER COLLECTION SYSTEM EXPANSION
PHASE ONE - CONTRACT NO. 39

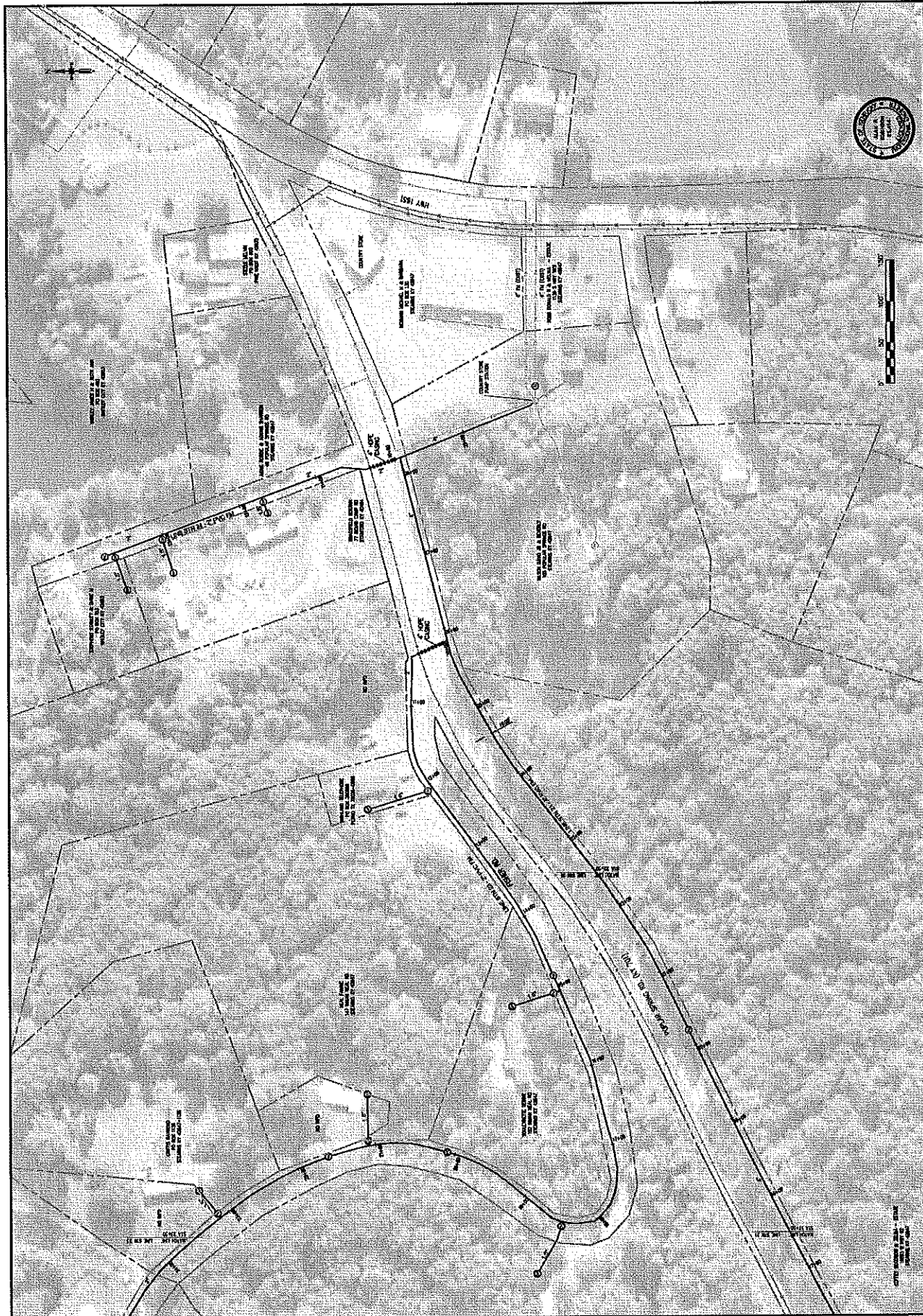
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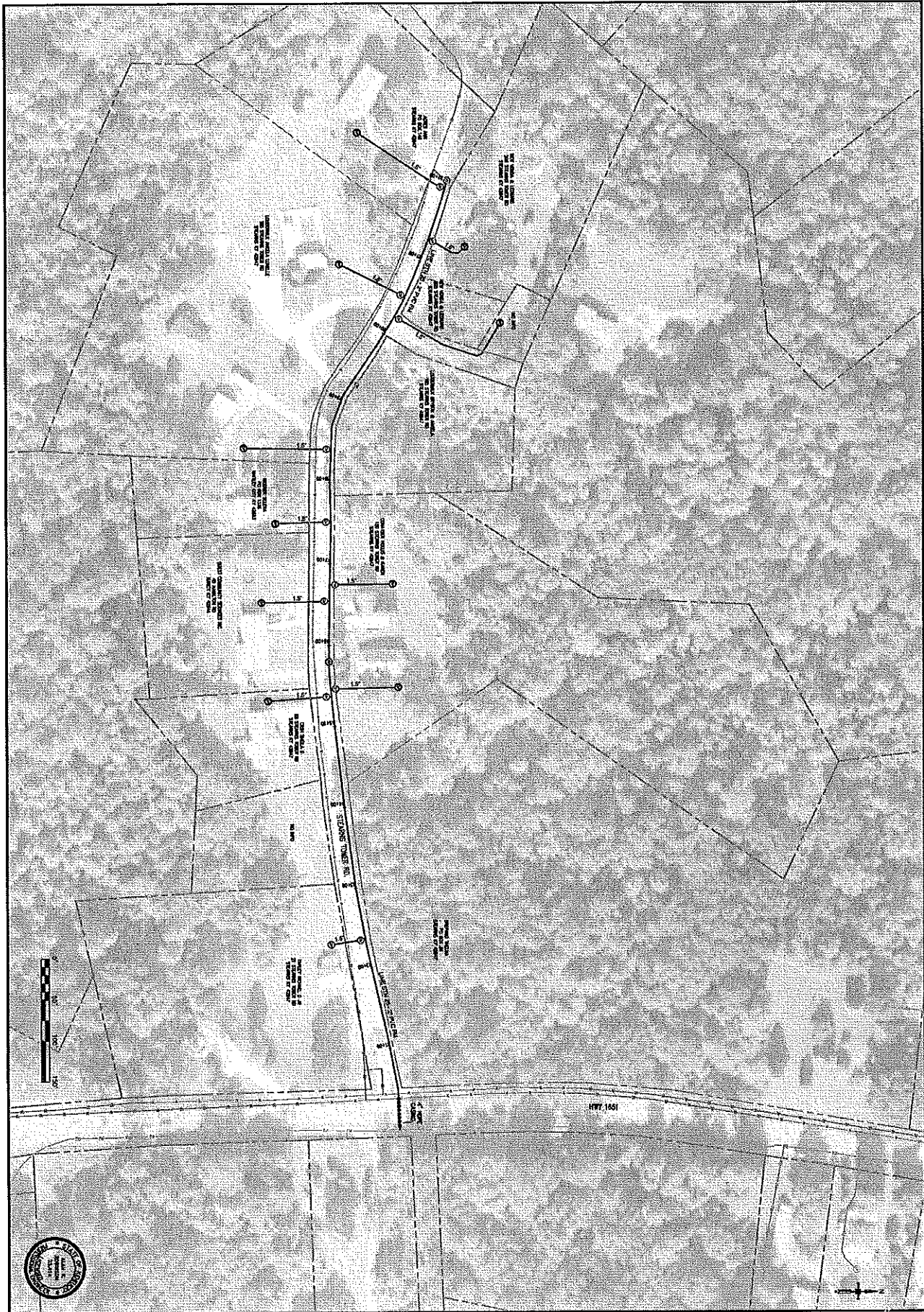
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| APPROVED BY: | DATE: |
| DATE: | DATE: |

ECLIPSE ENGINEERS, PLLC
11 WEST AVENUE, SUITE 200
CINCINNATI, OHIO 45202
PHONE: 513-533-8888
FAX: 513-533-8889





SHEET NUMBER
32

PLAN
SANITARY SEWER COLLECTION SYSTEM EXPANSION
PHASE ONE - CONTRACT No. 39

McCREARY COUNTY
WATER DISTRICT
458 N. HWY 27
WHTLEY CITY, KENTUCKY 42663

| | | | | |
|--------------|--------------|-----------|-----|-------|
| SCALE: | 1"=50' | REVISION: | BY: | DATE: |
| DESIGNED BY: | ARR | | | |
| DRAWN BY: | WBG | | | |
| CHECKED BY: | AWL | | | |
| PROJECT NO.: | 18016 | | | |
| DATE: | AUGUST 2010 | | | |
| CAD DWG NO.: | 201008010001 | | | |

ECLIPSE ENGINEERS, PLLC

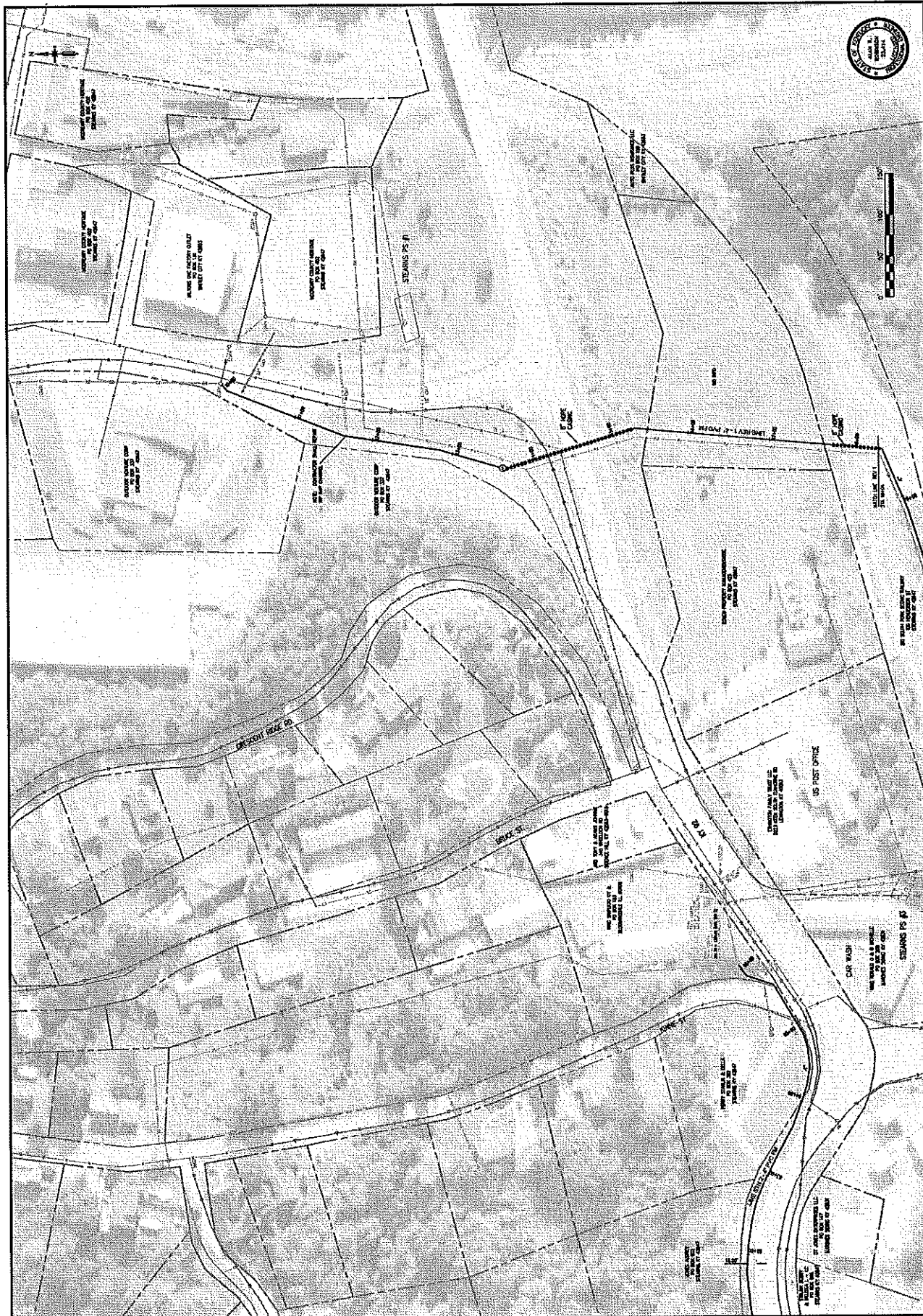
83 WEST MT. AUBURN STREET
COVERLET, KENTUCKY 42001
PHONE: 502-451-9000

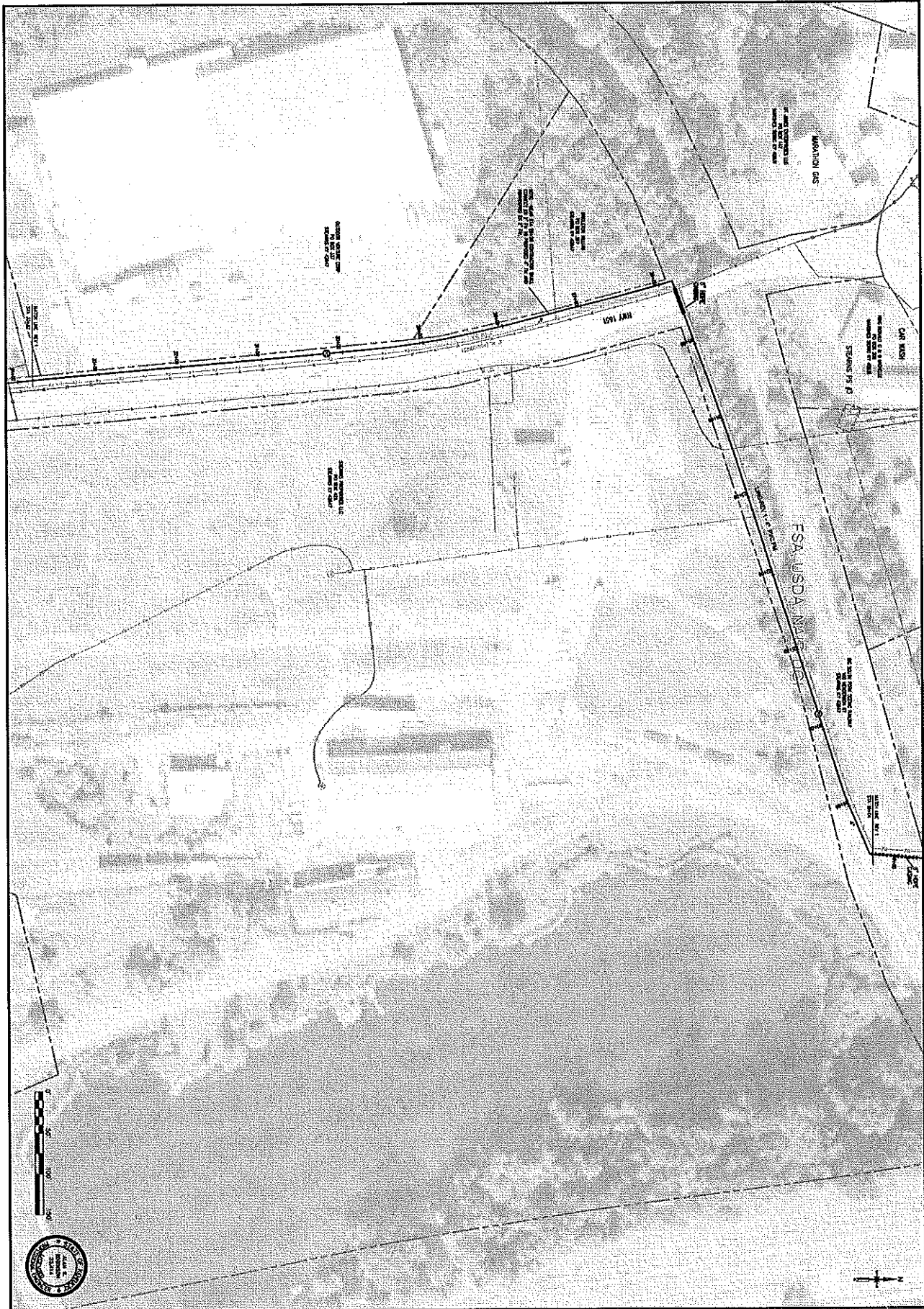
ECLIPSE ENGINEERS, PLLC
 101 WEST 14TH AVENUE, SUITE 200
 DENVER, COLORADO 80202
 PHONE: 303.733.9999

| | |
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| SCALE: | 1"=40' |
| DATE: | NOVEMBER 2010 |
| PROJECT NO.: | 10019 |
| DESIGNER: | AKS |
| DRAWN BY: | AKS |
| CHECKED BY: | AKS |
| DATE: | |
| REVISIONS: | |
| BY: | |
| DATE: | |

MACCREARY COUNTY
 WATER DISTRICT
 458 N. HWY 27
 WHEATLEY CITY, KENTUCKY 40383
 PHASE ONE - CONTRACT NO. 39
 SANITARY SEWER COLLECTION SYSTEM EXPANSION

SHEET NUMBER
33





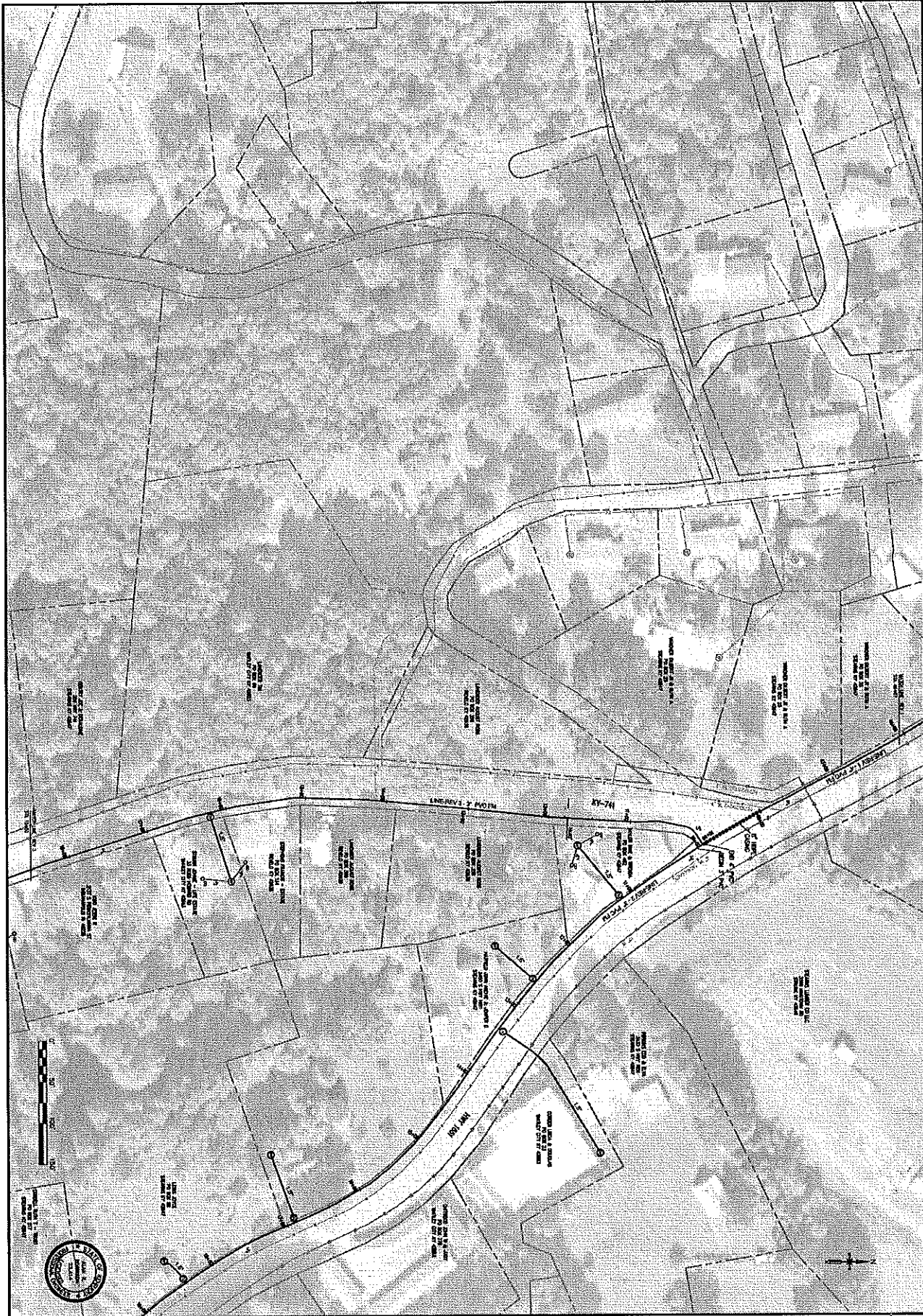
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PLAN
 SANITARY SEWER COLLECTION SYSTEM EXPANSION
 PHASE ONE - CONTRACT No. 39

McCREARY COUNTY
 WATER DISTRICT
 458 N. HWY 27
 WHITLEY CITY, KENTUCKY 42653

| SCALE: | 1"=20' | REVISIONS: | BY: | DATE: |
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| DESIGNED BY: | ARL | | | |
| DRAWN BY: | WSD | | | |
| CHECKED BY: | ARL | | | |
| PROJECT NO.: | 19018 | | | |
| DATE: | AUGUST 2020 | | | |
| CAD-DWG BY: | ARL | | | |

ECLIPSE ENGINEERS, PLLC
 13 WESTMONT VISION STREET
 DANFORTH, KENTUCKY 42031
 PHONE: 606-451-0559



36

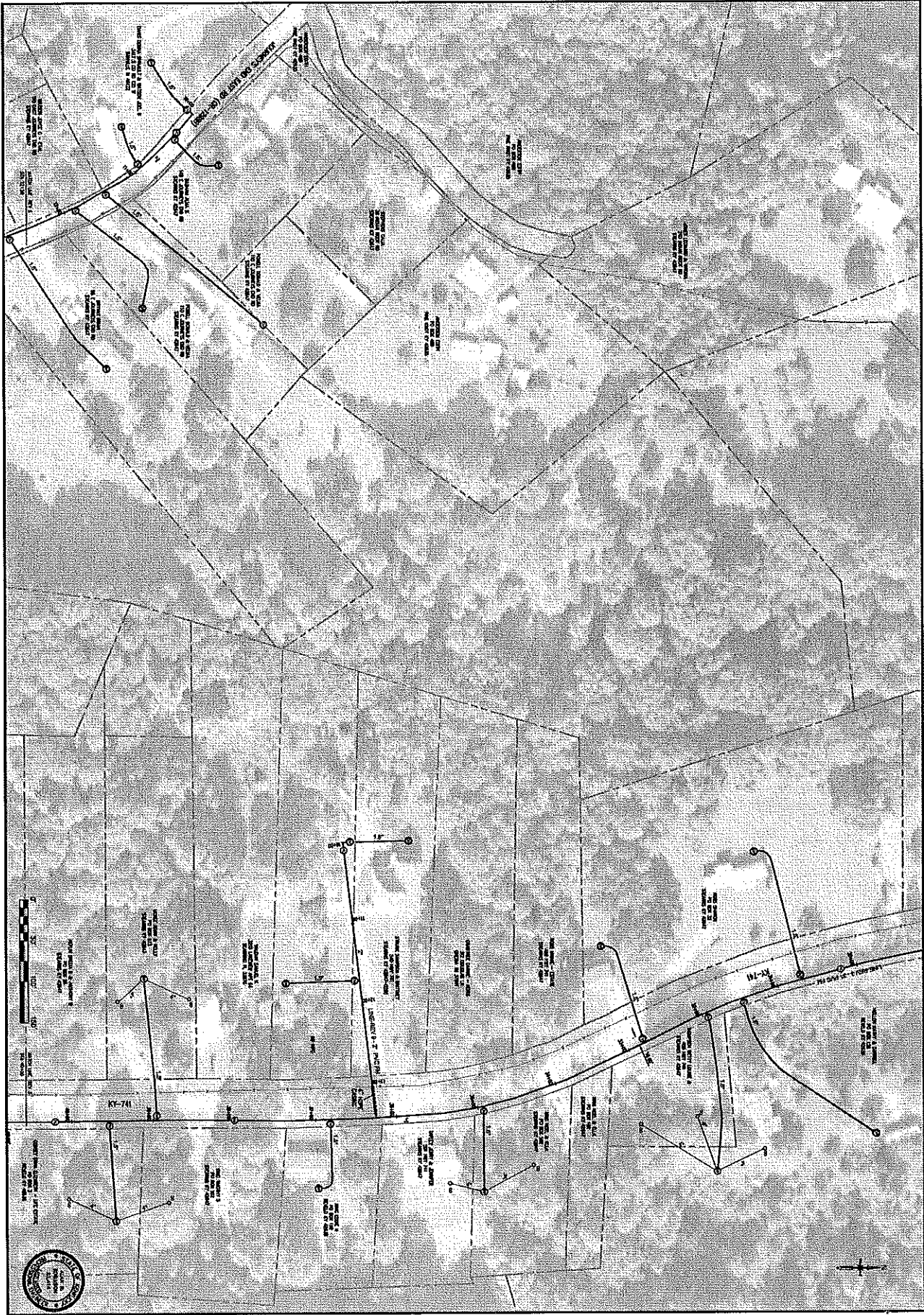
PLAN
 SANITARY SEWER COLLECTION SYSTEM EXPANSION
 PHASE ONE - CONTRACT No. 39

McCREARY COUNTY
 WATER DISTRICT
 458 N. HWY 27
 WHITLEY CITY, KENTUCKY 42653

| SCALE: | DESIGNED BY: | 1/8\"/> | | |
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| ARR. | ARR. | REVISION | BY: | DATE: |
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ECLIPSE ENGINEERS, PLLC

101 WEST LEE, VEEDON KY 40381
 502/635-1111 FAX 502/635-1112
 PROJECT 0000-451-0000



38

PLAN
 SANITARY SEWER COLLECTION SYSTEM EXPANSION
 PHASE ONE - CONTRACT No. 39

McCREARY COUNTY
 WATER DISTRICT
 456 N. HWY 27
 WHELEBY CITY, KENTUCKY 42663

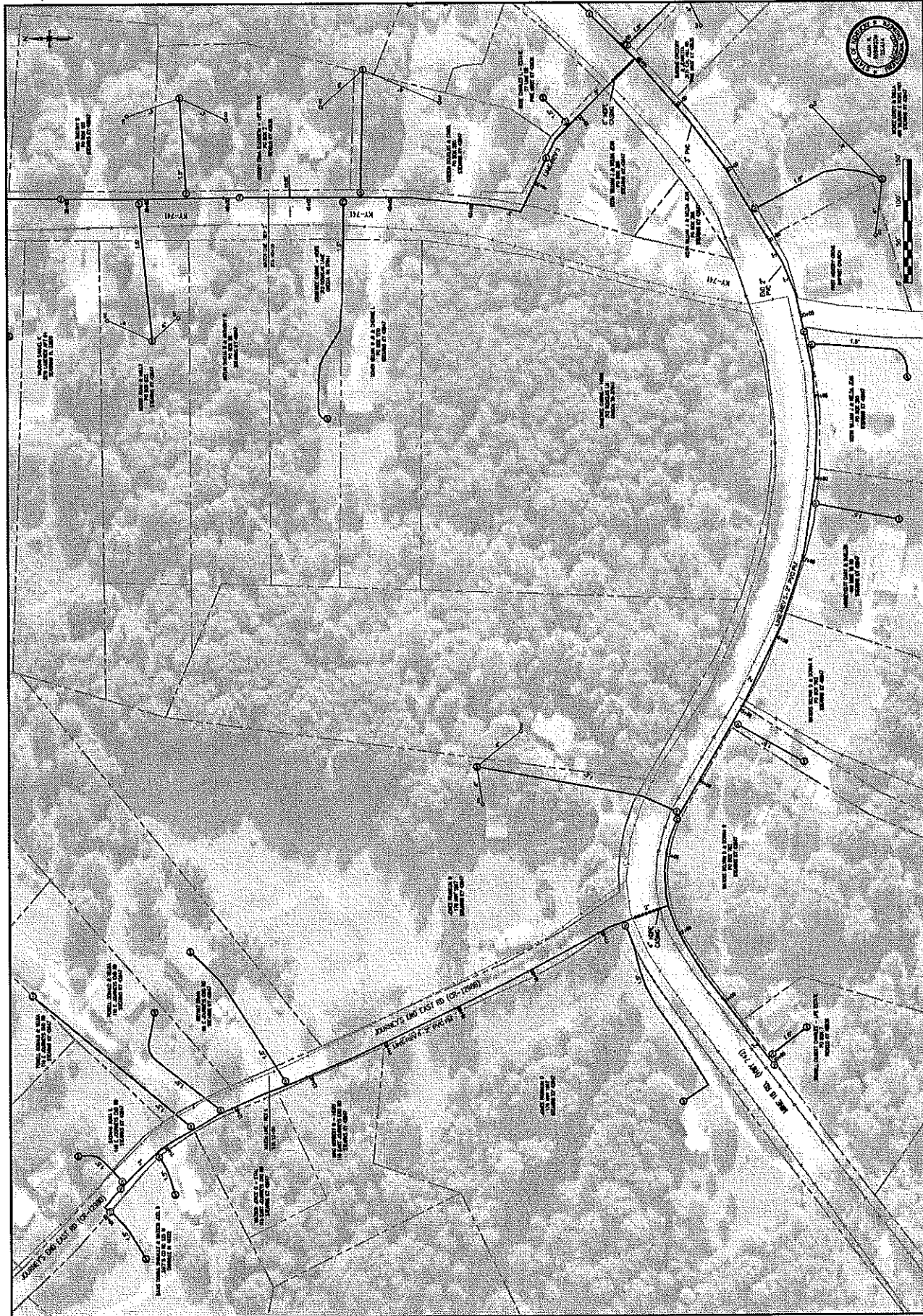
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 CHECKED BY: ANS
 PROJECT NO: 19018
 DATE: AUGUST 2020
 CAD DWG NO: 2019018-01

| REVISION | BY | DATE |
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ECLIPSE ENGINEERS, PLLC
 15 WEST KY. HIGHWAY STREET
 COVINGTON, KENTUCKY 42031
 PHONE: 502-338-9900

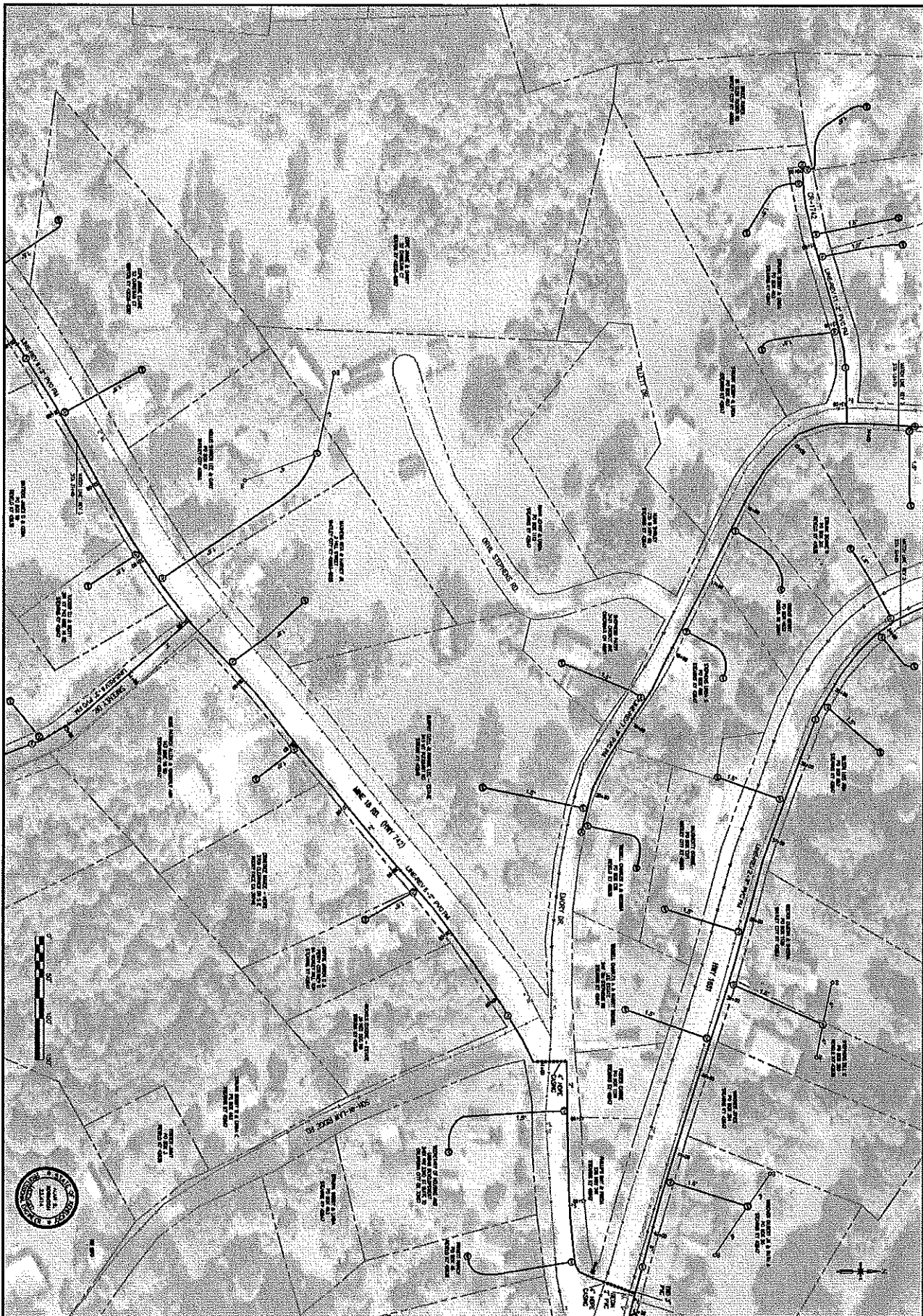
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| PROJECT NO.: | 18018 |
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| DATE: | APRIL 27 2018 |
| REVISIONS: | BY DATE |
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ECLIPSE ENGINEERS, PLLC
10 WEST LAY, TERRYVILLE, KY 40389
PHONES: 502-451-0550
FAX: 502-451-0551
WWW.ECLIPSEENGINEERS.COM



| | |
|--------------|----------------|
| DATE: | 11/19/13 |
| PROJECT NO.: | 13018 |
| CLIENT: | WATER DISTRICT |
| DESIGNED BY: | AMR |
| CHECKED BY: | TRD |
| SCALE: | AS SHOWN |
| DATE: | 11/19/13 |
| BY: | |
| REVISIONS: | |





42

PLAN
 SANITARY SEWER COLLECTION SYSTEM EXPANSION
 PHASE ONE - CONTRACT No. 39

McCREARY COUNTY
 WATER DISTRICT
 458 N. HAYY ST
 WIRTLEY CITY, KENTUCKY 42663

| | | | | |
|---------------|-------------|-----------|-----|-------|
| SCALE: | 1"=60' | REVISION: | BY: | DATE: |
| DESIGNED BY: | ASR | | | |
| DRAWN BY: | WSD | | | |
| CHECKED BY: | AKS | | | |
| PROJECT NO.: | 19015 | | | |
| DATE: | AUGUST 2000 | | | |
| CAD (DWG) BY: | AKS | | | |

ECLIPSE ENGINEERS, PLLC

105 WEST 1ST AVE. / 1ST FLOOR
 COVINGTON, KENTUCKY 42031
 PHONE: 502-333-9294

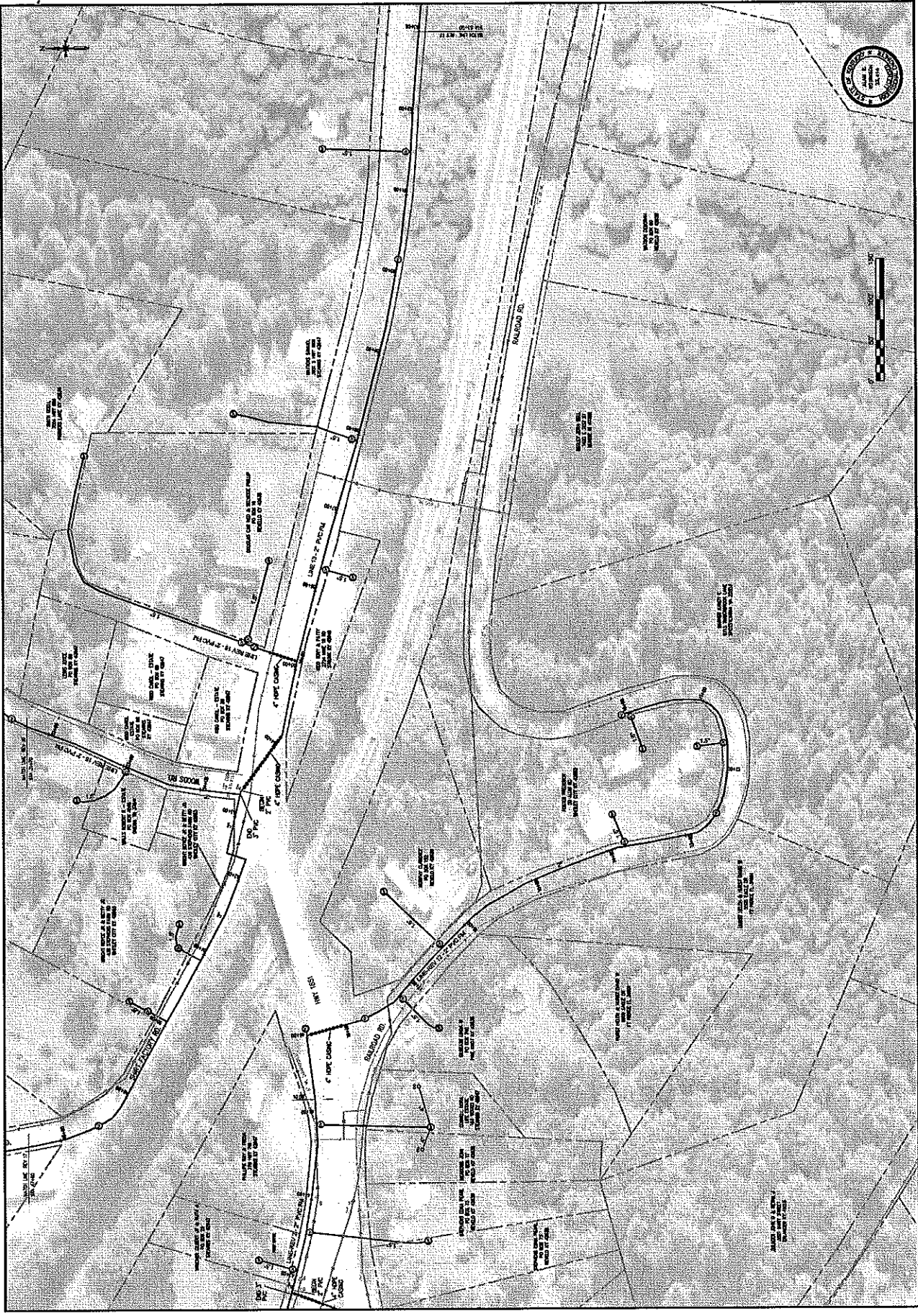
05
SHEET NUMBER

PLAN
SANITARY SEWER COLLECTION SYSTEM EXPANSION
PHASE ONE - CONTRACT NO. 39

McCREARY COUNTY
WATER DISTRICT
468 N. LANE 27
WINDY CREEK, KENTUCKY 40393

| | |
|--------------|------------|
| DATE: | APRIL 2005 |
| PROJECT NO.: | 19918 |
| CHECKED BY: | AKS |
| DRAWN BY: | AKS |
| SCALE: | AS SHOWN |
| DATE: | |
| REVISION: | |
| BY: | |
| DATE: | |

ECLIPSE ENGINEERS, P.L.L.C.
 13 W. EAST WYOMING STREET
 SUITE 101, KENTUCKY 40393
 PHONE: 502-451-9929

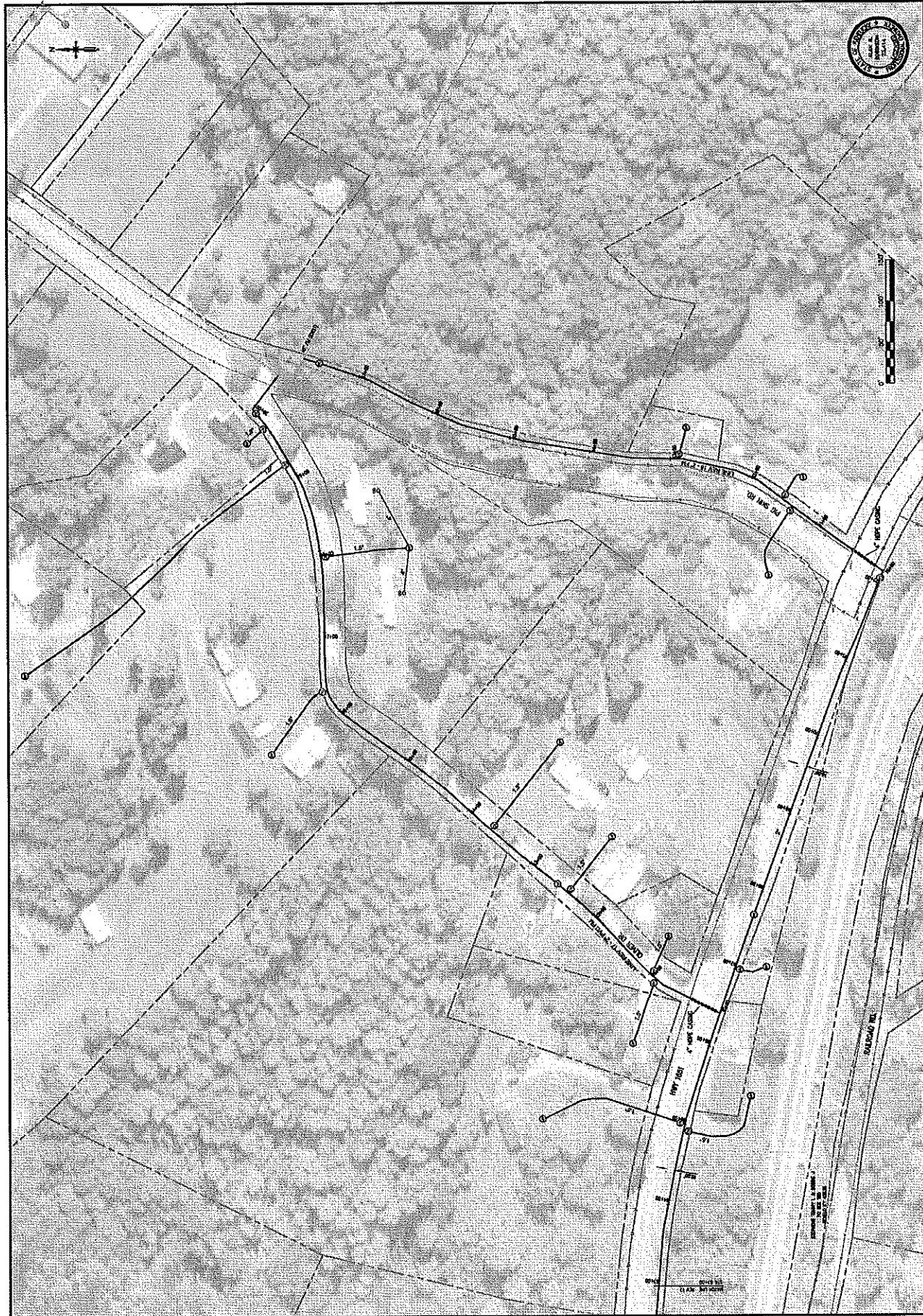


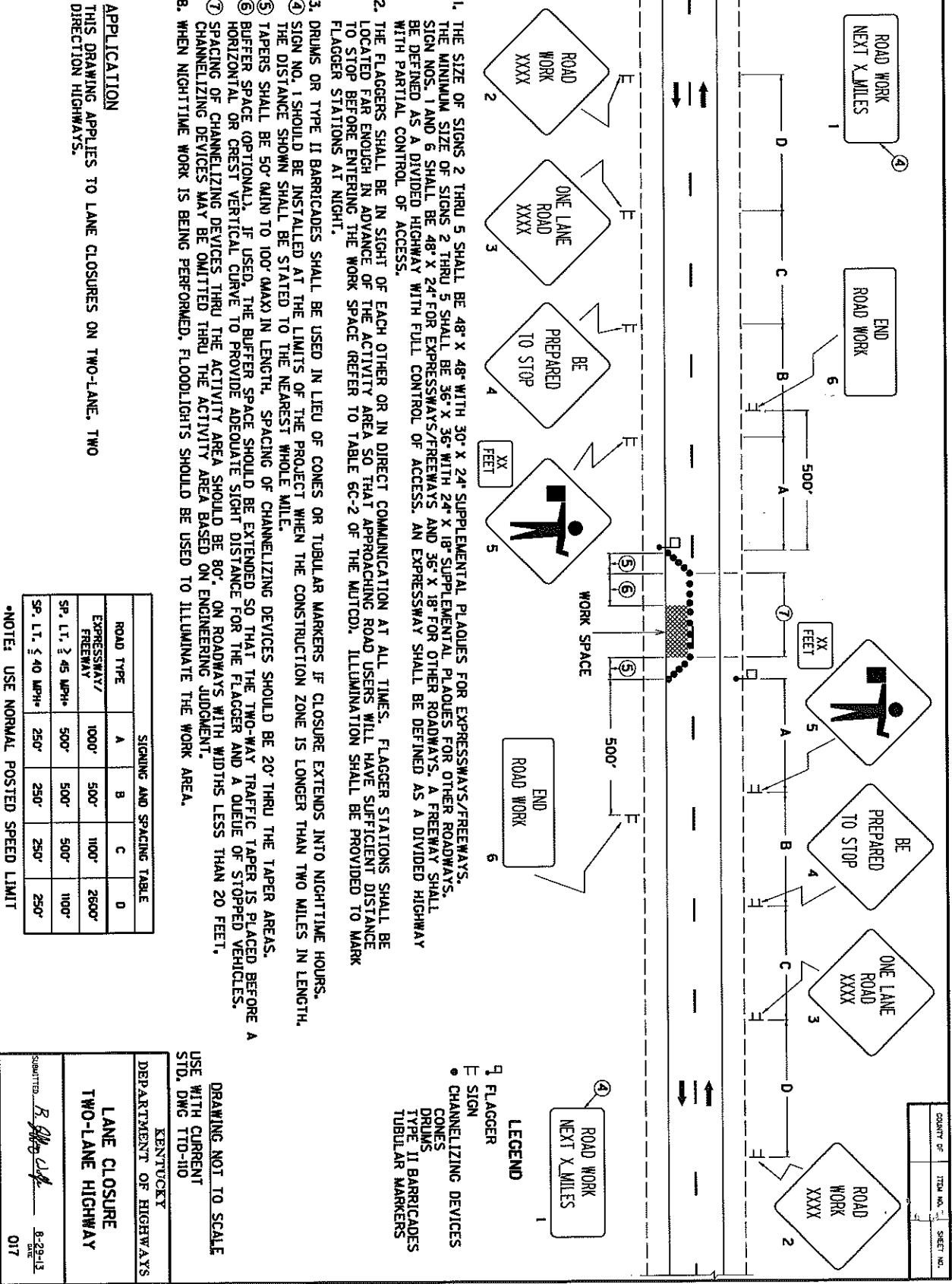
PLAN
SANITARY SEWER COLLECTION SYSTEM EXPANSION
PHASE ONE - CONTRACT No. 39

McCREARY COUNTY
WATER DISTRICT
468 N. HWY 27
WARTLEY CITY, KENTUCKY 40385

| | |
|--------------|------------|
| DATE: | APRIL 2010 |
| PROJECT NO.: | 1018 |
| DESIGNED BY: | AWB |
| DRAWN BY: | AWB |
| CHECKED BY: | AWB |
| SCALE: | AS SHOWN |
| REVISIONS: | |
| DATE: | |

ECLIPSE ENGINEERS, PLLC
13 WEST AVENUE, WARTLEY, KY 40385
PHONE: 502-433-0859
FAX: 502-433-0858





1. THE SIZE OF SIGNS 2 THRU 5 SHALL BE 48" X 48" WITH 30" X 24" SUPPLEMENTAL PLATES FOR EXPRESSWAYS/FREEWAYS. THE MINIMUM SIZE OF SIGNS 2 THRU 5 SHALL BE 36" X 36" WITH 24" X 18" SUPPLEMENTAL PLATES FOR OTHER ROADWAYS. SIGN NOS. 1 AND 6 SHALL BE 48" X 24" FOR EXPRESSWAYS/FREEWAYS AND 36" X 18" FOR OTHER ROADWAYS. A FREEWAY SHALL BE DEFINED AS A DIVIDED HIGHWAY WITH FULL CONTROL OF ACCESS. AN EXPRESSWAY SHALL BE DEFINED AS A DIVIDED HIGHWAY WITH PARTIAL CONTROL OF ACCESS.
2. THE FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. FLAGGER STATIONS SHALL BE LOCATED FAR ENOUGH IN ADVANCE OF THE ACTIVITY AREA SO THAT APPROACHING ROAD USERS WILL HAVE SUFFICIENT DISTANCE TO STOP BEFORE ENTERING THE WORK SPACE (REFER TO TABLE 6C-2 OF THE MUTCD). ILLUMINATION SHALL BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT.
3. DRUMS OR TYPE II BARRICADES SHALL BE USED IN LIEU OF CONES OR TUBULAR MARKERS IF CLOSURE EXTENDS INTO NIGHTTIME HOURS.
4. SIGN NO. 1 SHOULD BE INSTALLED AT THE LIMITS OF THE PROJECT WHEN THE CONSTRUCTION ZONE IS LONGER THAN TWO MILES IN LENGTH. THE DISTANCE SHOWN SHALL BE STATED TO THE NEAREST WHOLE MILE.
5. TAPERS SHALL BE 50' (MIN) TO 100' (MAX) IN LENGTH. SPACING OF CHANNELIZING DEVICES SHOULD BE 20' THRU THE TAPER AREAS.
6. BUFFER SPACE (OPTIONAL). IF USED, THE BUFFER SPACE SHOULD BE EXTENDED SO THAT THE TWO-WAY TRAFFIC TAPER IS PLACED BEFORE A HORIZONTAL OR CREST VERTICAL CURVE TO PROVIDE ADEQUATE SIGHT DISTANCE FOR THE FLAGGER AND A QUEUE OF STOPPED VEHICLES.
7. SPACING OF CHANNELIZING DEVICES THRU THE ACTIVITY AREA SHOULD BE 80'. ON ROADWAYS WITH WIDTHS LESS THAN 20 FEET, CHANNELIZING DEVICES MAY BE OMITTED THRU THE ACTIVITY AREA BASED ON ENGINEERING JUDGMENT.
8. WHEN NIGHTTIME WORK IS BEING PERFORMED, FLOODLIGHTS SHOULD BE USED TO ILLUMINATE THE WORK AREA.

SIGNING AND SPACING TABLE

| ROAD TYPE | A | B | C | D |
|------------------------|-------|------|-------|-------|
| EXPRESSWAY/ FREEWAY | 1000' | 500' | 1100' | 2600' |
| SP. LT. \geq 45 MPH+ | 500' | 500' | 500' | 1100' |
| SP. LT. \leq 40 MPH+ | 250' | 250' | 250' | 250' |

NOTE: USE NORMAL POSTED SPEED LIMIT

DEPARTMENT OF HIGHWAYS
KENTUCKY

LANE CLOSURE
TWO-LANE HIGHWAY

8-29-13
DATE

017

DRAWING NOT TO SCALE
USE WITH CURRENT
STD. DWG TTD-110

LEGEND

- ① FLAGGER
- ⊥ SIGN
- CHANNELIZING DEVICES
- CONES
- DRUMS
- TYPE II BARRICADES
- TUBULAR MARKERS

ROAD WORK NEXT X MILES

END ROAD WORK

ONE LANE ROAD XXXX

BE PREPARED TO STOP

ROAD WORK XXXX

ONE LANE ROAD XXXX

BE PREPARED TO STOP

ROAD WORK NEXT X MILES

~ NOTES ~

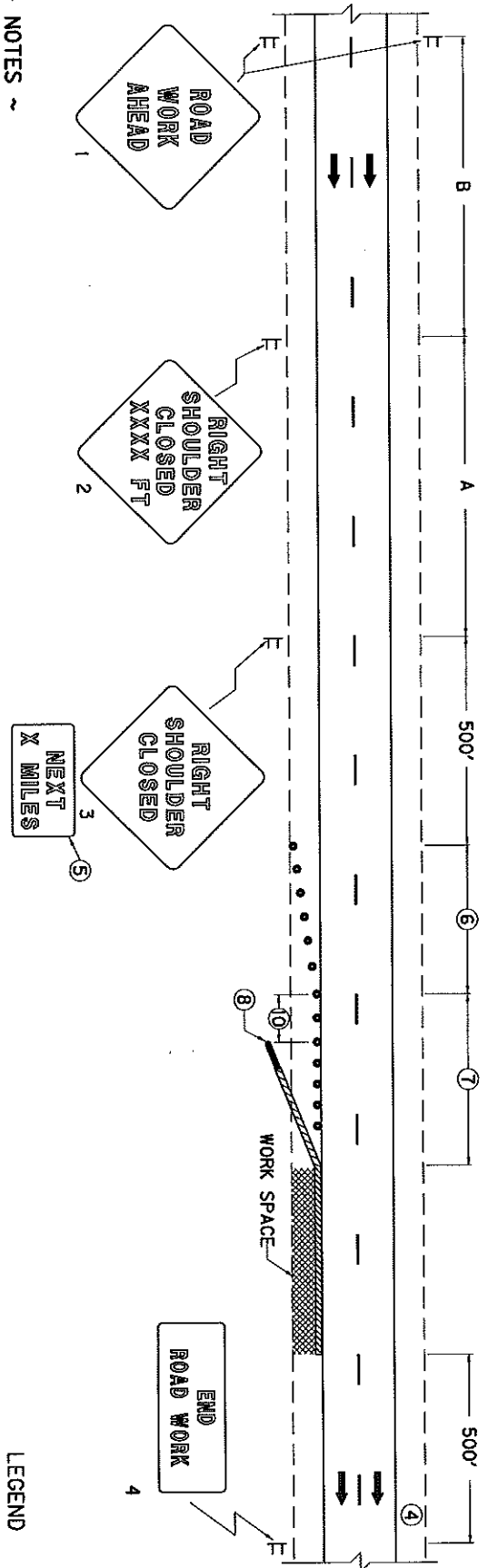
1. THE SIZE OF SIGNS 1 THRU 3 SHALL BE 48" X 48" WITH 30" X 24" SUPPLEMENTAL PLAQUES FOR EXPRESSWAYS/FREEWAYS. THE MINIMUM SIZE OF SIGNS 1 THRU 3 SHALL BE 36" X 36" WITH 24" X 18" SUPPLEMENTAL PLAQUES FOR OTHER ROADWAYS. SIGN NO. 4 SHALL BE 48" X 24" FOR EXPRESSWAYS/FREEWAYS AND 36" X 18" FOR OTHER ROADWAYS. A FREEWAY SHALL BE DEFINED AS A DIVIDED HIGHWAY WITH FULL CONTROL OF ACCESS. AN EXPRESSWAY SHALL BE DEFINED AS A DIVIDED HIGHWAY WITH PARTIAL CONTROL OF ACCESS.
2. SIGN 1 SHALL NOT BE DUAL-MOUNTED ON TWO-LANE, TWO-DIRECTION HIGHWAYS OR ON MULTI-LANE HIGHWAYS WHERE MEDIAN IS NOT WIDE ENOUGH TO MAINTAIN LATERAL CLEARANCES SHOWN IN THE MUTCD. SIGNS 2 AND 3 SHALL BE INSTALLED ONLY ON THE SIDE OF THE AFFECTED SHOULDER.
3. DRUMS OR TYPE II BARRICADES SHALL BE USED IN LIEU OF CONES OR TUBULAR MARKERS IF CLOSURE EXTENDS INTO NIGHTTIME HOURS.
4. ON TWO-LANE TWO-DIRECTION HIGHWAYS, SIGNS 1 THRU 3 SHALL BE INSTALLED ON THE APPROACH TO THE RIGHT SHOULDER CLOSED. A "ROAD WORK AHEAD" AND "SHOULDER WORK" SIGN SHALL BE INSTALLED ON THE OPPOSITE APPROACH. THE "SHOULDER WORK" SIGN SHALL BE MOUNTED IN ADVANCE OF THE CLOSURE AT A SPACING OF "A" (SEE SIGNING AND SPACING TABLE). AN ADDITIONAL "ROAD WORK AHEAD" SIGN SHALL BE INSTALLED IN ADVANCE OF THE "SHOULDER WORK" SIGN AT A SPACING OF "B".
5. WHEN THE END OF THE CLOSURE CANNOT BE SEEN BY ROAD USERS, A "NEXT X MILES" PLAQUE SHALL BE INSTALLED BELOW THE "SHOULDER CLOSED" SIGN. THE PLAQUE SHALL BE 36" X 30" FOR EXPRESSWAYS/FREEWAYS AND 24" X 18" FOR OTHER ROADWAYS.
6. TAPER LENGTH SHALL BE 0.33 L. SPACING OF CHANNELIZING DEVICES THROUGH THE SHOULDER TAPER SHOULD BE 40'.
7. SPACING OF CHANNELIZING DEVICES THROUGH THE REMAINDER OF THE CLOSURE SHOULD BE 80'.
8. TEMPORARY TRAFFIC BARRIER SHALL BE REQUIRED ONLY IF DESIGNATED ELSEWHERE IN THE PLANS. IN ORDER TO MITIGATE THE EFFECT OF STRIKING THE END OF A TEMPORARY TRAFFIC BARRIER, THE END SHALL BE INSTALLED IN ACCORDANCE WITH THE ROADSIDE DESIGN GUIDE BY FLARING (SEE TABLE) UNTIL THE END IS OUTSIDE THE ACCEPTABLE CLEAR ZONE OR BY PROVIDING CRASHWORTHY END TREATMENTS. FLATTER FLARE RATES MAY BE USED.
9. THE COLOR OF BARRIER WALL DELINEATORS SHALL MATCH THE COLOR OF THE EDGE LINE THAT THEY SUPPLEMENT.
10. BUFFER SPACE (OPTIONAL). REFER TO TABLE 6C-2 OF THE MUTCD FOR GUIDANCE ON BUFFER SPACE LENGTH.

BID ITEMS AND UNIT TO BID REFER TO SECTION 112 OF STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION.

DRAWING NOT TO SCALE

LEGEND

- TEMPORARY TRAFFIC BARRIER
- F- SIGN
- CHANNELIZING DEVICES
- CONES
- DRUMS
- TYPE II BARRICADES
- TUBULAR MARKERS
- CRASH CUSHION



| MAXIMUM FLARE RATES FOR TEMPORARY TRAFFIC BARRIER | | | |
|---|--------|--------|--------|
| DESIGN SPEED | 70 MPH | 60 MPH | 50 MPH |
| FLARE RATE | 15:1 | 14:1 | 11:1 |

| SIGNING AND SPACING TABLE | | | |
|---------------------------|-------|-------|------|
| ROAD TYPE | A | B | L |
| EXPRESSWAY/FREEWAY | 1000' | 1600' | 840' |
| SP. LT. ≥ 45 MPH* | 500' | 500' | 680' |
| SP. LT. ≤ 40 MPH* | 500' | 500' | 320' |

APPLICATION
THIS DRAWING APPLIES TO SHOULDER CLOSURES ON MULTI-LANE HIGHWAYS, TWO-LANE TWO-DIRECTION HIGHWAYS, AND ONE-WAY HIGHWAYS.

*NOTE: USE NORMAL POSTED SPEED LIMIT

KENTUCKY
DEPARTMENT OF HIGHWAYS

SHOULDER CLOSURE

STANDARD DRAWING NO. TTC-135-02
SUBMITTED BY: R. G. [Signature]
DESIGNED BY: [Signature]
CHECKED BY: [Signature]
APPROVED BY: [Signature]
DATE: 12-01-15

EXHIBIT 5

RESOLUTION NO. 9601101

Whereas the McCreary County Fiscal Court is desirous of facilitating the timely construction of the sewer lines and appurtenances designated as Phase I, McCreary County Sewer System, the intent of said project being the construction of sewer lines, valves, air release/vacuum relief units, clean out and flushing units and pumping stations and the maintenance, repair, replacement and/or extension of said system as necessary. Be it hereby resolved that the County Judge/Executive be authorized to grant easements on behalf of McCreary County to the McCreary County Water District on all public roads as required by the plans for the Phase I project.

Motion made by MR. HINES

Seconded by MR. LAWSON

Vote _____ Nay

GREENE, LAWSON, HINES, TAYLOR & REDDEN Yea

1-11-96



Jimmie W. Greene
County Judge/Executive

ORDERS

McCREARY

COURT

Special Term, February Day, 13th Day of February 19 64.

FORM G-7-T

The McCreary County Fiscal Court met on February 13, 1964, with the honorable Judge, Prince L. Stephens The Following Magistrates being Present:

Hicks Present, Perry Present, Creekmore Present, Jones Present, Davis Present, Taylor Present, Tapley Present Trammell Present:

On Motion of Hicks and seconded by Trammell it is ordered by the Court that McCreary County and the Fiscal Court of McCreary County grant and convey to the McCreary County water District a right-of-way and easement to construct, maintain lay and repair water pipes, mains, conduits and other and all necessary facilities on, under, through and across all McCreary County Roads and all McCreary County Road rights-of way lying and being in the McCreary County Water district as set out in metes and bounds in an order of the McCreary County Court in order Book 6 Pages 539, and 540 and Prince L. Stephens as Judge of the McCreary County Court and presiding Officer of the Fiscal Court is hereby ordered and directed to execute and deliver to the McCreary County Water District the above described easement for and in behalf of McCreary County and in behalf of this Court.

A Yea and Nay vote being taken the Magistrates voted as follows: Hicks Yea, Perry Yea, Creekmore Yea, Jones Yea, Davis Yea, Taylor Yea, Tapley Yea, Trammell Yea.

On Motion of Perry and seconded by Tapley it is ordered that this Court hire Mark Sumner to deliver the 26 Voting Machines to McCreary County for the sum of \$75.00 and deliver 3 of these Machines to the Court House and the other 23 to Stearns, Kentucky for Storage in the basement of the Old Marcum Garage.

A Yea and Nay vote being taken the Magistrates voted as follows: Hicks Yea, Perry Yea, Creekmore Yea, Jones Yea, Davis Yea, Taylor Yea, Tapley Yea, Trammell Yea.

On Motion of Hicks and seconded by Tapley it is ordered that this Court authorize the County Attorney James A. Inman to file a Ex-Protie proceedings in behalf of the McCreary County Fiscal Court; the budget commissioners of - McCreary County; The McCreary County Attorney James A. Inman; Judge Prince L. Stephens, Judge McCreary County Court; and Carl Barnett as Clerk of the McCreary County Court for the purpose of obtaining judgement of the McCreary Circuit Court on the issues set out in said action.

A Yea and Nay vote being taken the Magistrates voted as follows: Hicks Yea, Perry Nay, Creekmore Yea, Jones Nay, Davis Yea, Taylor Yea, Tapley Yea, Trammell Nay.

On Motion of Trammell and seconded by Perry it is ordered that this Court recend to order as recorded in Fiscal Court Order Book #7, Page 424, in regards to the constructing of building at the back of McCreary County Court House.

A Yea and Nay vote being taken, the magistrates voted as follows: Hicks Yea, Perry Yea, Creekmore Yea, Jones Yea, Davis Yea, Taylor Yea, Tapley Nay, Trammell Yea.

On Motion of Jones and seconded by Davis it is ordered that the Magistrates be paid for One days service, and this Court Adjourn until March 5, 1964, 9:30 AM.

A Yea and Nay vote being taken the Magistrates voted as follows: Hicks Yea, Perry Yea, Creekmore Yea, Jones Yea, Davis Yea, Taylor Yea, Tapley Yea, Trammell Yea.

EXHIBIT 6

DESCRIPTION OF ROUTE AND LOCATION OF PROPOSED FACILITIES

A force main will be constructed beginning near the intersection of Kentucky Route 92 and Kentucky Route 1651 and running northwest along Kentucky Route 92 for approximately two miles. At the juncture of Kentucky Route 92 and Kentucky Route 701 (Poplar Springs Road), a second force main will connect to this force main and run approximately .85 miles northeast along Kentucky Route 701 and connect to the Country Store Pump Station. Additional mains will run along the following streets and roads and connect to either the Kentucky Route 92 force main or the Kentucky Route 701 force main:

Kentucky Route 791 (Worley Road)

Boyatt Cemetery Road

Childers Ridge Road

Christopher King Road

Dave Summers Road

Donaldson Hill Road.

Earl Ross Road

Farm Ridge Road

Gene Jones Road

Harper Road

Inman Neal Road

John Perry Lane

Jones Wilson Ln

Mary King Road

Melvin Basham Road

Pine Ridge Road

Smithtown School Road

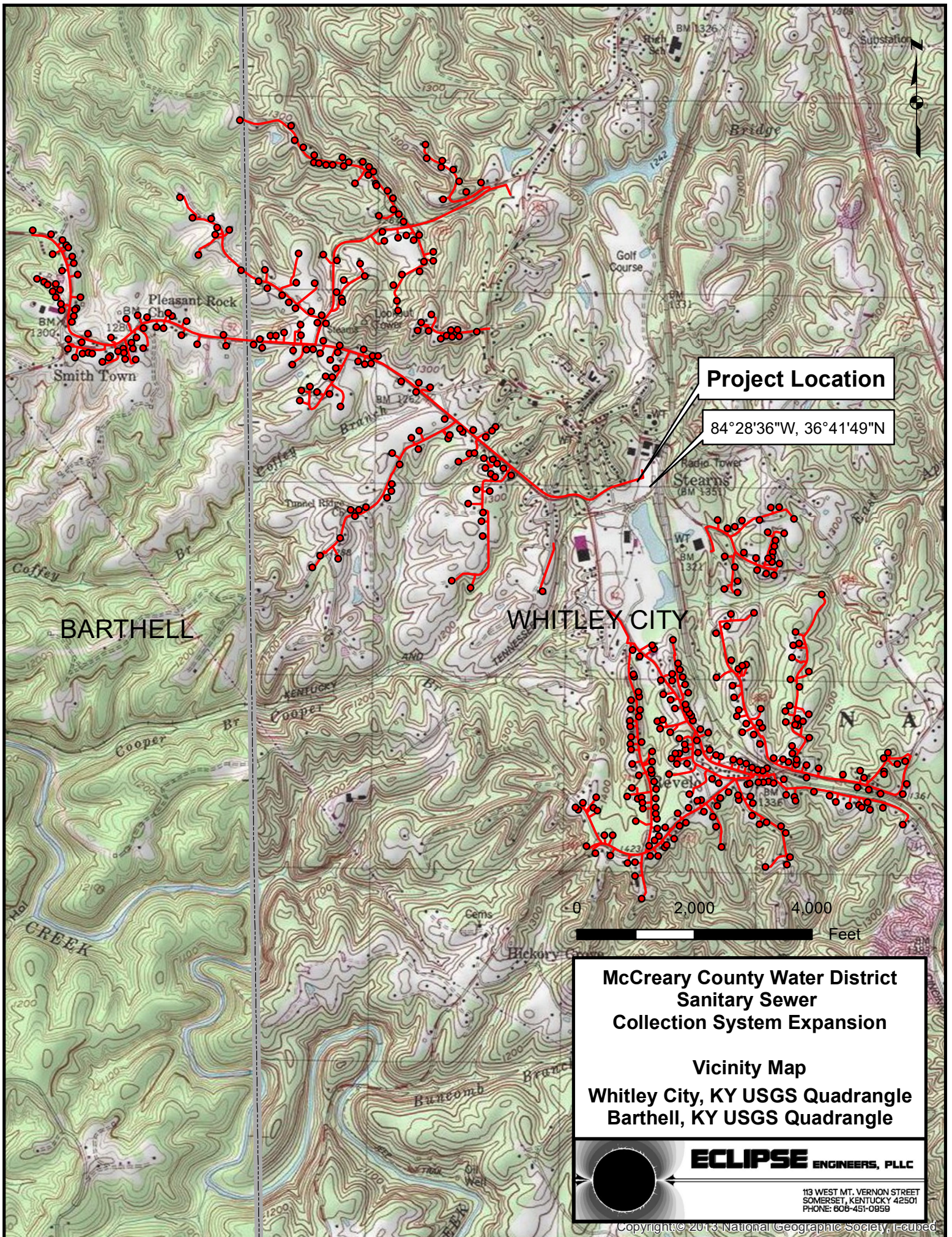
Stearns Tower Road

T. Bryant Road

Tunnel Ridge Road

Winchester Hill Road

EXHIBIT 7

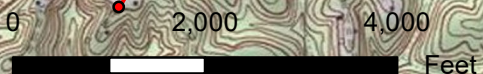


Project Location

84°28'36"W, 36°41'49"N

BARTHELL

WHITLEY CITY

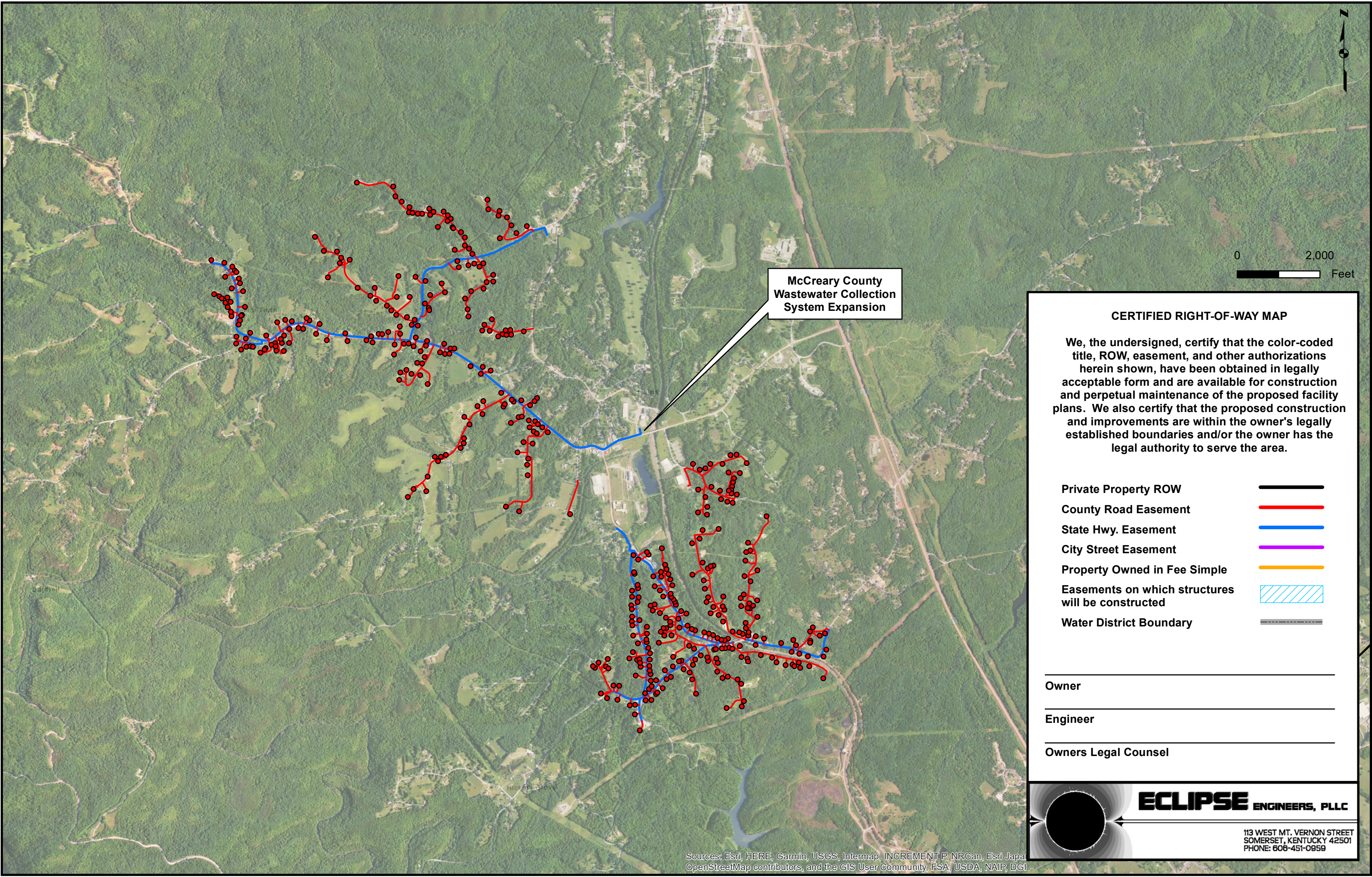


**McCreary County Water District
Sanitary Sewer
Collection System Expansion**

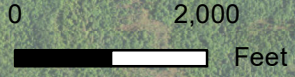
Vicinity Map
Whitley City, KY USGS Quadrangle
Barthell, KY USGS Quadrangle



113 WEST MT. VERNON STREET
SOMERSET, KENTUCKY 42501
PHONE: 606-451-0959










**McCreary County
Wastewater Collection
System Expansion**



CERTIFIED RIGHT-OF-WAY MAP

We, the undersigned, certify that the color-coded title, ROW, easement, and other authorizations herein shown, have been obtained in legally acceptable form and are available for construction and perpetual maintenance of the proposed facility plans. We also certify that the proposed construction and improvements are within the owner's legally established boundaries and/or the owner has the legal authority to serve the area.

| | |
|---|---|
| Private Property ROW |  |
| County Road Easement |  |
| State Hwy. Easement |  |
| City Street Easement |  |
| Property Owned in Fee Simple |  |
| Easements on which structures will be constructed |  |
| Water District Boundary |  |

Owner _____

Engineer _____

Owners Legal Counsel _____



ECLIPSE ENGINEERS, PLLC

113 WEST MT. VERNON STREET
SOMERSET, KENTUCKY 42501
PHONE: 606-451-0959

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, OpenStreetMap contributors, and the GIS User Community, FSA, USDA, NAIP, DGI

EXHIBIT 8

DOCUMENT FILED SEPARATELY

EXHIBIT 9

Specifications

for:

Sanitary Sewer Collection System Expansion-Phase 1 Contract No. 39

McCreary County Water District
456 North Hwy 27
Whitley City, Kentucky 42653

November 2020

Prepared by:

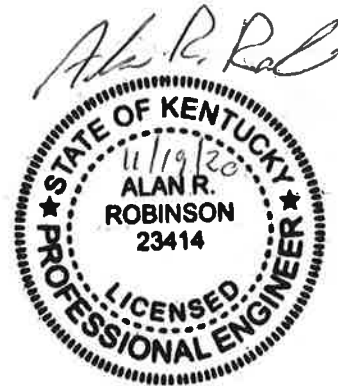


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Bidding Requirements, Contract Forms and Requirements of the Contract

SECTION 00010 - ADVERTISEMENT FOR BIDS

Sealed Bids for **“Sanitary Sewer Collection System Expansion – Phase 1 – Contract No. 39”** for the McCreary County Water District, will be received until **2:00 p.m.** (local time) on December 9, 2020, at the **McCreary County Water District, 456 North Hwy 27, Whitley City, Kentucky 42653**, and then publicly opened and read aloud.

The primary scope of work includes the installation of approximately 50,250 LF of 1.5-inch HDPE force main, 47,610 LF of 2-inch PVC force main, 18,901 LF of 3-inch PVC force main, 14,099 LF of 4-inch PVC force main, 12,000 LF of 4-inch PVC gravity sewer (laterals), 1,108 LF of 6-inch HDPE casing pipe (directional bore), 68 LF of 8-inch HDPE casing pipe (directional bore), 53 air release valve assemblies, 414 grinder check valve assemblies, 414 grinder pump stations (single stage), and related appurtenances.

The Instructions to Bidders, Bid Form, Agreement Forms, Performance and Payment Bonds, Plans, Specifications and other Contract Documents may be viewed online at lynnimaging.com or examined at the following locations:

| | |
|-----------------------------|----------------------------|
| McCreary Co. Water District | Eclipse Engineers, PLLC |
| 456 North Hwy 27 | 113 West Mt. Vernon Street |
| Whitley City, KY 42653 | Somerset, KY 42501 |
| (606) 784-5538 | (606) 451-0959 |

Copies of plans and specifications may be obtained from Lynn Imaging, 328 Old Vine Street, Lexington, Kentucky 40507 (859-255-1021) upon payment of a non-refundable price of \$500.00 for each set (including shipping and handling). No bid will be accepted unless the BIDDER is a *registered plan holder*. To become a *registered plan holder*, BIDDER must purchase at least one set of documents from Lynn Imaging and provide accurate name and contact information. Partial sets of documents will not be provided. Half-sized sets may be purchased for the full price. Digital download sets may be purchased for half of the full price. Questions shall be addressed to Alan R. Robinson, P.E. of Eclipse Engineers, PLLC, 113 West Mt. Vernon Street, Somerset, Kentucky 42501 (606-451-0959) as stated in the Specifications or by email to arobinson@eclipseengineers.net.

All BIDDERS must comply with Title VI of the Civil Rights Act of 1964, the Anti-Kickback Act, and the Contract Work Hours Standard Act.

All BIDDERS must comply with the President's Executive Order No. 11,246 (Equal Employment Opportunity) as amended, which prohibit discrimination in employment regarding race, creed, color, sex or national origin.

All BIDDERS, Contractors and Subcontractors must comply with 41 CFR 60-4, in regard to Affirmative Action, to ensure equal opportunity to females and minorities and will apply the timetables and goals set forth in 41 CFR 60-4 as applicable.

All BIDDERS, Contractors and Subcontractors must comply with all American Iron and Steel Requirements.

All BIDDERS must make positive efforts to use small, minority, women owned, and disadvantage businesses.

Method of award will be made to the lowest, responsive, responsible BIDDER. The OWNER reserves the right to waive any informality or to reject any or all bids.

Each BIDDER must deposit with his Bid, security in the amount, form and subject to the conditions provided in the Instructions to Bidders.

No BIDDER may withdraw his Bid within ninety (90) consecutive calendar days after the actual date of the opening thereof.

This project will be subject to DOW Procurement Guidance including the Davis-Bacon Act.

This project will be funded with an SRF loan.

“EQUAL EMPLOYMENT OPPORTUNITY”

Stephen Whitaker
Superintendent, MCWD

END OF SECTION 00010

SECTION 00100 - INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL INSTRUCTIONS AND INFORMATION

- 1.01 Each BIDDER is responsible for inspecting the work site and for being thoroughly familiar with the Contract Documents, including Addenda. The BIDDER shall in no way be relieved from any bidding obligation because of unfamiliarity with the site or documents. Neither the OWNER nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of bidding documents.
- 1.02 All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply throughout the Contract and they will be deemed to be included in the Contract the same as though herein written out in full.
- 1.03 Information pertinent to the conditions of the work site is made available to the BIDDER in Section 00200 (if applicable), Information Available to Bidders.
- 1.04 The Owner of the Project is the **McCreary County Water District, 456 North Hwy 27, Whitley City, Kentucky 42653, Phone (606) 376-2540.**
- 1.05 The Engineer of the Project is **Eclipse Engineers, PLLC, 113 West Mt. Vernon Street, Somerset, Kentucky 42501, Phone (606) 451-0959, Alan R. Robinson, P.E., Project Manager.**
- 1.06 The Contract Documents contain the provisions for construction of the Project. Information obtained from an officer, agent, or employee of the OWNER, or from any other person, shall not affect the risk or obligations assumed by the Contractor or relieve the Contractor from fulfilling any of the conditions of the Contract.
- 1.07 The OWNER may make such investigations as deemed necessary to determine the ability of the BIDDER to perform the work, and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any Bid if the evidence submitted by, or an investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the Agreement and to complete the work.

PART 2 - SPECIAL INSTRUCTIONS AND INFORMATION

- 2.01 Bids are to be submitted on the forms provided by completing all blank spaces in the Bid Form.
- 2.02 The Contract will be awarded based on the lowest responsive Base Bid or the lowest combination of Base Bid plus deductive alternate by a qualified BIDDER.

- 2.03 All BIDDERS must comply with the President's Executive Order No. 11,246 as amended, which prohibit discrimination in employment regarding race, creed, color, sex or national origin.
- 2.04 All BIDDERS must make positive efforts to use minority and women owned businesses.
- 2.05 All BIDDERS, Contractors and Subcontractors must comply with 41 CFR 60-4, in regard to Affirmative Action, to ensure equal opportunity to females and minorities and will apply the timetables and goals set forth in 41 CFR 60-4 as applicable.
- 2.06 All BIDDERS must comply with Title VI of the Civil Rights Act of 1964, the Anti-Kickback Act, and the Contract Work Hours Standard Act.
- 2.07 Method of Award (to the low responsive, responsible bidder unless all bids are rejected). Refer to 40 CFR 31.36(d). All bids shall not be rejected without proper justification.
- 2.08 All BIDDERS must comply with OSHA (P.L. 91-596) and the Contract Work Hours and Safety Standards Act (P.L. 91-54).

PART 3 - BIDDING PROCEDURE

- 3.01 Bids will be received by the **McCreary County Water District, 456 North Hwy 27, Whitley City, Kentucky 42653** until **2:00 p.m. (local time) on December 9, 2020**, and then publicly opened and read aloud.
- 3.02 Each Bid must be submitted in a sealed envelope, addressed to the **McCreary County Water District, 456 North Hwy 27, Whitley City, Kentucky 42653**. Each envelope containing a Bid must be plainly marked on the outside as **“Sealed Bid for Sanitary Sewer Collection System Expansion – Phase 1 – Contract No. 39”** and the envelope shall bear on the outside the BIDDER'S name, address and license number (if applicable), and date and time of opening. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed to **McCreary County Water District, 456 North Hwy 27, Whitley City, Kentucky, 42653**.
- 3.03 All Bids must be made on the required Bid Form. All blank spaces for Bid prices must be filled in, in ink or typewritten, and the Bid Form must be fully completed and executed when submitted.
- 3.04 Each Bid must be accompanied by a separate Bid Bond for the Contract payable to the OWNER for five percent (5%) of the total amount of the Bid on the Contract. As soon as the Bid prices are compared, the OWNER will return the Bonds of all except the three lowest responsible BIDDERS. When the Agreements are executed, the Bonds of the two remaining unsuccessful BIDDERS will be returned. The Bid Bond of the successful BIDDER will be retained until the Payment Bonds and Performance Bonds have been executed and approved, after which it will be returned. Certified checks payable to the OWNER, equal to five percent (5%) of the Bids, may be substituted for

the Bid Bond.

- 3.05 A Bid may be withdrawn prior to the scheduled time for the opening of Bids, or authorized postponement thereof. A Bid received after the time and date specified will not be considered. No BIDDER may withdraw a Bid within ninety (90) consecutive calendar days after the actual date of the opening. Should the Contract not be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.
- 3.06 The OWNER may consider informal any Bid not prepared and submitted in accordance with the provisions hereof. The OWNER may waive any bidding informalities or minor defects or reject any and all Bids.
- 3.07 A conditional or qualified Bid will not be accepted.
- 3.08 The OWNER reserves the right to add, delete or change any part or portion of the proposed work.
- 3.09 Any BIDDER may modify his/her Bid by telegraphic communication at any time prior to the scheduled closing time for receipt of Bids, provided such telegraphic communication is received by the OWNER prior to the closing time, and provided further, the OWNER is satisfied that a written confirmation of the telegraphic modification over the signature of the BIDDER was mailed prior to the closing time. The telegraphic communication should not reveal the Bid price but should provide the addition or subtraction or other modification so that the OWNER will not know the final prices or terms until the sealed Bid is opened. If written confirmation is not received within two (2) consecutive calendar days from the closing time, no consideration will be given to the telegraphic modification. No facsimile bids or bid modifications will be accepted.
- 3.10 The successful BIDDER, upon his/her failure or refusal to execute and deliver the Contract and bonds required within ten (10) consecutive calendar days after he/she has received notice of the acceptance of his/her Bid, shall forfeit to the OWNER, as liquidated damages for such failure or refusal, the security deposited (Bid Bond) with his/her Bid.
- 3.11 Each BIDDER must inform him/herself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful BIDDER of his/her obligation to furnish all material and labor necessary to carry out the provisions of his/her Contract. Insofar as possible, the Contractor, in carrying out the work, must employ such methods or means as will not cause any interruption of or interference with the work of any other Contractor.
- 3.12 No interpretation of the meaning of the plans, specifications or other pre-bid documents will be made to any BIDDER orally. Every request for such interpretation should be in writing addressed to **Alan R. Robinson, P.E., Project Manager, Eclipse Engineers, PLLC, 113 West Mt. Vernon Street, Somerset, Kentucky 42501** and to be given consideration must be received at least five (5) consecutive calendar days

prior to the date fixed for the opening of Bids. Any and all such interpretations and any supplemental instructions will be in the form of written Addenda to the specifications which, if used, will be mailed to all prospective BIDDERS (at the respective addresses furnished for such purposes), not later than three (3) consecutive calendar days prior to the date fixed for the opening of Bids. Failure of any BIDDER to receive any such addendum or interpretation shall not relieve such BIDDER from any obligation under his/her Bid as submitted. All Addenda so issued shall become part of the Contract Documents.

- 3.13 At the time of the opening of Bids, each BIDDER will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and Contract Documents (including all Addenda). The failure or omission of any BIDDER to examine any form, instrument or document shall in no way relieve any BIDDER from any obligation in respect of his/her Bid.

PART 4 - AWARD OF CONTRACT (AGREEMENT)

- 4.01 Award of Contract will be made to the qualified BIDDER with the lowest responsive Bid as determined in accordance with Part 2 of this Section, unless all Bids are rejected. The OWNER reserves the right to reject any and all Bids, to waive any bidding informalities, and to disregard all nonconforming, non-responsive or conditional Bids. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated total unit amount and the correct total unit amount thereof will be resolved in favor of the correct total unit amount.
- 4.02 The BIDDER to whom the Contract is awarded will be required to execute the Agreement and obtain the Performance Bond and Payment Bond within ten (10) consecutive calendar days from the date of the Notice of Award. The Notice of Award will be accompanied by the necessary Agreement and Bond forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may consider the BIDDER in default, in which case the Bid Bond accompanying the proposal shall become the property of the OWNER.
- 4.03 A Performance Bond and a Payment Bond each in the amount of 100 percent (100%) of the Contract price, with a corporate surety approved by the OWNER, will be required for the faithful performance of the Contract. Such Bonds shall not be dated with a date earlier than the date of the Agreement for the Contract (Project) being bonded.
- 4.04 Attorneys-in-fact who sign Bid Bonds or Payment Bonds and Performance Bonds must file with each Bond a certified and effective dated copy of their Power of Attorney and must be registered in the Commonwealth of Kentucky or counter-signed by a Kentucky Resident Agent, which will be subject to verification by the OWNER.
- 4.05 The OWNER, within ten (10) consecutive calendar days of receipt of acceptable Performance Bond, Payment Bond and Agreement signed by the BIDDER to whom the Agreement was awarded, shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the OWNER not execute the Agreement

within such period, the BIDDER may by written notice, withdraw the signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER.

- 4.06 The Notice to Proceed shall be issued by the OWNER within ten (10) consecutive calendar days of the execution of the Agreement by the OWNER. Should there be reasons why the Notice to Proceed cannot be issued within such period, the time may be extended by mutual agreement between the OWNER and Contractor. If the Notice to Proceed has not been issued within the specified periods or the period mutually agreed upon, the Contract or may terminate the Agreement without further liability on the part of either party. Refer to Section 00500 for details related to the commencement of work.

END OF SECTION 00100

SECTION 00201 – BID BOND

PART 1 - BID BOND

KNOW ALL PERSONS BY THESE PRESENTS: that we, the undersigned,

Name of CONTRACTOR:

Address of CONTRACTOR:

_____ a (corporation, partnership, or individual), hereinafter called "PRINCIPAL", and

Name of SURETY:

Address of SURETY:

hereinafter called "SURETY", are held and firmly bound unto the

Name of OWNER: **McCreary County Water District**

Address of OWNER: **456 North Hwy 27, Whitley City, Kentucky 42653**

hereinafter called "OWNER", in the total aggregate penal sum of:

_____ Dollars (\$_____).

in lawful money of the United States, for the payment of which sum will and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assign, jointly and severally, firmly by these presents.

The Condition of this Obligation is such that whereas, the PRINCIPAL has submitted a certain Bid to the OWNER, dated the ____ day of _____ 2020, a copy of which is hereto attached and made a part hereof, to enter into a contract in writing for the construction of the **Sanitary Sewer Collection System Expansion – Phase 1 – Contract No. 39, Whitley City, Kentucky.**

NOW, THEREFORE, if said Bid shall be rejected, or in the alternate; if said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of such Bid; then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated. The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time

within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, this the _____ day of _____ 2020.

ATTEST:

PRINCIPAL:

(PRINCIPAL) Secretary

By:

Address:

WITNESS TO PRINCIPAL

Address:

ATTEST:

SURETY

Witness to SURETY

By Attorney in Fact

Address:

Address:

NOTE: Date of BOND must not be prior to date of AGREEMENT. If CONTRACTOR is Partnership, all partners should execute BOND.

BID BOND Requirements (5% of Contracts over \$100,000)

IMPORTANT: SURETY companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the Project is located.

END OF SECTION 00201

SECTION 00300 - BID FORM

BIDDER'S PROPOSAL
Sanitary Sewer Collection System Expansion – Phase 1 – Contract No. 39
McCreary County Water District

Proposal of _____ (hereinafter called
“BIDDER”), a _____ (corporation, partnership, or
individual) organized and existing under the laws of the state of _____,
doing business as _____,
to the **McCreary County Water District**, (hereinafter called “OWNER”).

In compliance with the Advertisement for Bids, BIDDER hereby proposes to furnish all equipment, materials and labor for the WORK required for project completion included in this Bidder’s proposal. The improvements shall be constructed in strict accordance with the CONTRACT DOCUMENTS, within the time set forth herein, and at the prices provided in this Bidder’s proposal.

The OWNER will select the successful BIDDER based on criteria identified in the CONTRACT DOCUMENTS (total amount of base bid, qualifications, etc.).

The BID amounts provided shall include all labor, materials, overhead, profit, insurance and other costs necessary to cover the finished WORK of the several kinds. The BIDDER must fill in all blank spaces provided in the Bid Form including all unit and total costs.

By submission of this BID, the BIDDER certifies, and in the case of a joint BID, each party thereto certifies as to its own organization, that this BID has been arrived at independently, without consultation, communication or agreement as to any matter relating to this BID, with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence WORK under this CONTRACT on or before a date to be specified in the Notice to Proceed and to fully complete the project within **three hundred sixty five (365)** consecutive calendar days thereafter. BIDDER hereby agrees to complete the WORK for the price provided in the Bid Schedule. BIDDER further agrees to pay liquidated damages, in accordance with the Schedule of Liquidated Damages included provided in Section 00700 – General Conditions, for each consecutive calendar day beyond the authorized contract period. If Additive Alternate No. 2 is selected, an additional **one hundred eighty two (182)** consecutive calendar days will be added to the Contract.

BASE BID SCHEDULE
STEARNS AREA (SHEETS 3-15, 20-32)
Sanitary Sewer Collection System Expansion – Phase 1 – Contract No. 39

| Item | Description | Qty | Unit | Unit Cost | Total Amount |
|--|--|--------|------|-----------|--------------|
| 1. | General Conditions | 1 | LS | | |
| 2. | 1.5-inch HDPE DR11 CTS Force Main (green) | 25,350 | LF | | |
| 3. | 2-inch PVC SDR 21 Force Main (green) | 26,859 | LF | | |
| 4. | Flushing Connection (2-inch) | 37 | EA | | |
| 5. | 3-inch PVC SDR 21 Force Main (green) | 5,260 | LF | | |
| 6. | Flushing Connection (3-inch) | 5 | EA | | |
| 7. | 4-inch PVC SDR 21 Force Main (green) | 8,122 | LF | | |
| 8. | 4-inch PVC SDR 35 Gravity Sewer (Laterals) | 15,150 | LF | | |
| 9. | 2-inch Combination Air Release Valve Assembly | 28 | EA | | |
| 10. | Flushing Connection (4-inch) | 8 | EA | | |
| 11. | 4-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | 504 | LF | | |
| 12. | 6-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | 126 | LF | | |
| 13. | 8-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | 34 | LF | | |
| 14. | Electric Modifications / Breaker | 209 | EA | | |
| 15. | Sanitary Sewer Cleanout Assembly / Connect Lateral | 219 | EA | | |
| 16. | Grinder Check Valve Assembly | 209 | EA | | |
| 17. | Grinder Pump Station – Single Stage | 209 | EA | | |
| 18. | Bituminous Pavement Replacement | 100 | SY | | |
| 19. | Concrete Drive Replacement | 100 | SY | | |
| TOTAL BASE BID (Items 1 through 19) | | | | | |

TOTAL BASE BID AMOUNT expressed in words:

_____ Dollars and _____ Cents.

Accompanying this Bidder's Proposal is a certified check or BID BOND in the sum of (words and figures):

_____ Dollars and _____ Cents (\$ _____).

that equals five percent (5%) of the BID amount. The BIDDER, by submittal of this BID, agrees with the OWNER that the amount of the BID security deposited with this BID fairly and reasonably represents the amount of damages the OWNER will suffer due to the failure of the BIDDER to successfully secure and enter into the AGREEMENT.

ADDITIVE ALTERNATE NO. 1 BID SCHEDULE
TUNNEL RIDGE ROAD AREA (SHEETS 16-19)
Sanitary Sewer Collection System Expansion – Phase 1 – Contract No. 39

| Item | Description | Qty | Unit | Unit Cost | Total Amount |
|--|--|------------|-------------|------------------|---------------------|
| 1. | General Conditions | 1 | LS | | |
| 2. | 1.5-inch HDPE DR 11 CTS Force Main | 3,400 | LF | | |
| 3. | 2-inch PVC SDR 21 Force Main | 1,427 | LF | | |
| 4. | Flushing Connection (2-inch) | 2 | EA | | |
| 5. | 3-inch PVC SDR 21 Force Main | 1,925 | LF | | |
| 6. | Flushing Connection (3-inch) | 2 | EA | | |
| 7. | 4-inch PVC SDR 21 Force Main | 2,277 | LF | | |
| 8. | 4-inch PVC SDR 35 Gravity Sewer (Laterals) | 2,150 | LF | | |
| 9. | 2-inch Combination Air Release Valve Assembly | 2 | EA | | |
| 10. | 8-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | 34 | LF | | |
| 11. | Electric Modifications / Breaker | 31 | EA | | |
| 12. | Sanitary Sewer Cleanout Assembly / Connect Lateral | 34 | EA | | |
| 13. | Grinder Check Valve Assembly | 31 | EA | | |
| 14. | Grinder Pump Station – Single Stage | 31 | EA | | |
| TOTAL ADDITIVE ALTERNATE NO. 1 BID (Items 1 through 14) | | | | | |

TOTAL ADDITIVE ALTERNATE NO. 1 BID AMOUNT expressed in words:

_____ Dollars and _____ Cents.

ADDITIVE ALTERNATE NO. 2 BID SCHEDULE
REVELO AREA (SHEETS 33-51)
Sanitary Sewer Collection System Expansion – Phase 1 – Contract No. 39

| Item | Description | Qty | Unit | Unit Cost | Total Amount |
|--|--|--------|------|-----------|--------------|
| 1. | General Conditions | 1 | LS | | |
| 2. | 1.5-inch HDPE DR 11 CTS Force Main | 21,500 | LF | | |
| 3. | 2-inch PVC SDR 21 Force Main | 19,324 | LF | | |
| 4. | Flushing Connection (2-inch) | 22 | EA | | |
| 5. | 3-inch PVC SDR 21 Force Main | 11,716 | LF | | |
| 6. | Flushing Connection (3-inch) | 9 | EA | | |
| 7. | 4-inch PVC SDR 21 Force Main | 3,700 | LF | | |
| 8. | 4-inch PVC SDR 35 Gravity Sewer (Laterals) | 11,850 | LF | | |
| 9. | 2-inch Combination Air Release Valve Assembly | 23 | EA | | |
| 10. | 4-inch HDPE DR 11 Casing Pipe (Directional Bore) | 396 | LF | | |
| 11. | 6-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | 106 | LF | | |
| 12. | 8-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | 344 | LF | | |
| 13. | Electric Modifications / Breaker | 174 | EA | | |
| 14. | Sanitary Sewer Cleanout Assembly / Connect Lateral | 209 | EA | | |
| 15. | Grinder Check Valve Assembly | 174 | EA | | |
| 16. | Grinder Pump Station – Single Stage | 174 | EA | | |
| TOTAL ADDITIVE ALTERNATE NO. 1 BID (Items 1 through 16) | | | | | |

TOTAL ADDITIVE ALTERNATE NO. 2 BID AMOUNT expressed in words:

_____ Dollars and _____ Cents.

NOTE: THE CONTRACT WILL BE AWARDED TO THE QUALIFIED BIDDER WITH THE LOWEST RESPONSIVE **BASE BID**. THEREFORE, THE ADDITIVE ALTERNATE BIDS WILL ONLY BE EVALUATED AFTER THE AFORMENTIONED BASE BID CONTRACTOR IS DETERMINED.

BIDDER acknowledges receipt of the following ADDENDA:

Addendum No. ___ dated _____ Addendum No. ___ dated _____

BIDDER agrees that the OWNER reserves the right to delete the whole or any part of the PROJECT from the CONTRACT. BIDDER understands that the OWNER reserves the right to reject any or all BIDS and to waive any informalities in the Bidding. BIDDER agrees that this BID shall be good and may not be withdrawn for a period of ninety (90) consecutive calendar days after the actual date of BID opening.

Within ten (10) consecutive calendar days after receiving written Notice of Award of this BID by

the OWNER, the BIDDER will execute and deliver to the OWNER four (4) copies of the AGREEMENT and such other required CONTRACT DOCUMENTS.

BIDDER:

Signed By:

Name:

(type or print)

Title:

Address:

END OF SECTION 00300

SECTION 00400 - SUPPLEMENTS TO BID FORM

PART 1 - BIDDER'S QUALIFICATIONS

- A. The required names and addresses of all persons interested in the foregoing Bid, as PRINCIPALS, are as follows:

- B. The requested statement of work of a similar character to that included in the proposed Contract and references to enable the OWNER to judge the BIDDER'S experience, skill and business standing are as follows:

(Add supplementary pages if necessary)

PART 2 - SUBCONTRACTORS

Proposed subcontractors must be listed below with the corresponding branch of work (i.e. Seeding and Sodding, Pavement Restoration, etc.) to be performed by the named Subcontractor. All subcontractors are subject to the approval of the OWNER. Failure to submit a completed list may be cause for rejection of the Bid.

| BRANCH OF WORK | NAME AND ADDRESS OF SUBCONTRACTOR |
|------------------------|--|
| 1. Plumbing (laterals) | |
| 2. Electrical | |
| 3. | |
| 4. | |

(Add supplemental pages if necessary)

PART 3 - LIST OF PROPOSED MANUFACTURERS

NOTICE: This list is required to be completed by the apparent low bidder within fifteen (15) minutes after completion of the Bid Tabulation by the Owner and then submitted to the Owner as a required part of the bidding process. All material manufacturers are subject to review and approval of the Owner. Failure to complete and submit this completed list can be cause of rejection of the Bid.

| MATERIAL (EQUIPMENT) | NAME OF EQUIPMENT AND MATERIAL MANUFACTURER |
|-----------------------------|--|
| 1. HDPE Pipe | |
| 2. PVC Pipe | |
| 3. Casing Pipe | |
| 4. Grinder Pump Stations | Barnes, Myers, EOne (circle one) |
| 5. Air Release Valves | |
| 6. Grinder Check Valves | |

Submission of this Material Manufacturers List by the apparent low bidder and subsequent acceptance by the Owner **does not** constitute approval by the Owner of specific product, nor does such acceptance waive the BIDDER'S responsibility to fully comply with all requirements of the

Drawings or Specifications. Variance from this list can only be accomplished by written approval from the Owner and then only after approvable justification. If a manufacturer cannot be accepted by the Owner within 24 hours of the bid opening, then the apparent low bidder must submit an approvable manufacturer within five (5) days of the bid opening or the Owner may select one of the manufacturers listed in Specifications. (Should no manufacturer be listed, then the Owner may select one that meets the requirements of the Specifications.)

END OF SECTION 00400

SECTION 00500 - AGREEMENT FORMS

PART 1 - NOTICE OF AWARD

TO: _____

**PROJECT: Sanitary Sewer Collection System Expansion – Phase 1 – Contract No. 39
Whitley City, Kentucky**

The OWNER has considered the Bid submitted by you for the above-described Work on _____, 2020.

You are hereby notified that your Bid has been accepted for items in the amount of _____
_____ (\$ _____).

You are required by the Instructions to Bidders to execute the AGREEMENT and furnish the required CONTRACTOR'S Performance Bond, and Payment Bond and certificates of insurance within ten (10) consecutive calendar days from the date of this notice to you.

If you fail to execute said AGREEMENT and to furnish said BONDS within ten (10) consecutive calendar days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your Bid as abandoned and as a forfeiture of your Bid Bond. The OWNER will be entitled to such other rights as may be granted by law. You are required to return an acknowledged copy of this Notice of Award to the OWNER.

Dated this _____ day of _____ 2020.

OWNER: McCreary County Water District
By: _____
Name: Stephen Whitaker
Title: Superintendent

ACCEPTANCE OF NOTICE OF AWARD

Receipt of the above NOTICE OF AWARD is hereby acknowledged this the _____ day of _____ 2020.

CONTRACTOR:

By: _____

Name: _____

Title: _____

PART 2 - AGREEMENT

THIS AGREEMENT, made this _____ day of _____ 2020, by and between the **McCreary County Water District**, hereinafter called "OWNER", and _____ doing business as (a corporation, a partnership, or an individual), hereinafter called "CONTRACTOR."

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete "**Sanitary Sewer Collection System Expansion – Phase 1 – Contract No. 39**", Whitley City, Kentucky.
2. The CONTRACTOR will furnish all of the materials, supplies, tools, equipment, labor and other services necessary for the completion of the project described herein.
3. The CONTRACTOR will commence the work required by the Contract Documents after the date of the Notice to Proceed and will complete the same within **three hundred sixty five (365)** consecutive calendar days unless the period for completion is extended otherwise by the Contract Documents.
4. The CONTRACTOR agrees to perform all of the work described in the Contract Documents and comply with the terms therein for the sum of:

(\$ _____)

as shown in the Bidder's Proposal.

5. The term "Contract Documents" means and includes the following:
- a. Advertisement for Bids.
 - b. Instructions to Bidders.
 - c. Information Available to Bidders.
 - d. Bidder's Proposal.
 - e. Bid Bond.
 - f. Agreement.
 - g. General Conditions.
 - h. Payment Bond.
 - i. Performance Bond.
 - j. Notice of Award.
 - k. Notice to Proceed.
 - l. Change Order(s), if any.
 - m. Drawings prepared by Eclipse Engineers, PLLC and dated November 2020.
 - n. Technical Specifications prepared by Eclipse Engineers, PLLC and dated November 2020.
 - o. Addenda:

No. _____, Dated _____

No. _____, Dated _____

6. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the Contract Documents.
7. This AGREEMENT shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the parties hereto have executed or caused to be executed by their duly authorized officials, this AGREEMENT in four (4) copies each of which shall be deemed an original on the date first above written.

OWNER:

By:

Name:

Title:

ATTEST:

Name:

(type or print)

Title:

CONTRACTOR:

By:

Name:

Address:

ATTEST:

Name:

(type or print)

Title:

PART 3 - NOTICE TO PROCEED

TO: _____

PROJECT: **Sanitary Sewer Collection System Expansion – Phase 1 – Contract No. 39
Whitley City, Kentucky**

You are hereby notified to commence work in accordance with the AGREEMENT dated _____, 2021, on or before _____, 2021, and you are to complete the work within **three hundred sixty five (365)** consecutive calendar days thereafter. The date of completion of all work is therefore _____, 2022.

OWNER:

By: _____
Stephen Whitaker, Superintendent
McCreary County Water District

ACCEPTANCE OF NOTICE TO PROCEED

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by

this the _____ day of _____ 2020.

By: _____

Name: _____

Title: _____

END OF SECTION 00500

SECTION 00600 - BONDS AND CERTIFICATES

PART 1 - PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

Name of CONTRACTOR:

Address of CONTRACTOR:

_____ a (corporation, partnership, or individual), hereinafter called "PRINCIPAL", and

Name of SURETY:

Address of SURETY:

hereinafter called "SURETY", are held and firmly bound unto the

Name of OWNER: **McCreary County Water District**

Address of OWNER: **456 North Hwy 27, Whitley City, Kentucky 42653**

hereinafter called "OWNER", in the total aggregate penal sum of:

Dollars (\$ _____).

in lawful money of the United States, for the payment of which sum will and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

The Condition of this Obligation is such that whereas, the PRINCIPAL entered into a certain Contract with the OWNER, dated the _____ day of _____ 2020, a copy of which is hereto attached and made a part hereof for the construction of: **“Sanitary Sewer Collection System Expansion – Phase 1 – Contract No. 39”**.

NOW, THEREFORE, if the PRINCIPAL shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term thereof, and any extensions thereof, which may be granted by the OWNER with or without notice to the SURETY and during the one year guaranty period, and if the PRINCIPAL shall satisfy all claims and demands incurred under such Contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said SURETY, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the AGREEMENT or Work to be performed thereunder or the Specifications accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Work or to the Specifications.

PROVIDED, FURTHER, that it is expressly agreed that the BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the AGREEMENT not increasing the Contract price more than 20 percent (20%), so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the AGREEMENT as so amended. The term "Amendment", wherever used in this BOND, and whether referring to this BOND, the AGREEMENT or the Loan Documents shall include any alteration, addition, extension, or modification of any character whatsoever.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of which shall be deemed an original, this the ____ day of _____ 2020.

ATTEST:

PRINCIPAL:

(PRINCIPAL) Secretary

By:

Address:

WITNESS TO PRINCIPAL

Address:

ATTEST:

SURETY

Witness to SURETY

By Attorney in Fact

Address:

Address:

NOTE: Date of BOND must not be prior to date of AGREEMENT. If CONTRACTOR is a Partnership, all partners should execute BOND.

100% Performance Bond and 100% Payment Bond for contracts over \$100,000. Single Payment and Performance Bonds may be used for contracts under \$100,000. Performance Bond must be valid for one year beyond date of acceptance of the completed project.

IMPORTANT: SURETY companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the Project is located.

PART 2 - PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

Name of CONTRACTOR:

Address of CONTRACTOR:

a (corporation, partnership, or individual), hereinafter called "PRINCIPAL", and

Name of SURETY:

Address of SURETY:

hereinafter called "SURETY", are held and firmly bound unto the

Name of OWNER: **McCreary County Water District**

Address of OWNER: **456 North Hwy 27, Whitley City, Kentucky 42653**

hereinafter called "OWNER", in the total aggregate penal sum of:

_____ Dollars (\$ _____).

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

The Condition of this Obligation is such that whereas, the PRINCIPAL entered into a certain Contract with the OWNER, dated the ____ day of _____ 2020, a copy of which is hereto attached and made a part hereof for the construction of: **“Sanitary Sewer Collection System Expansion – Phase 1 – Contract No. 39”**.

NOW, THEREFORE, if the PRINCIPAL shall promptly make payment to all persons, firms, and corporations furnishing materials for or performing labor in the prosecution of the Work provided for in such AGREEMENT, and any authorized extensions or modifications thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such Work, and for all labor cost incurred in such Work including that by a SUBCONTRACTOR, and to any mechanic or materialman lienholder whether it acquires its lien by operation of State or Federal law; then this obligation shall be void, otherwise to remain in full force and effect.

PART 2 - PAYMENT BOND (continued)

PROVIDED, that beneficiaries or claimants hereunder shall be limited to the Subcontractors, and persons, firms, and corporations having a direct Contract with the PRINCIPAL or its Subcontractors, in addition to the OWNER.

PROVIDED, FURTHER, that the said SURETY for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed thereunder or the Specifications accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this Contract or to the Work or to the Specifications.

PROVIDED, FURTHER, that no suit or action shall be commenced hereunder by any claimant: (a) Unless claimant, other than one having a direct Contract with the PRINCIPAL, shall have given written notice to any two of the following: The PRINCIPAL, the OWNER, or the SURETY above named within ninety (90) consecutive calendar days after such claimant did or performed the last of the Work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the Work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the PRINCIPAL, OWNER, or SURETY, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid Project is located, save that such service need not be made by a public officer; (b) After the expiration of eighteen (18) months following the date of which PRINCIPAL ceased Work on said AGREEMENT, it being understood, however, that if any limitation embodied in the BOND is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

PROVIDED, FURTHER, that it is expressly agreed that this BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the AGREEMENT not increasing the Contract price more than 20 percent (20%), so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the AGREEMENT as so amended. The term "Amendment", wherever used in this BOND and whether referring to this BOND, the AGREEMENT or the Loan Documents shall include any alteration, addition, extension or modification of any character whatsoever.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of which shall be deemed an original, this the ____ day of _____ 2020.

ATTEST:

PRINCIPAL:

(PRINCIPAL) Secretary

By:

Address:

WITNESS TO PRINCIPAL

Address:

ATTEST:

SURETY

Witness to SURETY

By Attorney in Fact

Address:

Address:

NOTE:

Date of BOND must not be prior to date of AGREEMENT. If CONTRACTOR is a Partnership, all partners should execute BOND.

100% Performance Bond and 100% Payment Bond for contracts over \$100,000. Single Payment and Performance Bonds may be used for contracts under \$100,000. Performance Bond must be valid for one year beyond date of acceptance of the completed project.

IMPORTANT:

SURETY companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the Project is located.

PART 3 - CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, _____, the duly authorized and acting legal representative of the:

McCreary County Water District _____,
do hereby certify as follows:

I have examined the attached Contract(s) and Performance Bond and Payment Bond and the manner of execution thereof, and I am of the opinion that each of the aforesaid AGREEMENTS has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute the same and that the foregoing AGREEMENTS constitute valid and legally binding obligations on the parties executing the same, in accordance with terms, conditions and provisions thereof.

Signature: _____

Date: _____

END OF SECTION 00600

SECTION 00700 - GENERAL CONDITIONS

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SECTION 00700 - GENERAL CONDITIONS

PART I - GENERAL

1.01 CONTRACT DOCUMENTS

The Advertisement for Bids, Instructions to Bidders, Bidder's Proposal, Bid Bond, Agreement, Performance and Payment Bonds, Certificate of Insurance, Notice of Award, Notice to Proceed, Change Orders, General Conditions, Supplementary General Conditions, Special Conditions, Drawings, Addenda and Specifications shall all be binding on the Contractor, and shall be fully a part of the Contract as if thereto attached or therein repeated in words and figures.

1.02 DEFINITIONS AND MEANINGS OF TERMS

Whenever in the Contract Documents the following terms or pronouns referring to them are used, the intent and meaning shall be interpreted as follows which shall be applicable to both the singular and plural thereof:

- A. The Contract shall mean the Contract executed by the OWNER and the Contractor, of which these General Conditions form a part; the terms Contract and Agreement are synonymous.
- B. The terms OWNER and Contractor shall mean the respective parties to the Contract; the OWNER being a public or quasi-public body or authority, corporation, association, partnership, or individual for whom the work is to be performed; the Contractor being the individual, partnership or corporation with whom the OWNER has executed the Contract.
- C. The term Engineer shall mean Eclipse Engineers, PLLC, successor, or duly authorized representative.
- D. Addenda shall mean written or graphic instruments issued prior to the execution of the Agreement, which modify or interpret the Contract Documents, Drawings and Specifications, by additions, deletions, clarifications or corrections.
- E. Bid shall mean the offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the Work to be performed; the terms Bid and Proposal are synonymous.
- F. BIDDER shall mean any individual, partnership or corporation submitting a Bid for the Work.

- G. Bonds shall mean Bid, Performance, and Payment Bonds and other instruments of security, furnished by the Contractor and his surety in accordance with the Contract Documents.
- H. Change Order shall mean a written order to the Contractor authorizing an addition, deletion or revision in the Work within the general scope of the Contract Documents, or authorizing an adjustment in the Contract price or Contract time.
- I. Contract Documents shall mean the Contract, including Advertisement for Bids, Instructions to Bidders, Bidder's Proposal, Bid Bond, Agreement, Payment Bond, Performance Bond, Certificate of Insurance, Notice of Award, Notice to Proceed, Change Orders, Drawings, General Conditions, Supplementary General Conditions, Special Conditions, Addenda and Specifications.
- J. Contract price shall mean the total monies payable to the Contractor under the terms and conditions of the Contract Documents.
- K. Contract time shall mean the number of consecutive calendar days stated in the Contract Documents for the completion of the Work.
- L. Drawings shall mean the part of the Contract Documents, which show the characteristics, and scope of the Work to be performed and which have been prepared or approved by the Engineer.
- M. Field order shall mean a written order effecting a change in the Work not involving an adjustment in the Contract price or an extension of the Contract time, issued by the Engineer to the Contractor during construction.
- N. Notice of award shall mean the written notice of the acceptance of the Bid from the OWNER to the successful BIDDER.
- O. Notice to proceed shall mean written communication issued by the OWNER to the Contractor authorizing him to proceed with the Work and establishing the date of commencement of the Work.
- P. Project shall mean the undertaking to be performed as provided in the Contract Documents.
- Q. Resident project representative shall mean the authorized representative of the OWNER who is assigned to the project site or any part thereof.
- R. Shop drawings shall mean all drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, a subcontractor, manufacturer, supplier, or distributor, which illustrate how specific portions of the Work shall be fabricated or installed; the terms shop drawings and submittals are synonymous.

- S. Specifications shall mean a part of the Contract Documents consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.
- T. Subcontractor shall mean individual, partnership or corporation having a direct contract with the Contractor or with any other subcontractor for the performance of a part of the Work at the site.
- U. Substantial completion shall mean that date as certified by the Engineer when the construction of the project or a specified part thereof is sufficiently completed, in accordance with the Contract Documents, so that the project or specified part can be utilized for the purposes for which it is intended.
- V. Suppliers shall mean any person, supplier or organization who supplies materials or equipment for the Work, including that fabricated to a special design, but who does not perform labor at the site.
- W. Work shall mean labor necessary to produce the construction required by the Contract Documents, and all materials and equipment incorporated or to be incorporated in the project.
- X. Written notice shall mean any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party of his authorized representative on the Work.

1.03 DRAWINGS AND SPECIFICATIONS

The intent of the Drawings and Specifications is that the Contractor shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the Work in accordance with the Contract Documents and all incidental work necessary to complete the project in an acceptable manner, ready for use, occupancy or operation by the OWNER.

The Engineer, without charge, will furnish to the Contractor not more than three (3) sets of the Drawings and Specifications. If additional sets of documents are required by the Contractor for the proper handling of the work, such documents will be furnished to the Contractor at cost.

The Contractor shall keep one set of the Drawings and Specifications on the site of the work. This set shall be kept current by the addition of all reviewed changes, addenda and amendments thereto.

The Drawings and Specifications are intended to be explanatory to each other, but should any discrepancy appear or any misunderstanding arise as to the importance of anything contained in either, the Engineer shall make the necessary interpretation. Corrections of errors or omissions in the Drawings or Specifications may be made by the Engineer when such corrections are necessary for the proper fulfillment of their intention as construed by the Engineer.

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

Should the Contractor in preparing his Bid find anything necessary for the construction of the project that is not mentioned in the Specifications or shown on the Drawings, or find any other discrepancy in the Contract Documents, he shall notify the Engineer so that such discrepancies may be corrected by Addenda prior to the Bid opening. Should the Contractor fail to notify the Engineer of such discrepancies, it will be assumed that his Bid included everything necessary for the complete construction in the spirit and intent of the designs shown.

The Contractor may be furnished additional instructions and detail drawings, by the Engineer, as necessary to carry out the Work required by the Contract Documents. The additional drawings and instructions thus supplied will become a part of the Contract Documents. The Contractor shall carry out the Work in accordance with the additional detail drawings and instructions.

1.04 SHOP DRAWINGS

The Contractor shall submit shop and working drawings of concrete reinforcement, structural details, piping layout, wiring, materials fabricated especially for the Contract, and materials and equipment for which such drawings are specifically requested.

Such drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing. When it is customary to do so, when the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for the Contract.

When so specified or if considered by the Engineer to be acceptable, manufacturer's specifications, catalog data, descriptive matter, illustrations, etc., may be submitted in place of shop and working drawings. In such case, the requirements shall be as specified for shop and working drawings, insofar as possible, except that the submission shall be in quadruplicate.

The Contractor shall be responsible for the prompt and timely submittal of all shop and working drawings so that there shall be no delay to the Work due to the absence of such drawings. Prior to the submittal of any shop drawings, the Contractor shall submit a schedule of proposed shop drawing transmittals. The schedule shall identify the subject matter of each transmittal, the corresponding specification section number and the proposed date of submission. During the progress of the Work, the schedule shall be revised and resubmitted as necessary.

No material or equipment shall be purchased or fabricated especially for the Contract until the required shop and working drawings have been submitted as herein above provided and reviewed for conformance to the Contract requirements. All such materials and equipment and the work involved in their installation or incorporation into the Work shall then be as shown in and represented by said drawings. Until the necessary review has been made, the Contractor shall not proceed with any portion of the Work (such as the construction of foundations), the design or details of work, materials, equipment or other features for which review is required.

All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning reviewed drawings to them. All shop and working drawings shall be prepared on standard size, 24-inch by 36-inch sheets, except those, which are made by changing existing standard shop or working drawings. All drawings shall be clearly marked with the names of the OWNER, Contractor, and building, equipment, or structure to which the drawing applies, and shall be suitably numbered. Each shipment of drawings shall be accompanied by a letter of transmittal giving a list of the Drawing numbers and the names mentioned above.

Only drawings, which have been checked and corrected by the fabricator, should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting drawings to the Engineer, the Contractor shall check thoroughly all such drawings to satisfy him that the subject matter thereof conforms to the Drawings and Specifications in all respects. All Drawings, which are correct, shall be marked with the date, checker's name, and indication of the Contractor's approval, and then shall be submitted to the Engineer; other drawings shall be returned for correction.

If a shop drawing shows any deviation from the Contract requirements, the Contractor shall make specific mention of the deviations in his letter of transmittal.

The review of shop and working drawings hereunder will be general only, and nothing contained in these general conditions shall relieve, diminish or alter in any respect the responsibilities of the Contractor under the Contract Documents and in particular, the specific responsibility of the Contractor for details of design and dimensions necessary for proper fitting and construction of the work as required by the Contract and for achieving the result and performance specified there under.

Should the Contractor submit equipment that requires modifications to the structures, piping, electrical conduit, wires and appurtenances, layout, etc., detailed on the Drawings, he shall also submit details of the proposed modifications. If such equipment and modifications are accepted, the Contractor, at no additional cost to the OWNER, shall do all work necessary to make such modifications.

The marked-up shop and working drawings or one marked-up copy of catalog cuts will be returned to the Contractor. The Contractor shall furnish additional copies of such drawings or catalog cuts when so requested.

1.05 DISCREPANCIES IN DRAWINGS, SPECIFICATIONS AND SHOP DRAWINGS

In case of a discrepancy on the Drawings, figure dimensions shall govern over scale dimensions and large-scale drawings shall govern over small-scale drawings. In case of a discrepancy in the Specifications and Contract Documents, detailed technical specifications and special or supplementary conditions shall govern over general conditions and other sections of the Contract Documents. In case of a discrepancy between the Drawings and Specifications, the Specifications shall govern; addenda shall govern over all Drawings, Specifications and Contract Documents. Supplementary conditions shall govern over these General Conditions.

In case of discrepancy between the shop drawings and the requirements of the Drawings, Specifications and Contract Documents, the provisions of the Drawings, Specifications, and Contract Documents shall prevail, even though the shop drawings have been specifically waived in writing by the Engineer.

Any discrepancies found between the Drawings and Specifications and site conditions or any inconsistencies or ambiguities in the Drawings or Specifications shall be immediately reported to the Engineer, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. Work done by the Contractor after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the Contractor's risk.

1.06 CONTRACTOR

Only one Contractor is recognized as a party to this Contract and where the term Contractor is used, the prime Contractor who signed this Contract is referred to. For convenience, the Specifications may have been divided into separate headings or divisions to cover the various trades represented in the work, and where "Electrical Contractor", "Mechanical Contractor", "Plumbing Contractor" and other such "Contractors" are referred to, it is for convenience only.

It is understood and agreed that the Contractor has satisfied himself as to the nature and location of the work, the topography of the ground, the character and quality of materials to be encountered, the character of equipment or other facilities needed for

the proper execution of the Work, the general and local conditions, and all other matters which in any way affect the work under the Contract. No verbal statement of any officer, agent or employee of the OWNER or the Engineer, either before or after the execution of the Contract, shall affect or modify any of the terms or obligations contained herein.

1.07 NOTICE AND SERVICE THEREOF ON CONTRACTOR

The address given in the Proposal upon which this Contract is founded and the Contractor's office at or near the site of the work are hereby designated as places to either of which notices, letters and other communications to the Contractor shall be certified, mailed or delivered. The delivering at the above name places, or depositing in a postpaid wrapper directed to the first named place, in any post office box regularly maintained by the United States Postal Service, of any notice, letter or other communication to the Contractor shall be deemed sufficient service thereof upon the Contractor, and the date of said service shall be the date of delivery or mailing. The first named address may be changed at any time by an instruction in writing, executed and acknowledged by the Contractor and delivered to the Engineer and the OWNER. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter, or other communication upon the Contractor personally.

1.08 ASSIGNMENT OF CONTRACT

The Contractor shall not assign, sell, transfer or otherwise dispose of his Contract or any monies due or that may become due there under, without the prior written consent of the OWNER.

1.09 SUBLETTING CONTRACT

The Contractor may utilize the services of specialty subcontractors on those parts of the Work, which, under contracting practices, are performed, by specialty subcontractors. However, the Contractor will not be permitted to sublet any portion of his contract to any individual, co-partnership, or corporation without the prior written consent of the OWNER and the approval of the Engineer. The Contractor shall not sublet more than fifty percent (50%) of the work without the consent of the OWNER and the approval of the Engineer prior to the receipt of Bids. The Contractor shall, if requested, notify the OWNER in writing of the names of subcontractors proposed for the work.

The Contractor shall be as fully responsible to the OWNER for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind subcontractors to the Contractor by the terms of the

General Conditions and other Contract Documents insofar as applicable to the work of subcontractors and to give the Contractor the same power as regards terminating any subcontract that the OWNER may exercise over the Contractor under any provisions of the Contract Documents. Nothing contained in this contract shall create any contractual relation between any subcontractor and the OWNER.

1.10 COMMENCEMENT AND COMPLETION OF WORK

The Contractor shall commence work on a date to be specified in a written order of the OWNER, and shall fully complete all work under the Contract within the number of consecutive calendar days set out in the Bid and Contract. As set forth in the Bid and Contract, the work under the Contract will be subject to liquidated damages in the event the work is not completed within the Contract time.

1.11 PROSECUTION OF WORK

The Contractor shall give his personal superintendence to the work or shall have a competent superintendent, satisfactory to the OWNER and the Engineer on the work at all times during its progress with full authority to act for him. The superintendent shall have been designated in writing by the Contractor as the Contractor's representative at the site. All communications given to the superintendent shall be as binding as if given to the Contractor. The Contractor shall also provide an adequate staff for properly coordinating and expediting his work. The Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of construction.

The Contractor shall be prepared to start the work as stipulated in the Proposal, but not until he has received official notice from the OWNER to do so. Official notice will be in the form of a written Notice to Proceed. The work shall be prosecuted in a manner and with sufficient materials, equipment, and labor as is considered necessary to insure completion within the time set forth in the Contract. The Contractor shall not suspend the work or any portion of it without the written consent of the OWNER and the approval of the Engineer.

1.12 CONTRACT TIME - DELAYS AND EXTENSIONS

The number of consecutive calendar days in which the Contractor shall fully perform the proposed work has been set out in the Proposal and/or Contract. The date of beginning and the time for completion of the Work are essential conditions of the Contract.

In arriving at any credit due the Contractor for an extension of time on the Contract, the OWNER, upon the recommendation of the Engineer, may allow such credit as in his judgment is deemed equitable and just for all delays occasioned by any act, or failure to act, on the part of the Contractor or caused by forces beyond the Contractor's

control. Additional time will also be allowed the Contractor to cover approved over-runs or additions to the Contract in the same proportion that the said over-runs or additions in monetary value bears to the original Contract amount. Delays caused by normal and ordinary weather conditions foreseeable at the time the work is Bid will not be the basis for an extension of the Contract time.

If the Contractor claims that any instructions by Drawings or otherwise involve an extension of time, he shall give the Engineer written notice of said claim within ten (10) consecutive calendar days after the receipt of such instructions, and in any event before proceeding to execute the work, stating clearly and in detail the basis of his claim or claims. No such claim shall be valid unless so made.

The Contractor shall make no claim for extra compensation due to delays of the project beyond his control. Such delays may include those caused by any act of neglect on the part of the OWNER or Engineer, or by any employee of either, or by any separate contractor employed by the OWNER, or by changes ordered in the work, or by labor disputes, fire, unusual delays in transportation, adverse weather conditions not reasonably anticipated, unavoidable casualties, or by delay authorized by the OWNER pending arbitration, or by any other cause which the Engineer determines may justify the delay.

Time extensions may be granted upon proper justification by the Contractor. Any claim for time extensions under these provisions shall be submitted in writing to the Engineer not more than twenty (20) consecutive calendar days following commencement of the delay; otherwise claim will be waived. With submission of claim, Contractor shall provide an estimate of the probable effect of such delay on the progress of the work.

Additional costs incurred in accelerating the work to compensate for such delays (as defined above) shall also not form the basis for extra compensation claims.

1.13 FAILURE TO COMPLETE WORK ON TIME

Should the Contractor fail or refuse to complete the work within the time specified in his Proposal and/or Contract (or extension of time granted by the OWNER), the Contractor shall pay liquidated damages in an amount set out in said Proposal and/or Contract. The amount of liquidated damages shall in no event be considered as a penalty, nor other than an amount agreed upon by the Contractor and the OWNER for damages, losses, additional engineering, additional resident representation and other costs that will be sustained by the OWNER, if the Contractor fails to complete the work within the specified time. Liquidated damages will be applied on a rate per day for each and every calendar day (Sundays and holidays included) beyond the Contract expiration date stipulated in the Contract Documents, considering all time extensions granted.

Should no liquidated damages amount be specified in the Proposal and/or Contract, then the following amounts shall be fixed and agreed upon by and between the contractor and OWNER because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER would in such event sustain.

SCHEDULE OF LIQUIDATED DAMAGES

| <u>Original Amount of Contract</u> | <u>Liquidated Damages Per Day</u> |
|------------------------------------|---|
| Up to \$100,000 | \$150 |
| \$100,000 to \$500,000 | \$200 |
| \$500,000 to \$1,000,000 | \$250 |
| \$1,000,000 to \$2,000,000 | \$300 |
| Over \$2,000,000 | \$300 plus \$150 per each additional million dollars or fractions thereof |

1.14 CHARACTER OF WORKMEN, EQUIPMENT, AND MATERIAL

The Contractor shall employ only workmen skilled in their various duties and shall remove from the project, at the request of the Engineer, any person employed in, about, or upon the work, which misconducts himself or is incompetent or negligent in the performance of the duties assigned to him.

The Contractor shall at all times enforce strict discipline and good order among his employees, and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him. Any careless, untrustworthy, or incompetent workman shall be removed forthwith upon the request of the Engineer or his duly authorized representative. Particular application shall be to workmen who ignore quality specifications on pipe bedding, laying, and backfilling, below grade building, concrete pouring, and other work to be covered up or assuming an unalterable set.

Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of good quality. The Contractor shall furnish satisfactory evidence as to the kind and quality of materials. Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the Work. Stored materials and equipment to be incorporated in the Work shall be located so as to facilitate prompt review. Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

Materials, supplies or equipment to be incorporated into the Work shall not be purchased by the Contractor or any subcontractor subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

Review of manufacturer's shop drawings of materials and equipment shall not mean final acceptance, but shall be subject to review and test on delivery and installation. The Contractor shall repair, replace, or adjust any materials or equipment found defective or not operating properly due to improper materials, workmanship, and adjustment on his part, for a period of one year after completion and acceptance of his work.

1.15 ENGINEER'S STATUS

In rendering general engineering service, resident engineering and review of construction, the Engineer is not in charge of, and shall not be responsible for, the methods of construction, the construction forces or the construction equipment, construction safety procedures, or Contractor payment for labor and materials on the project.

The Engineer may review the work as the authorized representative of the OWNER and will have authority to stop the work whenever, in his opinion, such action is necessary to insure the proper execution of the Contract. He will also have authority to reject work and materials, which do not conform to the Drawings, Specifications and Contract Documents, and to direct the place or places where work shall be prosecuted. The Engineer is the agent of the OWNER only to the extent provided in the Specifications and Contract Documents, except in special instances when this authority is extended; in such latter instances he will, upon request, show the Contractor written proof of his authority.

The Engineer will also interpret the meaning and requirements of the Drawings, Specification and Contract Documents, decide all engineering questions, and decide all disputes that may arise between the OWNER and the Contractor. The Engineer's decisions on these matters will be final and binding on both the Contractor and the OWNER unless the dispute is submitted to arbitration or either party resorts to legal action for settlement.

The Engineer is the interpreter of the conditions of the Contract and the judge of its performance. In this duty, he will not favor either the OWNER or the Contractor but will use his authority under the Contract to insure and enforce its faithful performance by both parties.

In case of the termination of the employment of the Engineer, the OWNER will appoint a capable and reputable Engineer, whose status under the Contract will be the same as that of the former Engineer; any dispute in connection with such appointment shall be subject to arbitration.

1.16 ENGINEER'S DECISION

The Engineer shall, within a reasonable time after their presentation to him, make decisions on all claims of the OWNER or Contractor and on all matters relating to the execution and progress of the work or the interpretations of the Drawings, Specifications and Contract Documents.

Unless otherwise expressly provided in the Specifications and Contract Documents, all the Engineer's decisions are subject to arbitration, provided arbitration is agreed to by both the OWNER and the Contractor.

If, however, the Engineer fails to render a decision within ten (10) consecutive calendar days after the parties have presented their evidence, either party may then request arbitration. If the Engineer renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but shall not disturb or interrupt such proceedings except when acceptable to the parties concerned.

1.17 REVIEW OF WORK

The City's Superintendent of Public Works shall serve as the City's on-site representatives for the purposes of coordination with the Contractor, resolving technical issues, and inspecting the materials and work. All materials and each part or detail of the work shall be subject to inspection by the Superintendent. The Superintendent shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is needed to adequately evaluate the work. Should the need arise, the City's Street Superintendent may consult with the City Administrator on particular issues.

1.18 REVIEW OF WORK AWAY FROM THE SITE

If work to be done away from the construction site is to be inspected on behalf of the OWNER during its fabrication, manufacture, or testing, or before shipment, the Contractor shall give notice to the Engineer of the place and time where such fabrication, manufacture, testing, or shipping is to be done. Such notice shall be in writing and delivered to the Engineer in ample time so that the necessary arrangements for the review can be made.

1.19 STANDARD SPECIFICATIONS

Where standard specifications, such as those of the American Society for Testing and

Materials, the American National Standards Institute, the American Water Works Association, the American Association of State Highway and Transportation Officials, The Federal Aviation Agency, the Federal Specifications, etc., are referred to in the Specifications and Contract Documents and on the Drawings, said references shall be construed to mean the latest amended and/or revised versions of the said standard or tentative specification.

1.20 SPECIFIC BRANDS, MAKES OR MANUFACTURERS

Wherever in the Specifications one or more specific brands, makes or manufacturers are set out and qualified by the "or equal" clause, it is intended to denote the quality standard of the article desired, but unless otherwise noted does not restrict the Contractor to the specific brand, make or manufacturer. In cases where one or more specific brands, makes or manufacturers are named and these names are not qualified by the "or equal" clause, it is intended that the Contractor be restricted to one of those named unless otherwise set out.

The Contractor may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the Specifications by reference to brand name or catalogue number, and if, in the opinion of the Engineer, such material, article, or piece of equipment is of equal substance and function to that specified, the Engineer may accept its substitution and use by the Contractor. Any cost differential shall be deductible from the Contract price and the Contract Documents shall be appropriately modified by Change Order. The Contractor warrants that if substitutes are accepted, no major changes in the function or general design of the Project will result. Incidental changes or extra component parts required to accommodate the substitute shall be made by the Contractor without a change in the Contract price or Contract time.

1.21 "OR EQUAL" CLAUSE

Whenever the words "or approved equal", or "or equal", or "similar to", etc., appear in the Specifications, they shall be interpreted to mean an item of material or equipment that, in the opinion of the Engineer is similar to that named, suited to the same use, capable of performing the same function as that named, has a record of service equal to that named, and is equal in quality, capacity and/or efficiency to that named.

The Engineer's decision as to the equality of any material or equipment to that specified shall be final, but acceptance by the Engineer shall not relieve the Contractor from his responsibility concerning such materials or equipment or affect the guarantee covering the workmanship, materials and equipment.

1.22 PERMITS AND CODES

Unless otherwise set out in the Specifications or required by the agencies involved, the

Contractor shall make application for, obtain and pay for all licenses and permits of a temporary nature necessary for the prosecution of the Work and shall pay for all fees and charges in connection therewith. Permits, licenses and easements for permanent structures or permanent changes in existing facilities will be secured and paid for by the OWNER, unless otherwise specified. The Contractor shall be required to comply with all state or municipal ordinances, laws, and/or codes insofar as the same are binding on the OWNER.

The intent of this Contract is that the Contractor shall base his Bid upon the Drawings and Specifications, but that all work installed shall comply with all applicable codes and regulations as amended by any waivers. Before installing the work, the Contractor shall examine the Drawings and the Specifications for compliance with applicable codes and regulations bearing on the Work, and shall immediately report any discrepancy to the Engineer. Where the requirements of the Drawings and Specifications fail to comply with the applicable code or regulation, the OWNER will adjust the Contract by change order to conform to the code or regulation (unless waivers in writing covering the differences have been granted by the governing authority) and shall make appropriate adjustment in the Contract price. Should the Contractor fail to observe the foregoing provisions and install work at variance with any applicable code or regulation as may be amended by waivers (notwithstanding the fact that such installation is in compliance with the Drawings and Specifications), the Contractor shall remove and/or replace such work without cost to the OWNER, except that a change order will be issued to cover any additional cost the Contractor would have been entitled to receive if the change had been made before the Contractor commenced work on the items involved.

1.23 WAGES AND HOURS

Neither State nor Federal wage rates apply to this Project. The Contractor shall abide by the Kentucky Department of Labor as described in Section 01030.

1.24 NON-REBATE OF WAGES

The Contractor shall comply with the regulations, rulings and interpretations of the Secretary of Labor of the United States, pursuant to the Federal Anti-Kickback Act of June 13, 1934, as amended, 48 Stat. 948; 62 Stat. 74; 63 Stat. 108 (Title 18, U.S.C. Sec. 874 and Title 40 U.S.C. Sec. 276c) including all subsequent amendments which makes it unlawful to induce any person employed in the construction or repair of public buildings or public works to give up any part of the compensation to which he is entitled under his Contract of Employment; and the Contractor agrees to insert a like provision in all subcontracts hereunder. The Contractor may be required to execute an affidavit covering each weekly payroll and certifying compliance with said Anti-Kickback Act.

1.25 CONTRACT SECURITY OR PERFORMANCE AND PAYMENT BOND

The Contractor will be required to furnish the OWNER with a Performance Bond and a Payment Bond to run for one year after the date of final acceptance of the Work by the OWNER and the Engineer. The Bonds shall be executed by a surety company duly authorized to do business in the state in which the work is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular 570. Each Bond shall be in the amount not less than one hundred percent (100%) of the Contract price, as security for the faithful performance of this Contract and as security for the payment of all persons performing labor and furnishing materials in connection with this Contract. These Bonds must be executed in the form provided as a part of the Contract Documents, and the surety company shall hold a current certificate of authority, as issued by the Treasury Department, as an acceptable surety on Federal Bonds under an act of Congress approved July 30, 1947. The expense of these Bonds shall be borne by the Contractor.

If at any time a surety on any such Bond is declared bankrupt or loses its right to do business in the state in which the Work is to be performed or is removed from the list of Surety Companies acceptable on Federal Bonds, the Contractor shall within ten (10) consecutive calendar days after notice from the OWNER to do so, substitute an acceptable Bond (or Bonds) in such form and sum and signed by such other surety or sureties as may be satisfactory to the OWNER. The Contractor shall pay the premiums on such Bond. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable bond to the OWNER.

1.26 SAFETY

The Contractor shall take all necessary precautions and provide all necessary safeguards to prevent personal injury and property damage. The Contractor shall provide protection for all persons including but not limited to his employees and employees of other contractors or subcontractors; members of the public; and employees, agents, and representatives of the OWNER, the Engineer, and regulatory agencies that may be on or about the Work. The Contractor shall provide protection for all public and private property including but not limited to structures, pipes, and utilities, above and below ground.

The Contractor shall provide and maintain all necessary safety equipment such as fences, barriers, signs, lights, walkways, guards and fire prevention and fire-fighting equipment and shall take such other action as is required to fulfill his obligations under this subsection.

The Contractor shall comply with all federal, state and local laws, ordinances, rules and regulations and lawful orders of all authorities having jurisdiction for the safety of persons and protection of property.

The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This responsible person shall have the authority to take immediate action to correct unsafe or hazardous conditions and to enforce safety precautions and programs.

1.27 **INSURANCE, CONTRACTOR'S COVERAGE AND CANCELLATION PROVISION**

The Contractor will not be permitted to commence work until he has obtained all insurance required by these documents and such insurance has been approved by the OWNER, nor shall the Contractor allow any subcontractor to commence work on his subcontract until all insurance required has been so obtained and approved. Certificates of Insurance acceptable to the OWNER shall be filed with the OWNER prior to commencement of the Work.

Such insurance shall be secured from an insurance company authorized to write casualty insurance in the state where the Work is located and shall protect the Contractor, his subcontractors, and the OWNER from claims of bodily injury, death, property damage, fire and other risks set out herein.

Each policy of insurance covering the Contractor's operations under the Contract shall provide either in the body of the policy, or by appropriate endorsement (rider) to the policy, that such policy cannot be altered or canceled in less than ten (10) consecutive calendar days after the mailing of written notice of such alteration or cancellation to the OWNER (insured) or not less than five (5) consecutive calendar days after actual receipt by the OWNER (insured), of written notice of such pending alteration or cancellation.

Certificates of Insurance coverage shall include a statement of alteration or cancellation provisions of the policy, sufficient to show definitely that such provisions comply with the requirements stated herein.

1.28 **INSURANCE, WORKER'S COMPENSATION**

The Contractor shall take out and maintain during the life of this Contract, Workmen's Compensation Insurance, as required by statute, for all of his employees employed at the site of the Project, and in case any work is sublet, for all the subcontractor's employees not otherwise insured. In case any class of employees engaged in hazardous work under this Contract at the site of the project is not protected under the Workmen's Compensation Statute, the Contractor shall provide adequate coverage for the protection of the employees not otherwise protected.

1.29 **INSURANCE, PUBLIC LIABILITY**

The Contractor shall take out and maintain during the life of this Contract such Public Liability (Bodily Injury and Property Damage) Insurance as shall protect him and any subcontractor performing work covered by this Contract from claims for damages because of bodily injury, including accidental death and from claims for property damages, which may arise from operations under this Contract, whether such operations be by him or by any subcontractor, or by anyone directly or indirectly employed by either of them.

Where work on railroad rights-of-way is involved, the Contractor shall also be covered by Railroad Protective Liability Insurance with limits of liability as required by the railroad company on whose property the work is being performed.

1.30 INSURANCE, BUILDERS RISK

The Contractor shall provide Builders Risk Insurance (fire and extended coverage) on all work in place and/or materials stored at the site where there is any considerable risk from such causes for damage. Such insurance shall provide coverage as set forth in Paragraph 1.31 hereinafter. The policy shall name as the insured the Contractor, the Engineer and the OWNER.

1.31 MINIMUM INSURANCE LIMITS

The minimum amounts of insurance to be furnished by and for the Contractor and the subcontractors, and for the OWNER as a named insured, under this Contract are:

A. Workmen's Compensation:

1. Applicable state statutes.
2. Employers Liability = \$100,000 limit of liability.

B. Commercial General Liability:

1. Coverage A - Bodily Injury Liability and Property Damage:
 - a. General Policy Aggregate = \$1,000,000.
 - b. Products - Completed Operations Aggregate = \$1,000,000.
 - c. Each Occurrence = \$500,000.
2. Coverage B - Personal and Advertising Injury Liability = \$1,000,000.

C. Comprehensive Automobile Liability:

1. Bodily Injury Liability:
 - a. \$500,000 each person.
 - b. \$1,000,000 each accident.
 2. Property Damage Liability: \$100,000 each accident or a combined single limit of \$500,000.
- D. Builders Risk Insurance: To include coverage for not less than the losses due to Fire, Explosion, Hail, Lightning, Vandalism, Malicious Mischief, Wind, Collapse, Riot, Aircraft, Smoke, Transportation and Extended Coverage for benefit of the OWNER, Engineer, Contractor, and subcontractors as their interests may appear during the Contract time and until the Work is accepted by the OWNER.

Property insurance to the full insurable value of the Work in accordance with the scope of Work as defined in these General Conditions as provided by the OWNER.

- E. Railroad Protection Insurance - (where work to be within railroad right-of-way):
1. Loss of Life or Injury to Person: As required by Railroad.
 2. Property Damage: As required by Railroad.

1.32 INSURANCE, PROOF OF CARRIAGE

The Contractor shall furnish the OWNER and the Engineer with satisfactory proof of carriage of the insurance required by submitting completed Insurance Certificates.

1.33 ROYALTIES AND PATENT FEES

The Contractor shall pay license fees and royalties and assume all costs incident to the use of any invention, design, process or device which is the subject of patent rights or copyrights held by others. As set forth in Paragraph 1.34, hereinafter, he shall indemnify and hold harmless the OWNER and all of its officers, agents and employees from and against all claims, damages, losses and expenses (including attorneys' fees) arising out of any infringement of such rights during or after completion of the work, and shall defend all such claims in connection with any alleged infringement of such rights.

1.34 RESPONSIBILITY FOR DAMAGE, CLAIMS, ETC.

The Contractor shall indemnify and save harmless the OWNER, the Engineer and sub consultants and all of their officers, agents and employees, from all claims, damages, losses and expenses including attorneys' fees of any character, name and description brought for, or on account of any injuries or damages received or sustained by any person, persons, or property by or from the said Contractor or by or in consequence of

any neglect in safeguarding the Work or through the use of unacceptable materials used on construction or by or on account of any act or omission, neglect, or misconduct of the said Contractor or by or on account of any claims or amounts recovered from any infringement of patent, trademark or copyright, or from any claims or amounts arising or recovered under any law, ordinance, order, or decree, and so much of the money due the said Contractor under and by virtue of his Contract as shall be considered necessary by the OWNER may be retained for the use of the OWNER, or in case no money is due, his surety shall be held until such suit or suits, action or actions, claim or claims for injuries or damages as aforesaid, shall have been settled and suitable evidence to that effect furnished to the OWNER. Contractor shall purchase public liability, workers compensation and automobile liability insurance, for OWNER'S protection in the amounts set forth in Paragraph 1.31.

In any and all claims against the OWNER or the Engineer, or any of their agents or employees, by any employee of the Contractor, and subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any subcontractor under Workmen's Compensation acts, disability benefit acts or other employee benefit acts.

The obligation of the Contractor under this paragraph shall not extend to the liability of the Engineer, his agents or employees arising out of the preparation or approval of maps, Drawings, opinions, reports, surveys, Change Orders, designs or Specifications.

1.35 HANDLING AND DISTRIBUTION

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

Storage and demurrage charges by transportation companies and vendors shall be borne by the Contractor.

1.36 MATERIALS - SAMPLES - REVIEW

Unless otherwise expressly provided on the Drawings or in any of the other Contract Documents, only new materials and equipment shall be incorporated in the Work. All materials and equipment furnished by the Contractor to be incorporated in the Work shall be subject to the review of the Engineer. No material shall be processed or fabricated for the Work or delivered to the Work site without prior concurrence of the Engineer.

As soon as possible after execution of the Agreement, the Contractor shall submit to the Engineer the names and addresses of the manufacturers and suppliers of all materials and equipment he proposes to incorporate into the Work. When shop and working drawings are required as specified below, the Contractor shall submit prior to the submission of such drawings, data in sufficient detail to enable the Engineer to determine whether the manufacturer and/or the supplier have the ability to furnish a product meeting the Specifications. The Contractor shall also submit data relating to the materials and equipment he proposes to incorporate into the Work in sufficient detail to enable the Engineer to identify and evaluate the particular product and to determine whether it conforms to the Contract requirements. Such data shall be submitted in a manner similar to that specified for submission of shop and working drawings.

The Contractor shall furnish facilities and labor for the storage, handling, and inspection of all materials and equipment. Defective materials and equipment shall be removed immediately from the site of the Work. If the Engineer so requires, either prior to or after commencement of the Work, the Contractor shall submit samples of materials for such special tests, as the Engineer deems necessary to demonstrate that they conform to the Specifications. Such samples, including concrete test cylinders, shall be furnished, taken, stored, packed, and shipped by the Contractor as directed. The Contractor shall furnish suitable molds for making concrete test cylinders.

All samples shall be packed so as to reach their destination in good condition, and shall be labeled to indicate the material represented, the name of the building or work and location for which the material is intended, and the name of the Contractor submitting the sample. To ensure consideration of samples, the Contractor shall notify the Engineer by letter that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples.

The Contractor shall submit data and samples, or place his orders, sufficiently early to permit consideration, review and testing before the materials and equipment are needed for incorporation in the Work. The consequences of his failure to do so shall be the Contractor's sole responsibility.

In order to demonstrate the proficiency of workmen, or to facilitate the choice among several textures, types, finishes, surfaces, etc., the Contractor shall provide such samples of workmanship of wall, floor, finish, etc., as may be required.

When required, the Contractor shall furnish to the Engineer triplicate sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials, equipment performance ratings, and concrete data.

After review of the samples, data, etc., the materials and equipment used on the Work shall in all respects conform therewith.

1.37 PAYMENT FOR MATERIALS STORED AT SITE OF PROJECT

Payment for materials or equipment purchased and stored at the site of the Project will be allowed by the OWNER at the cost of such materials or equipment, less the same percentage of retamage applicable to payment for completed work, upon specific recommendation of the Engineer. Such payment shall be conditional upon submission by the Contractor of bills of sale of such other procedure as will establish the OWNER'S title to such material or otherwise adequately protect the OWNER'S interest.

Only durable materials and equipment, which in the opinion of the Engineer have been properly stored and protected shall be included in materials, furnished in partial payment estimates. Clay pipe, brick and tile will be excluded. In the interest of simplification of checking and bookkeeping, miscellaneous supplies will also be excluded.

1.38 MATERIALS

- A. Materials, Domestic and Foreign Manufacture: Unless otherwise specified, only such non-manufactured articles, materials and supplies as have been mined or produced in the United States of America, and only such manufactured articles, materials and supplies as have been manufactured in the United States of America substantially all from articles, materials, or supplies mined, produced, or manufactured--as the case may be--in the United States of America, shall be employed under this Contract in the construction of the Project.
- B. Materials, Convict Manufacture: No materials manufactured or produced in a penal or correctional institution shall be incorporated in the Work under this Contract.

1.39 DEFECTIVE MATERIALS AND WORKMANSHIP

Materials brought to the site which are not in accordance with the Specifications shall be removed from the site of the Work by the Contractor at his own expense. Such material shall be so disposed of that there will be no probability of their being used on the work or in the construction.

Upon notice from the Engineer, the Contractor, at his own expense, shall immediately remedy all defective workmanship.

If the Contractor fails to remove defective materials or to correct defective workmanship within a reasonable time, fixed in the notice from the Engineer, the OWNER may remove the defective materials and/or correct the defective work and charge all the expense in connection therewith to the Contractor.

1.40 GUARANTY

The Contractor shall guarantee all materials and equipment furnished and Work performed for a period of one (1) year from the date of Substantial Completion. The Contractor warrants and guarantees for a period of one (1) year from the date of Substantial Completion of the system that the completed system is free from all defects due to faulty materials or workmanship and the Contractor shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that the Contractor should fail to make such repairs, adjustments, or other Work that may be made necessary by such defects, the OWNER may do so and charge the Contractor the cost thereby incurred. The Performance Bond shall remain in full force and effect through the guarantee period.

1.41 FIELD OFFICE

(NOT USED IN THIS CONTRACT)

1.42 SANITARY FACILITIES

The Contractor shall provide adequate sanitary facilities for the use of those employed on the Work. Such facilities shall be made available when the first employees arrive on the site of the Work, shall be properly secluded from public observation, and shall be constructed and maintained during the progress of the Work in suitable numbers and at such points and in such manner as may be required.

The Contractor shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. He shall rigorously prohibit the committing of nuisances on the site of the Work, on the lands of the OWNER, or on adjacent property.

1.43 EMPLOYMENT QUALIFICATIONS

No person under the age of eighteen (18) years and no convict labor shall be employed to perform any work under this Contract. No person whose age or physical condition is such as to make his employment dangerous to his health or safety or to the health or safety of others shall be employed to perform any work under this Contract, provided that this shall not operate against the employment of physically handicapped persons, otherwise employable, where such persons may be safely assigned to work which they can ably perform. There shall be no discrimination because of race, creed, color, sex or political affiliation in the employment of persons for work under this Contract.

1.44 EMPLOYMENT SERVICES AND LABOR PREFERENCES

(NOT USED IN THIS CONTRACT)

1.45 PAYMENT OF EMPLOYEES

The Contractor and each of his subcontractors shall pay each of his employees engaged in work on the Project in full (less deductions made mandatory by law) in cash or by check once each week.

1.46 SCHEDULES, REPORTS AND RECORDS

The Contractor shall submit to the OWNER such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the OWNER may request concerning Work performed or to be performed.

When required, the Contractor shall furnish the OWNER with proof that all payrolls for services rendered and invoices for materials or equipment supplied have been duly paid. The Contractor shall provide all such other data as the Engineer and/or OWNER may require.

In connection with all lump sum contracts or lump sum portions of unit price contracts, the Contractor shall furnish the Engineer a detailed breakdown on which to base partial payment estimates. The detailed breakdown shall be subject to review by the Engineer.

The Contractor shall furnish and keep current a progress chart or schedule showing the estimated and actual progress of the Work. The progress chart or schedule shall be subject to review by the Engineer.

The Contractor shall furnish all the necessary information for and assist in the preparation of, and/or prepare the partial payment estimates on forms furnished by the Engineer.

1.47 PLANNING AND PROGRESS SCHEDULES

Before starting the Work and from time to time (at least once per month) during its progress, as the Engineer may request, the Contractor shall submit to the Engineer a written description of the methods he plans to use in doing the Work and the various steps he intends to take. Within fifteen (15) consecutive calendar days after the date of formal execution of the Agreement, the Contractor shall prepare and submit to the Engineer: (a) a written schedule fixing the dates on which additional drawings, if any, will be needed by the Contractor; and (b) a written schedule fixing the respective dates for the start and completion of various parts of the Work. Each such schedule shall be subject to review from time to time during the progress of the Work.

The Contractor shall also submit a schedule of payments that he anticipates he will

earn during the course of the Work.

The OWNER, or his authorized representatives and agents, shall be permitted to inspect all payroll, records of personnel, invoices for materials or equipment and other relevant data and records.

For lump sum bid projects, the Progress Schedule shall contain at least 10 line items showing labor and material for each item and shall be made current and submitted as a part of the partial payment estimate. For unit price bid projects, the Bid Schedule shall contain all the unit price line items, however should the OWNER require additional break-down of bid items, then the Contractor shall provide whatever the OWNER requests without change in the Contract price.

1.48 PAYMENTS BY CONTRACTOR

The Contractor shall pay: (a) for all transportation and utility services not later than the 20th day of the calendar month following the month in which such services are rendered; (b) for all materials, tools and other expendable equipment to the extent of ninety percent (90%) of the cost thereof, not later than the 20th day of the calendar month following the month in which such materials, tools and equipment are delivered at the site of the Project, and the balance of the cost thereof not later than the 30th day following completion of that part of the work in or on which such materials, tools and equipment are incorporated or used; and (c) to each of his subcontractors, not later than the 5th day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the work performed by his subcontractors, to the extent of each subcontractor's interest therein.

1.49 FUNDS FOR PARTIAL PAYMENT ESTIMATES

The OWNER has provided funds for partial payment estimates so that they may be paid as set out herein. The Contractor must understand, however, that in handling the financing of such work, delays beyond the control of the OWNER are liable to occur in meeting the partial payments, and a reasonable delay on the part of the OWNER in making payment to the Contractor for any period shall not be construed as a breach of contract on the part of the OWNER.

1.50 PARTIAL PAYMENT ESTIMATES

NOTE: Provisions for timely periodic payments and for limiting retainage (40 CFR 31.36)

On or about the 15th of each calendar month, the OWNER will make partial payment to the Contractor on the basis of a duly certified approved estimate of the Work performed during the preceding calendar month by the Contractor, but the OWNER will retain not more than ten percent (10%) of the amount of each estimate until final

completion and acceptance of all Work covered by this Contract, subject to possible modification as set out hereinafter. After fifty percent (50%) of the Work has been completed, if the Engineer and the OWNER determines that the Contractor's performance and progress have been satisfactory, the OWNER may make the remaining partial (monthly) payments for the Work completed in full, thereby decreasing the retainage to five percent (5%) of the total Contract price upon completion but prior to acceptance.

The partial payment estimate shall be completed and signed by the Contractor and shall be supported by such data as the Engineer may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNER, as will establish the OWNER'S title to the material and equipment and protect his interest therein, including applicable insurance. The Engineer will, within ten (10) consecutive calendar days after receipt of each partial payment estimate, either indicate in writing his approval of payment or present the partial payment estimate to the Contractor indicating in writing his reasons for refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and resubmit the partial payment estimate. The OWNER will, within ten (10) consecutive calendar days of presentation to him of an approved partial payment estimate, pay the Contractor a progress payment on the basis on the approved partial payment estimate.

The request for payment may also include an allowance for the cost of such major materials and equipment, which are suitably stored either at or near the site. All Work covered by partial payment made shall thereupon become the sole property of the OWNER, but this provision shall not be construed as relieving the Contractor of the sole responsibility for the care and protection of the Work upon which payments have been made or the restoration of any damaged Work, or as a waiver of the right of the OWNER to require the fulfillment of all terms of the Contract Documents.

Upon completion and acceptance of the Work, the Engineer shall issue a certificate attached to the final payment request that the Work has been accepted by him under the conditions of the Contract Documents. The entire balance found to be due the Contractor, including the retained percentages, but except such sums as may be lawfully retained by the OWNER, shall be paid to the Contractor within thirty (30) consecutive calendar days of completion and acceptance of the Work.

The Contractor will indemnify and save the OWNER and the OWNER'S agents harmless from all claims growing out of the lawful demands of subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the Work. The Contractor shall, at the OWNER'S request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the Contractor fails to do so the OWNER may, after

having notified the Contractor, either pay unpaid bills or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed, in accordance with the terms of the Contract Documents, but in no event shall the provisions of this sentence be construed to impose any obligations upon the OWNER to either the Contractor, his Surety, or any third party. In paying any unpaid bills of the Contractor, any payment so made by the OWNER shall be considered as a payment made under the Contract Documents by the OWNER to the Contractor and the OWNER shall not be liable to the Contractor for any such payments made in good faith.

If the OWNER fails to make payment thirty (30) consecutive calendar days after approval by the Engineer, in addition to other remedies available to the Contractor, there shall be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the Contractor.

1.51 OWNER'S RIGHT TO WITHHOLD PAYMENTS

In order to protect the OWNER from loss, payment may be withheld which would otherwise be due the Contractor on account of:

- A. Defective work not remedied or defective materials not removed from site.
- B. Claims filed, or reasonable evidence indicating imminent filing of claims, against the Contractor.
- C. Failure of the Contractor to make payments properly to subcontractors or for material or labor.
- D. A reasonable doubt that the Contract can be completed for the balance then unpaid.
- E. Damage to another Contractor.
- F. Performance of work in violation of the terms of the Contract.
- G. Expiration of Contract time.

Should the OWNER withhold payment for any of the reasons listed in Article 1.51, the OWNER will provide written notice to the Contractor giving reason for withholding payment.

1.52 DEDUCTIONS FOR UNCORRECTED WORK

If the Engineer and OWNER deem it inexpedient to correct work damaged or not done

in accordance with the Contract, a deduction from the Contract price may be negotiated.

1.53 PROTECTION OF WORK, PROPERTY AND PERSONS

The Contractor will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. He shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to all employees on the Work and other persons who may be affected thereby, all the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways structures and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He shall erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for safety and protection. He shall notify owners of adjacent utilities when prosecution of the Work may affect them. The Contractor shall remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor, any subcontractor of anyone directly and indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the Contract Documents or to the acts or omissions of the OWNER or the Engineer or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the Contractor.

In emergencies affecting the safety of persons or the Work or property at the site or adjacent thereto, the Contractor with special instruction or authorization from the Engineer or OWNER, shall act to prevent threatened damage, injury or loss. He shall give the Engineer prompt Written Notice of any significant changes in the Work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved.

1.54 WORK ON "PRIVATE PROPERTY"

Private property is defined as property other than that belonging to the OWNER.

Highway and railroad rights-of-way, public parks, schoolyards and other such properties shall be considered "private properties" for the purpose of this Paragraph.

In connection with water line, sewer line, gas line or similar work performed on "private property", the Contractor shall confine his equipment, the storage of materials and the operations of his workmen to the limits indicated on the Drawings, or to lands

and rights-of-way provided for the Project by the OWNER, and shall take every precaution to avoid damage to the buildings, grounds and facilities of the owners' of private property.

Fences, walls, hedges, shrubs, etc., shall be carefully removed, preserved, and replaced when the construction is completed. Grassed areas, other than lawns, shall be graded, fertilized and seeded when construction is completed and in accordance with the requirements of the technical Specifications. Where ditches or excavations cross lawns, the sod shall be removed carefully and replaced when the backfilling has been completed. If sod is damaged or not handled properly, it shall be replaced with new sod equal to existing sod at the Contractor's expense. When construction is completed, the facilities and grounds of the private property owners shall be restored to as good or better condition than found as quickly as possible at the Contractor's expense.

When directed by the Engineer, large trees or other facilities that cannot be preserved and replaced shall be removed by the Contractor. The OWNER will assume the responsibility for settling with the property owner for the loss of said trees or facilities. The Contractor shall be solely and entirely responsible for any damage to all other trees or facilities.

Foundations, adjacent to where an excavation is to be made below the bottom of the foundation, shall be supported by shoring, bracing or underpinning as long as the excavation shall remain open, or thereafter if required to insure the stability of the foundation and the Contractor shall be held strictly responsible for any damage to said foundations.

1.55 LANDS FOR WORK

The OWNER will provide the lands upon which the work under this Contract is to be done or the necessary easements over said lands to include sufficient space for the proper execution of the work, together with right of access to same. The OWNER will provide the Contractor information, which delineates and describes the lands owned and rights-of-way acquired. The Contractor shall, at his own expense and without liability to the OWNER, provide land required for storage of his construction materials and for any temporary construction facilities for the storage of his equipment. The Contractor will construct at his own expense, any temporary roads or bridges necessary for his own use; he will also furnish his own power and water supply unless otherwise specifically set out herein.

1.56 INTERFERENCE WITH AND PROTECTION OF STREETS

The Contractor shall not close or obstruct any portion of a street, road, or private way without obtaining permits therefore from the proper authorities. If any street, road or private way shall be rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the

proper authorities.

Streets, roads, private ways, and walks not closed shall be maintained passable and safe by the Contractor, who shall assume and have full responsibility for the adequacy and safety of provisions made therefore.

The Contractor shall, at least twenty-four (24) hours in advance, notify the Police and Fire Departments in writing, with a copy to the Engineer, if the closure of a street or road is necessary. He shall cooperate with the Police Department in the establishment of alternate routes and shall provide adequate detour signs, plainly marked and well lighted, in order to minimize confusion.

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

1.57 EXISTING UTILITIES

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

The location of existing underground utilities is *sometimes* shown on the Drawings. When utilities are shown, it is believed that the locations are reasonably correct but neither the Engineer nor the OWNER can guarantee the accuracy or adequacy of the information presented. Before proceeding with the Work, the Contractor shall confer with all public or private companies, agencies or departments that own and operate utilities in the vicinity of the Construction Work. The purpose of the conference, or conferences, shall be to notify said companies, agencies or departments of the proposed construction schedule, verify the location of, and possible interference with, the existing utilities that are shown on the Drawings, arrange for necessary suspension of service, and make arrangements to locate and avoid interference with all utilities (including house connections) that are not shown on the Drawings. The Engineer and OWNER have no objection to the Contractor arranging for the said utility companies, agencies, or departments to locate and uncover their own utilities; however, the Contractor shall bear the entire responsibility and cost for locating and avoiding, or repairing, damage to said existing utilities.

The Contractor shall locate all unknown metallic hazards, namely buried pipe, metals, etc., by using a pipe locator. The pipe locator shall immediately precede the trench ditching and all hazards located shall be marked in such a manner as to notify the machine operator of such hazard.

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

1.58 ARBITRATION

- A. Request for Arbitration: Any decision of the Engineer, which is subject to arbitration, may be submitted to arbitration only upon agreement of both parties to the dispute.

The Contractor shall not cause a delay of the Work because of pending arbitration proceedings, except with the written permission of the Engineer, and then only until the arbitrators shall have had an opportunity to determine whether or not the Work shall continue until they decide the matters in dispute.

The request for arbitration shall be delivered in writing to the Engineer and the adverse party, either personally or by registered mail to the last known address of each, within ten (10) consecutive calendar days of the receipt of the Engineer's decision, and in no case after final payment has been accepted except as otherwise expressly stipulated in the Contract Documents. If the Engineer fails to make a decision within a reasonable time, a request for arbitration may be made as if his decision has been rendered against a requesting party.

- B. Arbitrator: No one shall be nominated or act as an arbitrator who is in any way financially interested in this Contract or in the business affairs of the OWNER, or the Contractor, or the Engineer or otherwise connected with any of them. Each arbitrator shall be a person in general familiar with the work or the problem involved in the dispute submitted to arbitration, preferably a recognized Engineer, experienced in the type of construction in question.

Unless otherwise provided by controlling statutes, the parties may agree upon one arbitrator; otherwise there shall be three, one named in writing by each party to this Contract, and a third chosen by these two arbitrators, or, if they should fail to select a third within fifteen (15) consecutive calendar days, then he shall be appointed by the presiding officer, if a disinterested party, of the Bar Association nearest to the location of the Work. Should the party requesting arbitration fail to name an arbitrator within ten (10) consecutive calendar days and upon his failure to do so then such arbitrator shall be appointed, on the petition of the party requesting arbitration, by a judge of the Federal Court in the District where such arbitration is to be held.

The said presiding officer shall have the power to declare the position of any arbitrator

vacant by reason of refusal or inability to act, sickness, death, resignation, absence or neglect. Any vacancy shall be filled by the party making the original appointment, and unless so filled within five (5) consecutive calendar days after the same has been declared vacant, it shall be filled by the said presiding officer. If testimony has been taken before the presiding officer has filled a vacancy, the matter must be reheard unless a rehearing is waived in the submission or by the written consent of the parties. If there be one arbitrator, his decision shall be binding; if three, the decision of any two shall be binding in respect to both the matters submitted and the procedure followed during the arbitration.

- C. Arbitration Procedure: The arbitrators shall deliver a written notice to each of the parties and to the Engineer, either personally or by registered mail to the last known address of each, of the time and place for the beginning of the hearing of the matters submitted to them. Each party may submit to the arbitrators such evidence and argument as he may desire and the arbitrators may consider pertinent. The arbitrators shall, however, be the judge of all matters of law and fact relating to both the subject matter of and the procedure during arbitration and shall not be bound by technical rules of law or procedure. They may hear evidence in whatever form they desire. The parties may be represented before them by such person or persons as each may select, subject to the disciplinary power of the arbitrators if such representative shall not interfere with the orderly or speedy conduct of the proceedings.

Each party and the Engineer shall supply the arbitrators with such papers and information as they may request, or with any witness whose movements are subject to the respective control, and upon refusal to comply with such requests, the arbitrators may render their decision without the evidence which might have been elicited there from and the absence of such evidence shall afford no ground for challenge of the award by the party refusing or neglecting to comply with such demand.

The submission to arbitrators (the statement of the matters in dispute between the parties to be passed upon by the arbitrators) shall be in writing duly acknowledged before a notary. Unless waived in writing by both parties to the arbitration, the arbitrators, before hearing testimony, shall be sworn by an officer authorized by law to administer an oath, to faithfully and fairly hear and examine the matters in controversy and to make a just award according to the best of their understanding.

The arbitrators, if they deem the case demands it, are authorized to award to the party whose contention is sustained such sums as they shall consider proper for the time, expense and trouble incident to the arbitration, and if the arbitration was requested without reasonable cause, damages for delay and other losses. The arbitrators shall fix their own compensation, unless otherwise provided by agreement, and shall assess the costs and charges of the arbitration upon either or both parties.

The award of the arbitrators shall be in writing and acknowledged like a deed to be recorded, and a duplicate shall be delivered personally or by registered mail, forthwith

upon its rendition, to each of the parties to the controversy and to the Engineer. Judgment may be rendered upon the award by the Federal Court or the highest State Court having jurisdiction to render same.

The award of the arbitrators shall not be open to objection on account of the form of proceedings or the award, unless otherwise provided by controlling statutes. In the event such statutes provide otherwise on any matter covered by this Article than hereinbefore specified, the method procedure throughout and the legal effect of the award shall be wholly in accord with said statutes, it being the intention hereby to lay down a principle of action to be followed, leaving its local application to be adapted to the legal requirements of the jurisdiction having authority over the arbitration. The Engineer shall not be deemed a party to the dispute. He is given the right to appear before the arbitrators to explain the basis of his decision and give such evidence as they may require.

1.59 ALTERATION IN DRAWINGS AND SPECIFICATIONS

The OWNER reserves the right to make such alteration in the Drawings and Specifications or in the character of the Work as may be considered by the Engineer necessary or desirable from time to time to complete the Project in an acceptable manner; provided that, if alterations are made, the general character of the Work as a whole is not changed thereby.

Such alterations shall not be considered as a waiver of any condition of the Contract nor to invalidate any of the provisions nor to release the bond thereof.

1.60 CHANGES IN THE WORK

The OWNER may make changes in the work of the Contractor by making alterations therein, or by making additions thereto, or by omitting work there from, without invalidating the Contract, and without relieving or releasing the Contractor from any guarantee given by him pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such changes shall be in the form of a Change Order issued by the Engineer, and executed by the OWNER and Contractor, under the conditions of the original Contract. For any Change Orders exceeding \$100,000 will require cost, pricing, and certification as required by DOW Procurement Guidance for Construction and Equipment Contracts.

Except in an emergency endangering life or property, no change shall be made by the Contractor unless in pursuance of a written Change Order. No claim for an adjustment of the Contract price or time shall be valid unless so ordered.

The Engineer, also, may at any time, by issuing a field order, make changes in the details of the Work. The Contractor shall proceed with the performance of any

changes in the Work so ordered by the Engineer unless the Contractor believes that such field order entitles him to a change in Contract price or time, or both, in which event he shall give the Engineer written notice thereof within fifteen (15) consecutive calendar days after the receipt of the ordered change, and the Contractor shall not execute such changes pending the receipt of an executed Change Order or further instruction from the OWNER.

Should the Contractor encounter or discover during the progress of the Work subsurface or latent conditions at the site materially differing from those shown on the Drawings or indicated in the Specifications, the attention of the Engineer shall immediately be called to such conditions before they are disturbed. If the Engineer finds that they so materially differ, he will at once make such changes in the Drawings or Specifications as he may find necessary. Any adjustment in the Contract price or time as may be justifiable shall be made by means of a written change order as provided herein.

1.61 CLAIMS FOR EXTRA WORK

If the Contractor claims that any instructions by Drawings or otherwise involve extra cost, he shall give the Engineer written notice of said claim within ten (10) consecutive calendar days after the receipt of such instructions, and in any event before proceeding to execute the Work, stating clearly and in detail the basis of his claim or claims. No such claim shall be valid unless so made.

Claims for additional compensation for extra work, due to alleged errors in spot elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work than would reasonably be estimated from the Drawings and topographical maps issued.

Any discrepancies which may be discovered between actual conditions and those represented by the topographical maps and Drawings shall at once be reported to the Engineer, and Work shall not proceed, except at the Contractor's risk, until written instructions have been received by him from the Engineer.

If, on the basis of the available evidence, the Engineer determines that an adjustment of the Contract price or time is justifiable, the procedure shall then be as provided herein for "Changes in the Work".

By execution of this Contract, the Contractor warrants that he has visited the site of the proposed work and fully acquainted himself with the conditions there existing relating to construction and labor, and that he fully understands the facilities, difficulties, and restrictions attending the execution of the work under this Contract. The Contractor further warrants that he has thoroughly examined and is familiar with the Drawings,

Specifications and all other documents comprising the Contract. The Contractor further warrants that by execution of this Contract his failure when he was bidding on this Contract to receive or examine any form, instrument or document, or to visit the site and acquaint himself with conditions there existing, in no way relieves him from any obligation under the Contract, and the Contractor agrees that the OWNER shall be justified in rejecting any claim based on facts regarding which he should have been on notice as a result thereof.

1.62 DETERMINATION OF THE VALUE OF EXTRA (ADDITIONAL) OR OMITTED WORK

The value of extra (additional) or omitted work shall be determined in one or more of the following ways:

- A. On the basis of the actual cost of all the items of labor (including on-the-job supervision), materials, and use of equipment, plus fifteen percent (15%) which shall cover the Contractor's general supervision, overhead and profit. In case of subcontracts, the fifteen percent (15%) is interpreted to mean the subcontractor's supervision, overhead and profit, and an additional five percent (5%) may then be added to such costs to cover the Contractor's supervision, overhead and profit. The cost of labor shall include required insurance, taxes and fringe benefits. Equipment costs shall be based on current rental rates in the areas where the work is being performed but, in no case shall such costs be greater than the current rates published by the Associated Equipment Distributors, Chicago, IL.
- B. By estimate and acceptance in a lump sum.
- C. By unit prices named in the Contract or subsequently agreed upon. Provided, however, that the cost or estimated cost of all extra (additional) work shall be determined in advance of authorization by the Engineer and approved by the OWNER.

All extra (additional) work shall be executed under the conditions of the original Contract. Any claim for extension of time shall be adjusted according to the proportionate increase or decrease in the final total cost of the work unless negotiated on another basis.

Except for over-runs in Contract unit price items, no extra (additional) work shall be done except upon a written change order from the Engineer, and no claim on the part of the Contractor for pay for extra (additional) work shall be recognized unless so ordered in writing by the Engineer.

1.63 SEPARATE CONTRACTS

The OWNER reserves the right to let other contracts in connection with this Work. The Contractor shall afford other contractors reasonable opportunity for ingress,

gress, storage of their materials, the execution of their work, and shall properly connect and coordinate his work with theirs. The respective rights of various interests involved shall be established by the Engineer to secure proper completion of the various portions of the Work.

If the proper execution or results of any part of the Contractor's Work depends upon the work of any other Contractor, the Contractor shall inspect and promptly report to the Engineer any defects in such work that render it unsuitable for such proper execution and results.

1.64 OWNER'S RIGHT TO DO WORK

If the Contractor should neglect or fail to prosecute the Work properly or fail or refuse to perform any provision of the Contract, the OWNER, after ten (10) consecutive calendar days written notice to the Contractor, may without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from any monies due or which may thereafter become due to the Contractor.

1.65 SUSPENSION OF WORK

The OWNER shall have authority to suspend the Work in whole or in part by giving five (5) consecutive calendar days notice to the Contractor in writing. The written notice shall fix the date on which the Work shall be resumed, and the Contractor shall resume the Work on the date so fixed. The OWNER shall reimburse the Contractor for expenses incurred by him in connection with the Work under this Contract as a result of suspension if the suspension of the Work is caused through no fault of the Contractor himself.

1.66 RIGHT OF OWNER TO TERMINATE CONTRACT

If the Contractor fails to begin the Work under the Contract within the specified time, or fails to perform the Work with sufficient workmen and equipment or with sufficient materials to insure the prompt completion of said Work within the specified time, or shall, in the opinion of the Engineer, perform the Work improperly, or shall neglect or refuse to remove materials or perform anew such Work as shall be rejected as defective or unsuitable or shall be stopped by court order resulting from injunctive action, or shall become insolvent or be declared bankrupt or commit any act of bankruptcy or insolvency, or allow any final judgment to stand against him unsatisfied for a period of five (5) consecutive calendar days, or shall fail or refuse to remove within forty-eight (48) hours after receipt of proper notice, any employee or person engaged in work under the Contract, or shall make an assignment for the benefit of creditors or from any other cause whatsoever shall not carry out the Work in an acceptable manner, the OWNER shall give notice in writing to the Contractor and his surety, of such delay, neglect, or default, specifying the same, and if the Contractor within a period of ten (10) consecutive calendar days after such notice shall not

proceed in accordance therewith, then the OWNER shall, upon written certificate from the Engineer of the fact of such delay, neglect or default, and the Contractor's failure to comply with such notice, have full power and authority without violating the Contract to terminate the Contractor's right to proceed with the Work, to take over the prosecution of the work of said Contractor, to appropriate or use any and all materials and equipment on the ground as may be suitable and acceptable, and may enter into an agreement for the completion of said Contract according to the terms and provisions thereof, and use such other methods as in the OWNER'S opinion shall be required for the completion of said Contract in an acceptable manner. All costs and charges incurred by the OWNER, together with the costs of completing the work under Contract, shall be deducted from any monies due or which may become due said Contractor. In case the expense so incurred by the OWNER shall be less than the sum which would have been payable under the Contract, if it had been completed by said Contractor, then the Contractor shall be entitled to receive the difference, and in case such expense shall exceed the sum which would have been payable under the Contract, then the Contractor and/or his surety shall be liable and shall pay to the OWNER the amount of said excess.

After ten (10) consecutive calendar days from delivery of a Written Notice to the Contractor and the Engineer, the OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the Project and terminate the Contract. In such case, the Contractor shall be paid for all Work executed and any expense sustained plus reasonable profit.

1.67 CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

If the Work shall be stopped under an order of any court, or other public authority, for a period of three (3) months, through no fault of the Contractor or of anyone employed by him, or if the Engineer should fail to issue any estimate of payment within thirty (30) consecutive calendar days after it is due, or if the OWNER shall fail to pay the Contractor within thirty (30) consecutive calendar days of its maturity and presentation of any sum certified by the Engineer or award by arbitrators, then the Contractor may, upon fifteen (15) consecutive calendar days written notice to the OWNER and the Engineer, terminate this Contract and recover from the OWNER payment for all work executed, plus loss sustained upon any plant or materials, plus reasonable profit and damages.

In addition and in lieu of terminating the Contract, if the Engineer has failed to make any payment as aforesaid, the Contractor may upon ten (10) consecutive calendar days notice to the OWNER and the Engineer stop the Work until he has been paid all amounts then due, in which event and upon resumption of the Work, Change Orders shall be issued for adjusting the Contract price or extending the Contract time or both to compensate for the costs and delays attributable to the stoppage of the Work.

1.68 USING COMPLETED PORTION OF WORK

The OWNER shall have the right to take possession of and use any completed portion or portions of the Work even though the time of completing the entire work or such portions may not have expired. The possession and use by the OWNER shall not be deemed an acceptance of any work not completed in accordance with the Contract. If such prior use increases the cost of or delays the Work, the Contractor shall be entitled to such extra compensation, or extension of time, or both as the Engineer may determine. The use by the OWNER of any portion of the Work shall release the Contractor from his Builders Risk Insurance covering such portion used.

1.69 ACCEPTANCE AND FINAL PAYMENT

Upon written notice from the Contractor that the work is ready for final inspection, the Engineer will make such a review and subsequent reviews as required. When, in the Engineer's opinion, the Work is acceptable under the Contract, he will promptly issue a Certificate of Acceptance.

Upon acceptance of the Work by the OWNER, the balance due the Contractor including the percentage retained during the construction period, will then be paid in approximately sixty (60) consecutive calendar days, and said final payment shall evidence the OWNER'S acceptance of the Work unless the OWNER has made acceptance or partial acceptance thereof in writing prior to said final payment.

Before the OWNER makes final payment, the Contractor shall submit to the OWNER a final release, as described hereinafter, stating that all payrolls, material bills, subcontractors, and other indebtedness connected with the Work have been paid and providing for handling claims that may be outstanding or that may arise after the settlement.

Any payment, however, final or otherwise, shall not release the Contractor or his sureties from any obligations under the Contract Documents or the Performance Bond and Payment Bond.

1.70 CONTRACTOR'S FINAL RELEASE

Before the OWNER pays the Contractor his final payment on the Work, the Contractor will be required to sign a final release as set out hereinbefore. This final release shall be notarized and shall state that all claims against the OWNER on the Contractor's part have been met in full; it shall further state that all accounts for labor performed, materials furnished, liens, judgments and claims of every nature against the Contractor have been satisfied by him. It shall further state that any obligation or lawsuit whatsoever arising from the Contractor's operations on the Project, which may be presented or filed after the settlement, shall be borne by the Contractor. In case the Contractor is unable to settle any claim that may be in dispute or litigation, the OWNER may allow him to furnish a proper bond to indemnify the OWNER against

the claim and then release the final payment to him.

It is understood that the Contractor is to guarantee to the OWNER all construction against defective materials, equipment and workmanship for a period of twelve (12) months after acceptance, and shall take immediate steps to correct or replace such defective materials, equipment or workmanship without cost to the OWNER.

1.71 FINAL CLEAN UP

The Work will not be considered as completed, and final payment will not be made, until all final clean up has been done by the Contractor in a manner satisfactory to the Engineer.

END OF SECTION 00700

SUPPLEMENTAL GENERAL CONDITIONS

FOR

CLEAN WATER STATE REVOLVING FUND

DRINKING WATER STATE REVOLVING FUND

(Drinking Water and Wastewater)

**Project Name: Sanitary Sewer Collection System Expansion
Phase 1 – Contract No. 39**

Project Number: SX21147019

The attached instructions and regulations as listed below shall be incorporated into the Specifications and comprise Special Conditions.

| | <u>Attachment No.</u> |
|---|-----------------------|
| 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.

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).

**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, or 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. | |

**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.

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.

**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.

**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.

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

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.

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 be 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 be 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.

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 Contractor 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 (XXXXXXXXXXXX)

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

Division 1 – General Requirements

SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The primary scope of work includes the installation of approximately 50,250 LF of 1.5-inch HDPE force main, 47,610 LF of 2-inch PVC force main, 18,901 LF of 3-inch PVC force main, 14,099 LF of 4-inch PVC force main, 12,000 LF of 4-inch PVC gravity sewer (laterals), 1,108 LF of 6-inch HDPE casing pipe (directional bore), 68 LF of 8-inch HDPE casing pipe (directional bore), 53 air release valve assemblies, 414 grinder check valve assemblies, 414 grinder pump stations (single stage), and related appurtenances.
- B. The Contractor shall include 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 required for the continuous operation until a temporary or new 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 his part or the part of his subcontractors during performance of the Work that is illegal.
- D. The following major Work items are included in the Contract:
 - 1. Force main installation.
 - 2. Casing pipe installation.
 - 3. Grinder Pump Station Installation.

1.02 PERMITS

Obtain any permits related or required by the Work in this Contract.

1.03 CODES

Comply with applicable codes and regulations of authorities having jurisdiction. Submit copies of inspection reports, notices, citations and similar communication to the Owner.

1.04 EXISTING CONDITIONS AND DIMENSIONS

- A. The Work in this Contract will primarily be performed in or around existing facilities of which must remain functional. This Contractor must maintain the required items and/or systems functional without additional effort by the Owner's personnel and at no extra costs to the Owner.
- B. The Contractor is responsible for verifying all existing conditions, elevations, dimensions, etc., and providing his finished work to facilitate existing conditions.

END OF SECTION 01010

SECTION 01015 - WORK SEQUENCE

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall conform to all miscellaneous requirements as contained in the Contract.

1.02 RELATED REQUIREMENTS

- A. Section 00700 - General Conditions.
- B. Section 01010 - Summary of Work.
- C. Section 01040 - Coordination.

PART 2 - PRODUCTS

2.01 MATERIALS

The Contractor shall comply with the Specifications for type of work to be done.

PART 3 - EXECUTION

3.01 SEQUENCE OF CONSTRUCTION OPERATIONS

- A. The Contractor shall submit to the Engineer for review and acceptance a complete schedule (progress chart) of his proposed sequence of construction operations prior to commencement of work. However, the Engineer shall not accept a construction schedule that fails to utilize the entire time allocated for the construction of the Project. The Contractor shall schedule the various construction activities to complete the Project throughout the entire allotted time period. This schedule requirement in no way prevents the Contractor from completing the Project in a shorter time frame than scheduled. The construction schedule along with a cost breakdown schedule shall be submitted and approved by the Owner prior to the submittal of the first partial payment request in accordance with the General Conditions. A revised construction schedule shall be submitted to the Owner with each pay request. This revised schedule must be approved by the Owner prior to payment.
- B. **All existing utilities must remain in service until the lines are placed into service. Coordination with the Owner and Engineer will be required. No wastewater bypassing will occur during construction unless a schedule has been approved by the State and/or by EPA/NEPA permit if required.** The Contractor shall develop a

sequence of construction that avoids and/or minimizes disruption to the existing system. The Contractor shall provide proper notification and coordination to the Engineer and Owner should a temporary disruption be anticipated or required. The Contractor shall submit a written request to the Engineer and Owner ten (10) days prior to any specific construction activity that disrupts existing operations. The Owner must pre-approve any construction activity that will cause a temporary shutdown of any existing utilities.

END OF SECTION 01015

SECTION 01025 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

The CONTRACTOR shall furnish all necessary labor, machinery, tools, apparatus, equipment, materials, services and other necessary supplies and perform all Work shown on the Drawings and/or described in the Specifications and Contract Documents at the unit or lump sum price.

1.02 COMPUTATION OF QUANTITIES

For estimating quantities, the appropriate "industry standard" method (where applicable) will be utilized. The ENGINEER can require the CONTRACTOR to provide a detailed itemization of the materials and labor required.

1.03 PROGRESS AND PAYMENT SCHEDULES (Also see Section 00700)

- A. Within fifteen (15) days after the date of formal execution of the Agreement, the CONTRACTOR shall prepare and submit to the ENGINEER, for approval, a *Construction Schedule* which depicts the CONTRACTOR'S plan for completing the Contract requirements and show work placement in dollars versus Contract time. The CONTRACTOR'S *Construction Schedule* must be approved by the ENGINEER before any payments will be made on this Contract. Smaller projects may not require a *Construction Schedule*. It is the Contractor's responsibility to contact the ENGINEER to inquire as to whether a schedule is required. In the absence of such communication, the CONTRACTOR shall prepare a *Construction Schedule*.
- B. Within fifteen (15) days after the date of formal execution of the Agreement, the CONTRACTOR shall prepare and submit to the ENGINEER, for approval, an *Application and Certificate for Payment*. The *Application and Certificate for Payment* shall depict the CONTRACTOR'S cost for completing the Contract requirements and show, by major unit of the project Work, the CONTRACTOR'S dollar value for the Work to be used as a basis for the periodic payments. The CONTRACTOR'S *Application and Certificate for Payment* must be approved by the ENGINEER before any payments will be made on this Contract.
- C. The ENGINEER'S decision as to sufficiency and completeness of the CONTRACTOR'S *Construction Schedule* and *Application and Certificate for Payment* will be final.
- D. The CONTRACTOR must make current, to the satisfaction of the ENGINEER, the *Construction Schedule* and *Application and Certificate for Payment* each time he requests a payment on this Contract.

- E. The CONTRACTOR'S *Construction Schedule* and *Application and Certificate for Payment* must be maintained at the construction site available for inspection and shall be revised to incorporate approved change orders as they occur.
- F. When the CONTRACTOR requests a payment on this Contract, it must be on the approved *Application and Certificate for Payment* form and be current. Further, the current *Application and Certificate for Payment* and *Construction Schedule* (both updated and revised) shall be submitted for review and approved by the ENGINEER before monthly payments will be made by the OWNER. The CONTRACTOR shall submit six (6) current copies of each (*Application and Certificate for Payment* and *Construction Schedule*) when requesting payment.

1.04 CONDITIONS FOR PAYMENT (See also Article 1.50/Section 00700)

- A. The OWNER will make payments for acceptable Work in place and materials properly stored on-site. The value of payment shall be as established on the approved *Application and Certificate for Payment* and *Construction Schedule*, EXCEPT the OWNER will retain ten percent (10%) of the Work in place and a percentage as hereinafter listed for items properly stored or untested.
- B. No payment will be made for stored materials unless a proper invoice from the supplier is attached to the pay request. Furthermore, no item whose value is less than \$1,000.00 will be considered as stored materials for pay purposes.
- C. Payment for equipment items shall be limited to ninety percent (90%) of their scheduled value (materials portion only) until they are set in place. Ninety percent (90%) payment for stored materials and equipment shall be contingent on proper on-site storage as recommended by the manufacturer or required by the ENGINEER.
- D. Payment for equipment items set in-place shall be limited to ninety percent (90%) of their scheduled value until they are ready for operation and have been certified by the manufacturer. Ninety percent (90%) payment for installed equipment shall be contingent on proper routine maintenance of the equipment in accordance with the manufacturer's recommendations.
- E. Payment for the labor portion of equipment items will be subject only to the degree of completeness and the appropriate retainage.
- F. Retainage is held at ten (10) percent of the Work throughout construction, the OWNER will not reduce the percent of retainage at any completion stage during construction.

1.05 CLAIMS FOR EXTRA WORK (See also Article 1.61/Section 00700)

- A. If the CONTRACTOR claims that any instructions by Drawings or otherwise involve

extra cost, he shall give the ENGINEER written notice of said claim within ten (10) days after the receipt of such instructions, and in any event before proceeding to execute the Work, stating clearly and in detail the basis of his claim or claims. No such claim shall be valid unless so made.

- B. Claims for additional compensation for extra Work, due to alleged errors in spot elevations, contour lines or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material or performing more Work than would be reasonably estimated from the Drawings and topographical maps issued.
- C. Any discrepancies which may be discovered between actual conditions and those represented by the topographical maps and Drawings shall at once be reported to the ENGINEER, and Work shall not proceed, except at the CONTRACTOR'S risk, until written instructions have been received by him from the ENGINEER.
- D. If, on the basis of the available evidence, the ENGINEER determines that an adjustment of the Contract Price or time is justifiable, the procedure shall then be as provided herein for "Changes in Work."
- E. By execution of this Contract, the CONTRACTOR warrants that he has visited the site of the proposed Work and fully acquainted himself with the conditions there existing relating to construction and labor, and that he fully understands the facilities, difficulties and restrictions attending the execution of the Work under this Contract. The CONTRACTOR further warrants that he has thoroughly examined and is familiar with the Drawings, Specifications and all other documents comprising the Contract. The CONTRACTOR further warrants that, by execution of this Contract, his failure when he was bidding on this Contract to receive or examine any form, instrument or document or to visit the site and acquaint himself with conditions there existing, in no way relieves him from any obligation under the Contract.

1.06 DETERMINATION OF THE VALUE OF EXTRA (ADDITIONAL) OR OMITTED WORK (See also, Article 1.62/Section 00700)

- A. The value of extra (additional) or omitted Work shall be determined in one or more of the following ways:
 - 1. On the basis of the actual cost of all the items of labor (including on-the-job supervision), materials and use of equipment plus a maximum of fifteen percent (15%) which shall cover the CONTRACTOR'S general supervision, overhead and profit. In case of subcontracts, the fifteen percent (15%) is interpreted to mean the subcontractor's supervision, overhead and profit, and an additional five percent (5%) may then be added to such costs to cover the General CONTRACTOR'S supervision, overhead and profit. The cost of labor shall include required

insurance, taxes and fringe benefits. Equipment costs shall be based on current rental rates in the areas where the Work is being performed, but in no case shall such costs be greater than the current rates published by the Associated Equipment Distributors, Chicago, Illinois.

2. By estimate and acceptance in a lump sum.
 3. By unit prices named in the Contract or subsequently agreed upon.
- B. All extra (additional) Work shall be executed under the conditions of the original Contract. Any claim for extension of time shall be adjusted according to the proportionate increase or decrease in the final total cost of the Work unless negotiated on another basis.
- C. Except for over-runs in Contract unit price items, no extra (additional) Work shall be done except upon a written Change Order from the OWNER, and no claim on the part of the CONTRACTOR for pay for extra (additional) Work shall be recognized unless so ordered in writing by the OWNER. Unit price item overruns shall be limited to 130% of the quantity listed on the Bid form without prior approval from the ENGINEER.

PART 2 - PRODUCTS

2.01 GRAVITY SEWER LINES, LATERALS, AND FORCE MAINS

- A. Payment for gravity sewer lines will be made at the CONTRACT unit price per linear foot in place, which shall include compensation for furnishing pipe, trenching (including saw cutting and rock excavation), Class I bedding material, laying, jointing, temporary trench shoring, sheeting and bracing, initial backfill of Class I material over top of pipe, and all other appurtenances required but not specifically delineated herein.
- B. The quantity of sewer to be paid for shall be the length of pipe measured along the centerline of the completed pipeline without deducting the length of branches and fittings. The inside diameter of each manhole shall **not** be included in the measurement of the pipe.
- C. Payment for final backfill shall be included in this pay item except for bituminous material and concrete required in restoration of paved areas and defined in Sections 02510 and 02520. Bituminous binder and concrete shall be included in the pay item "Bituminous Pavement Replacement" and "Concrete Pavement Replacement", if applicable. Class II material (DGA) required in the restoration of gravel roadways and drives, if applicable, shall be included in this pay item and is not a separate pay item.
- D. Rock excavation is included in this pay item and will not be paid for separately.
- E. Payment for this item shall include the testing of the completed gravity and pressure sewer lines and any water, gas or other utility relocation if necessary.

- F. Payment for this item shall include any and all traffic regulation that may be necessary to complete the work.
- G. Payment for seeding and final clean-up including furnishing and placing topsoil, finish grading, seeding mulching and erosion control, removal of construction materials and debris, cleaning, and site restoration is included in this pay item.

2.02 STANDARD MANHOLES (NOT USED)

Manholes, if applicable, as described in Section 02735 will be paid for at the CONTRACT unit price each and shall include the furnishing and installation of the precast concrete base, barrels, eccentric cone top section, stops, flexible pipe to manhole gasket, and cast iron frame and cover. Also included is excavation (including rock excavation), earth backfill, and all other materials not specifically delineated herein, but necessary to complete the construction of the manhole as shown on the DRAWINGS. Crushed stone backfill placed around the manhole in Class II trench situations is included in this pay item. Bituminous binder in restoration of paved areas shall be included in the pay item "Bituminous Pavement Replacement", if applicable. Class II material (DGA) in restoration of gravel drives and roadways shall be included in this pay item and is not a separate pay item.

2.03 DROP MANHOLE CONNECTION (NOT USED)

Payment for drop manhole connection, if applicable, will be paid for at the CONTRACT unit price each, which shall include drop connection, gaskets, seals, and all appurtenances necessary for a complete installation.

2.04 SANITARY SEWER CLEANOUT ASSEMBLY / CONNECT LATERAL

Payment for cleanout assembly will be made at the CONTRACT unit price each and shall be installed per the DRAWINGS including all appurtenances necessary to complete the WORK.

2.05 FLUSHING CONNECTION

Payment for flushing assembly will be made at the CONTRACT unit price each and shall be installed per the DRAWINGS including all appurtenances necessary to complete the WORK.

2.06 GRINDER CHECK VALVE ASSEMBLY

Payment for grinder check valve assembly will be made at the CONTRACT unit price each and shall be installed per the DRAWINGS including all appurtenances necessary to complete the WORK.

2.07 COMBINATION AIR RELEASE VALVE ASSEMBLY

Payment for combination air release valve assembly will be made at the CONTRACT unit price each and shall be installed per the DRAWINGS including all appurtenances necessary to complete the WORK.

2.08 SIMPLEX GRINDER PUMP STATION

Payment for simplex grinder pump station will be made at the CONTRACT unit price each and shall be installed per the DRAWINGS including all appurtenances necessary to complete the WORK.

2.09 ELECTRICAL MODIFICATIONS / BREAKER

Payment for electrical modifications / breaker shall be made to each home receiving a grinder pump station by a certified electrician subcontractor with the general contractor. Payment will be made at the CONTRACT unit price each and shall be installed per the DRAWINGS including all appurtenances necessary to complete the WORK.

2.10 CONNECT WITH/TO MANHOLE / FORCE MAIN / WATERLINE

Payment for connection to existing manhole/force main/waterline will be made at the CONTRACT unit price each and shall include connecting new sewer/manhole/waterline to the existing pipe per the DRAWINGS and all other appurtenances necessary to complete the WORK. **When connecting a new manhole to an existing gravity sewer it is the Contractor's responsibility to properly plan his/her approach and include these costs in the BID. Temporary bypass pumping shall be included in this item if needed. Coordination will be required with the Owner and Engineer. "Doghouse" manhole connections will NOT be permitted.**

2.11 ENCASEMENT PIPE

Payment for pipelines crossing roadways on the DRAWINGS, if applicable, shall include the respective encasement pipe bored under roadway and will be paid for at the CONTRACT unit price per linear foot of encasement pipe for the size and type, if applicable. This work shall include the encasement pipe, complete in place with fittings, blocking, spacers, and all items necessary for its construction and installation. Carrier pipe is paid separately under item 2.01.

2.12 BITUMINOUS PAVEMENT REPLACEMENT

Payment for bituminous pavement replacement, if applicable, will be paid for at the CONTRACT unit price per square yard, which shall include the proper placement of the appropriate stone per the details and specifications, compaction and all appurtenances

necessary for a complete installation.

2.13 CONCRETE PAVEMENT REPLACEMENT

Payment for concrete pavement replacement will be paid for at the CONTRACT unit price per square yard, which shall include rebar (if applicable), placement of concrete, compaction and all appurtenances necessary for a complete installation.

2.14 GRAVEL DRIVE REPLACEMENT

Payment for gravel drive replacement such as drives and parking lots in this CONTRACT shall be included in the price per LF of pipe and will not be paid for as a separate item.

2.15 GENERAL CONDITIONS

Payment for General Conditions will be made at the CONTRACT lump sum price and shall include mobilization, insurance, performance and payment bonds, project supervision, project management, demobilization, and any other items required under bidding requirements, Contract forms and conditions of the Contract.

PART 3 - EXECUTION

3.01 PAY ITEMS

- A. The pay items listed hereinbefore refer to the items listed in the Bid Schedule and cover all of the pay items for this Contract.
- B. Any and all other items of Work listed in the Specifications or shown on the Drawings for this Contract shall be considered incidental to and included in those pay items.

3.02 QUANTITIES OF ESTIMATE

Wherever the estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of the documents, including the Bid Proposal, they are given for use in comparing bids and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the Work contemplated by this Contract, and such increase or diminution shall not give cause for claims or liability for damages. The Engineer will not be financially responsible for any omissions from the Contract Documents and therefore not included by the Contractor in his proposal.

END OF SECTION 01025

SECTION 01030 - LABOR PROVISIONS

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall conform to all provisions of the U.S. Department of Labor, Latest Revisions, relative to wages and hours as they may apply to the work to be accomplished.

The Contractor shall comply with all Division of Water (DOW) Procurement Guidance including the Davis-Bacon Act.

1.02 WAGE RATES

A copy of the appropriate Wage Determinations are included in these Contract Documents.

END OF SECTION 01030

"General Decision Number: KY20200058 11/06/2020

Superseded General Decision Number: KY20190058

State: Kentucky

Construction Type: Heavy

Counties: Adair, Barren, Casey, Clinton, Cumberland, Green, Hart, Knox, Laurel, Logan, Marion, McCreary, Metcalfe, Pulaski, Russell, Simpson, Taylor, Wayne and Whitley Counties in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.80 for calendar year 2020 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, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.80 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 calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the

contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

| Modification Number | Publication Date |
|---------------------|------------------|
| 0 | 01/03/2020 |
| 1 | 01/31/2020 |
| 2 | 08/28/2020 |
| 3 | 09/25/2020 |
| 4 | 10/23/2020 |
| 5 | 11/06/2020 |

* CARP0064-007 04/01/2020

| | Rates | Fringes |
|---------------------------------|----------|---------|
| CARPENTER (Form Work Only)..... | \$ 29.81 | 19.96 |

ELEC0369-004 09/02/2019

| | Rates | Fringes |
|-------------------------|----------|----------|
| LINE CONSTRUCTION | | |
| Equipment Operator..... | \$ 34.99 | 20%+6.15 |
| Groundman..... | \$ 22.99 | 20%+6.15 |
| Lineman..... | \$ 39.20 | 20%+6.15 |

ENGI0181-010 07/01/2020

| | Rates | Fringes |
|--------------------------|----------|---------|
| POWER EQUIPMENT OPERATOR | | |
| GROUP 1..... | \$ 33.95 | 17.25 |
| GROUP 2..... | \$ 31.09 | 17.25 |
| GROUP 4..... | \$ 30.77 | 17.25 |

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Crane; Drill; Grader/Blade; Mechanic; Scraper

GROUP 2 - Bobcat/Skid Steer/Skid Loader; Forklift

GROUP 4 - Oiler

Operators on cranes with booms 150 feet and over (including jib) shall receive \$1.00 above Group 1 rate; 250 feet and

over including jib shall receive \$1.50 above Class 1 rate.

Combination Rate: All crane operators operating cranes, where the length of the boom in combination with the length of the piling leads equal or exceeds 150 feet, shall receive \$1.00 above the Group 1 rate.

Employees assigned to work below ground level are to be paid 10% above basic wage rate. This does not apply to open cut work.

IRON0782-010 05/01/2018

| | Rates | Fringes |
|---------------------------------------|----------|---------|
| IRONWORKER (Reinforcing & Structural) | | |
| Projects over | | |
| \$20,000,000.00..... | \$ 28.79 | 24.17 |
| Projects under | | |
| \$20,000,000.00..... | \$ 27.20 | 22.75 |

LABO0189-014 07/01/2020

| | Rates | Fringes |
|--------------------|-------|---------|
| LABORER | | |
| Concrete Saw (Hand | | |

| | | |
|--------------------------|-------|-------|
| Held/Walk Behind).....\$ | 23.51 | 15.62 |
| Concrete Worker.....\$ | 23.26 | 15.62 |

SUKY2011-014 06/25/2014

| | Rates | Fringes |
|-------------------------------------|-------|---------|
| CEMENT MASON/CONCRETE FINISHER...\$ | 21.60 | 10.35 |
| ELECTRICIAN.....\$ | 32.35 | 2.18 |
| LABORER: Common or General.....\$ | 20.60 | 9.39 |
| LABORER: Flagger.....\$ | 18.31 | 8.89 |
| LABORER: Pipelayer.....\$ | 20.13 | 8.63 |
| OPERATOR: | | |
| Backhoe/Excavator/Trackhoe.....\$ | 23.60 | 12.65 |
| OPERATOR: Bulldozer.....\$ | 21.72 | 7.45 |
| OPERATOR: Loader.....\$ | 30.35 | 0.00 |

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

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

Regional Office for the area in which the survey was conducted because those Regional Offices have 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 DECISION"

SECTION 01040 - COORDINATION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall coordinate the Work of all crafts, trades and subcontractors engaged on the Work, and he shall have final responsibility in regards to the schedule, workmanship and completeness of each and all parts of the Work.
- B. It shall be the Contractor's responsibility to ensure cooperation and coordination of all crafts, trades, subcontractors and 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 Owner, for furnishing embedded items, giving directions for doing all cutting and fitting, making all provisions for accommodating the Work, and for protecting, patching, repairing and cleaning as required to satisfactorily perform the Work.
- C. The Contractor shall be responsible for all cutting, digging and other action of his subcontractors and workmen. Where such action impairs the safety or function of any structure or component of the Project, the Contractor shall make such repairs, alterations and additions as will, in the opinion of the Engineer, bring said structure or component back to its original design condition at no additional cost to the Owner.
- D. Each subcontractor is expected to be familiar with the General Requirements and all Sections of the Detailed Specifications for all other trades and to study all Drawings applicable to his work to the end that complete coordination between the trades will be affected. Each Contractor shall consult with the Engineer if conflicts exist on the Drawings.
- E. No extra compensation will be allowed to cover the cost of removing piping, conduits, etc., or equipment found encroaching on space required by others.

END OF SECTION 01040

SECTION 01045 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 SUMMARY

- A. Perform cutting and patching to properly complete work of the project in accordance with the Contract Documents. Cutting and patching may be required for connection to existing sewer lines, water lines, storm sewers, roadways, fencing, structures, and other existing improvements.
- B. Do not cut and/or patch in a manner that would result in a failure of the work to perform as intended, decreased energy performance, increased maintenance, decreased operational life, or decreased safety.

PART 2 - PRODUCTS

2.01 MATERIALS

Match existing materials for cutting and patching work with new materials conforming to project requirements.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Inspect conditions prior to work to identify scope and type of work required. Clean work area and areas affected by cutting and patching operations. 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. The Engineer or his representative shall approve proper cutting and patching methods prior to the work being performed.

END OF SECTION 01045

SECTION 01070 - ABBREVIATIONS AND SYMBOLS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

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

1.02 QUALITY ASSURANCE

- A. 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.
- B. The date of the standard is that in effect as of the Bid date, or date of Owner-Contractor Agreement when there are no bids, except when a specific date is specified.
- C. When required by individual Specifications section, obtain copy of standard. Maintain a copy at job site during submittals, planning and progress of the specific work, until Substantial Completion.

1.03 SCHEDULE OF REFERENCES

| | |
|--------|---|
| ACI | American Concrete Institute |
| AFBMA | Anti-Friction Bearing Manufacturers Association |
| AGMA | American Gear Manufacturers Association |
| IEEE | Institute of Electrical and Electronics Engineers, Inc. |
| AISC | American Institute of Steel Construction |
| ANS | American National Standard |
| ANSI | American National Standards Institute |
| 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 |
| AWPA | American Wood-Preservers' Association |
| AWWA | American Water Works Association |
| IBR | Institute of Boiler and Radiator Manufacturers |
| IPS | Iron Pipe Size |
| NBS | National Bureau of Standards |
| NEC | National Electrical Code; latest edition |
| NEMA | National Electrical Manufacturers Association |
| NFPA | National Fire Protection Association |
| SMACNA | Sheet Metal and Air Conditioning Contractors National Association, Inc. |
| Fed. Spec. | Federal Specifications issued by the Federal Supply Service of the General Services Administration, Washington, DC |
| 125-lb. ANS | American National Standard for Cast-Iron Pipe |
| 250-lb. ANS | Flanges and Flanged Fittings, Designation B16.1-1975, for the appropriate class |
| AWG | American or Brown and Sharpe Wire Gage |
| NPT | National Pipe Thread |
| Stl. WG | U.S. Steel Wire, Washburn and Moen, American Steel and Wire or Roebing Gage |
| UL | Underwriters' Laboratories |

END OF SECTION 01070

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.01 WORK INCLUDED

Shop drawing, descriptive literature, project data and samples (when samples are specifically requested) for all manufactured or fabricated items shall be submitted by the Contractor to the Engineer for examination and review in the form and in the manner required by the Engineer. All submittals shall be furnished in at least three (3) copies to be retained by the Engineer and shall be checked and reviewed by the Contractor before submission to the Engineer. The review of the submittal by the Engineer shall not be construed as a complete check, but will indicate only that the general method of construction and detailing is satisfactory. Review of such submittal will not relieve the Contractor of the responsibility for any errors, which may exist, as the Contractor shall be responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work.

1.02 RELATED REQUIREMENTS

- A. Section 00700 - General Conditions.
- B. Section 01720 - Project Record Documents (As-Builts).

1.03 DEFINITIONS

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

1.04 GENERAL CONDITIONS

Review by the Engineer of shop drawings or submittals of material and equipment shall not relieve the Contractor from the responsibilities of furnishing same of proper dimension, size, quantity, materials and all performance characteristics to efficiently perform the requirements and intent of the Contract Documents. Review shall not relieve the Contractor from responsibility for errors of any kind on the shop drawings.

Review is intended only to assure conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Review of shop drawings shall not be construed as releasing the Contractor from the responsibility of complying with the Specifications.

1.05 GENERAL REQUIREMENTS FOR SUBMITTALS

- A. Shop drawings shall be prepared by a qualified detailer. Details shall be identified by reference to sheet and detail numbers shown on Contract Documents. Where applicable, show fabrication, layout, setting and erection details. Shop drawings are defined as original drawings prepared by the Contractor, subcontractors, suppliers, or distributors performing work under this Contract. Shop drawings illustrate some portion of the work and show fabrication, layout, setting or erection details of equipment, materials and components. The Contractor shall, except as otherwise noted, have prepared the number of reviewed copies required for his distribution plus three (3) which will be retained by the Engineer and Owner. Shop drawings shall be folded to an approximate size of 8-1/2 inch x 11 inch and in such manner that the title block will be located in the lower right-hand corner of the exposed surface.
- B. Project data shall include manufacturer's standard schematic drawings modified to delete information that is not applicable to the Project, and shall be supplemented to provide additional information applicable to the Project. Each copy of descriptive literature shall be clearly marked to identify pertinent information as it applies to the Project. Submittals shall include descriptive literature, catalog cuts, dimensioned prints, installation drawings/instructions, operation and maintenance instructions. The data provided with the shop drawings shall be complete with respect to dimensions, materials of construction, wiring diagrams, and the like, to enable the Engineer to review the information as required.
- C. Operating and maintenance instructions and separate parts lists shall be provided with equipment submittals. Operating instructions shall incorporate a functional description of the entire system including the system schematics, which reflect "as built" instructions. Special maintenance requirements particular to the system shall be clearly defined along with special calibration and test procedures.
- D. The submittals shall identify special wrenches or other special tools necessary for assembling, disassembling, aligning and calibrating the equipment. These special wrenches and/or other special tools shall be provided in a kit and shall become the property of the Owner upon acceptance of the equipment.
- E. Where samples are required, they shall be adequate to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged. Provide sufficient size and quantity to clearly illustrate functional characteristics of product and material, with integrally related parts and attachment devices, along with a full range of color samples.
- F. All submittals shall be referenced to the applicable item, section and division of the Specifications, and to the applicable Drawing(s) or Drawing schedule(s) and shall be with transmittal forms and format provided by the Engineer.

- G. The Contractor shall review and check submittals, and indicate his review and approval by initials and date.
- H. If the submittals deviate from the Contract Drawings and/or Specifications, the Contractor shall advise the Engineer, in letter of transmittal of the deviation and the reasons therefore. All changes shall be clearly marked on the submittal with a bold mark other than red. Any additional costs for modifications shall be borne by the Contractor.
- I. In the event the Engineer does not specifically reject the use of material or equipment at variance to that which is shown on the Drawings or specified, the Contractor shall, at no additional expense to the Owner, and using methods reviewed by the Engineer, make any changes to structures, piping, controls, electrical work, mechanical work, etc., that may be necessary to accommodate this equipment or material. Should equipment other than that on which design drawings are based be accepted by the Engineer, shop drawings shall be submitted detailing all modification work and equipment changes made necessary by the substituted item.
- J. Additional information on particular items, such as special drawings, schedules, calculations, performance curves, and material details, shall be provided when specifically requested in the technical Specifications.
- K. Submittals for all electrically operated items (including instrumentation and controls) shall include complete wiring diagrams showing lead, runs, number of wires, wire size, color coding, all terminations and connections, and coordination with related equipment.
- L. Equipment shop drawings shall indicate all factory or shop paint coatings applied by suppliers, manufacturers and fabricators; the Contractor shall be responsible for insuring the compatibility of such coatings with the field-applied paint products and systems.
- M. Fastener specifications of manufacturer shall be indicated on equipment shop drawings.
- N. Where manufacturer's brand names are given in the Specifications for building and construction materials and products, such as grout, bonding compounds, curing compounds, masonry cleaners, waterproofing solutions and similar products, the Contractor shall submit names and descriptive literature of such materials and products he proposes to use in this Contract.
- O. No material shall be fabricated or shipped unless the applicable drawings or submittals have been reviewed by the Engineer and returned to the Contractor.
- P. All bulletins, brochures, instructions, parts lists, and warranties packaged with and

accompanying materials and products delivered to and installed in the Project shall be saved and transmitted to the Owner through the Engineer.

- Q. All submittals shall be made by the use of a multi-copy transmittal form supplied by the Engineer. All applicable blanks on the form shall be filled in with the appropriate data.

1.06 CONTRACTOR RESPONSIBILITIES

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

END OF SECTION 01300

SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Work of all crafts and trades shall be laid out to lines and elevations as established by the Contractor from the Drawings or from instructions by the Engineer.
- B. Unless otherwise shown, all work shall be plumb and level, in straight lines and true planes, parallel or square to the established lines and levels. The Work shall be accurately measured and fitted to tolerance as established by the best practices of the crafts and trades involved, and shall be as required to fit all parts of the Work carefully and neatly together.
- C. All equipment, materials and articles incorporated into the Work shall be new and of comparable quality as specified. All workmanship shall be first-class and shall be performed by mechanics skilled and regularly employed in their respective trades.
- D. The Contractor shall determine that the equipment he proposes to furnish can be brought into the facility and installed in the space available. Equipment shall be installed so that all parts are readily accessible for inspection and maintenance.

1.02 WORKMANSHIP

Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

1.03 MANUFACTURERS' INSTRUCTION

Comply with manufacturer's instructions in full detail as to shipping, handling, storing, installing, start-up and operation.

1.04 TESTING SERVICES

- A. Tests, inspections and certifications of materials, equipment, subcontractors or completed work, as required by the various sections of the Specifications and as shown on the Drawings, except as otherwise noted, shall be provided by the Contractor and all costs shall be included in the Contract Price.
- B. The Contractor shall submit to the Owner for approval the name of the independent testing laboratory to be employed by the Contractor.
- C. 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.

- D. Certifications by independent testing laboratories shall include properly attested copies of the data with scientific procedures and test results.

END OF SECTION 01400

SECTION 01450 - SERVICES OF MANUFACTURER'S REPRESENTATIVE

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. General: 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.
1. The service representative shall notify the Engineer each time he intends to be at the project site, and define the purpose of this visit. There will be no acknowledgment by the Owner of on-site visits by service representative unless such visits are properly logged by the Engineer.
- B. Supervision of Installation: 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. On completion of his work, the manufacturer's or supplier's representative shall submit in triplicate to the Engineer a complete signed report of the result of his 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: After the Engineer has reviewed the reports from the manufacturer's representatives, the Contractor shall make arrangements to have qualified manufacturers' representatives present when the field acceptance tests are performed for a minimum of one (1) day for each piece of control equipment and one

(1) day for each piece of process equipment. Costs to provide qualified manufacturers' representatives for field acceptance tests shall be included in the Contract price. Refer to control and/or equipment specifications for additional requirements.

- E. Pre-startup Operator Training: 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. The Contractor shall make arrangements to have qualified manufacturers' representatives present during pre-startup operator training for a minimum of one (1) day for each piece of control equipment and one (1) day for each piece of process equipment. Costs to provide qualified manufacturers' representatives for pre-startup operator training shall be included in the Contract price. Refer to control and/or equipment specifications for additional requirements.
- F. Post-startup Services: 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. The Contractor shall make arrangements to have qualified manufacturers' representatives present during post-startup services for a minimum of one (1) day for each piece of control equipment and one (1) day for each piece of process equipment. Costs to provide qualified manufacturers' representatives for post-startup services shall be included in the Contract price. Refer to control and/or equipment specifications for additional requirements.

END OF SECTION 01450

SECTION 01530 - BARRIERS

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall provide all temporary barriers in conformance with local, state, and federal codes for the protection of personnel and property; and as determined by the Contractor to fully comply with these Contract Documents.

END OF SECTION 01530

SECTION 01535 - PROTECTION OF INSTALLED WORK

PART 1 - GENERAL

1.01 WORK INCLUDED

Protection for products, including Owner-provided products, after installation.

1.02 RELATED REQUIREMENTS

Division 1 - General Requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 PROTECTION AFTER INSTALLATION

- A. Protect installed products and control traffic in immediate area to prevent damage from subsequent operations.
- B. Restrict traffic of any kind across planted lawn and landscape areas.

END OF SECTION 01535

SECTION 01540 - SECURITY

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Project area must remain safely accessible to Owner's personnel; however, the Contractor will provide any non-interfering security he deems necessary to protect his work, equipment, etc.
- B. Provide an adequate system to secure the Project area at all times, especially during non-construction periods; the Contractor shall be solely responsible for taking proper security measures.

1.02 COSTS

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

END OF SECTION 01540

SECTION 01550 - ACCESS ROADS AND PARKING AREAS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Access roads.
- B. Temporary parking.
- C. Existing pavements and parking areas.
- D. Permanent pavements and parking areas.
- E. Maintenance.
- F. Removal and repair.

1.02 RELATED REQUIREMENTS

- A. Section 01045 - Cutting and Patching.
- B. Section 01510 - Temporary Utilities.

PART 2 - PRODUCTS

2.01 MATERIALS

For temporary construction: Contractor's option but must be approved by the Owner.

PART 3 - EXECUTION

3.01 PREPARATION

Clear areas, provide proper surface and storm drainage of premises and adjacent areas.
Install erosion protection.

3.02 ACCESS ROADS

- A. Construct temporary all-weather access roads from public thoroughfares to serve construction area, of a width and load-bearing capacity to provide unimpeded traffic for construction purposes.

- B. Construct temporary bridges and/or culverts to span low areas and allow unimpeded drainage.
- C. Extend and relocate as work progress requires, and provide detours as necessary for unimpeded traffic flow.
- D. Locate temporary access roads as approved by the Owner and/or the Engineer.
- E. Provide and maintain access to all Owner facilities.

3.03 TEMPORARY PARKING

Construct temporary parking areas to accommodate use of construction personnel in an area acceptable to the Owner and/or the Engineer. Pay all costs relating to temporary parking.

3.04 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.

3.05 REMOVAL AND REPAIR

- A. Remove temporary materials and construction when permanent facilities are usable as directed by the Engineer.
- B. Remove underground work and compacted materials to a depth of two (2) feet; fill and grade site as specified.
- C. Repair existing permanent facilities damaged by usage to original and/or specified condition.

END OF SECTION 01550

SECTION 01560 - TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Dust control.
- B. Erosion and sediment control.

1.02 RELATED REQUIREMENTS

- A. Section 01510 - Temporary Utilities.
- B. Section 01565 - Erosion and Sediment Control.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 DUST CONTROL

Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere. Provide spraying of dust with water so no dust leaves the site.

3.02 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
- B. Minimize amount of bare soil exposed at one time.
- C. Provide temporary measures such as berms, dikes, drains, hay bales, gabions, etc., as directed by the Engineer so as to minimize siltation due to runoff.
- D. Construct fill and waste areas by selective placement to avoid erosive exposed surface of silts or clays.
- E. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

END OF SECTION 01560

SECTION 01565 - EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.01 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 and 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

2.01 MATERIALS

Bales may be hay or straw, and shall be reasonably clean and free of noxious weeds and deleterious materials. Filter fabric for sediment traps shall be of suitable materials acceptable to the Engineer.

PART 3 - EXECUTION

3.01 METHODS OF CONSTRUCTION

- A. The Contractor shall use any of the acceptable methods necessary to control soil erosion and prevent the flow of sediment to the maximum extent possible. These methods shall include, but not be limited to, the use of water diversion structures, diversion ditches and settling basins.
- B. Construction operations shall be restricted to the areas of work indicated on the Drawings and to the area which must be entered for the construction of temporary or permanent facilities. The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations and to direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of the wetlands and adjacent watercourses. Such work may involve the construction of temporary berms, dikes,

dams, sediment basins, slope drains, and use of temporary mulches, mats, or other control devices or methods as necessary to control erosion.

- C. Excavated soil material shall not be placed adjacent to the wetlands or watercourses in a manner that will cause it to be washed away by high water or runoff. Earth berms or diversions shall be constructed to intercept and divert runoff water away from critical areas. Diversion outlets shall be stable or shall be stabilized by means acceptable to the Engineer. If for any reason construction materials are washed away during the course of construction, the Contractor shall remove those materials from the fouled areas as directed by the Engineer.
- D. For Work within easements or rights-of-way, all materials used in construction such as excavation, backfill, roadway, and pipe bedding and equipment shall be kept within the limits of these easements or rights-of-way.
- E. The Contractor shall not pump silt-laden water from trenches or other excavation into the wetlands, or adjacent watercourses. Instead, silt-laden water from his excavations shall be discharged within areas surrounded by baled hay or into sediment traps or ensure that only sediment-free water is returned to the watercourses. Damage to vegetation by excessive watering or silt accumulation in the discharge area shall be avoided.
- F. Prohibited construction procedures include, but are not limited to the following:
 - 1. Dumping of spoil material into any streams, wetlands, surface waters, or unspecified locations.
 - 2. Indiscriminate, arbitrary, or capricious operation of equipment in wetlands or surface waters.
 - 3. Pumping of silt-laden water from trenches or excavations into surface waters, or wetlands.
 - 4. Damaging vegetation adjacent to or outside of the construction area limits.
 - 5. Disposal of trees, brush, debris, paints, chemicals, asphalt products, concrete curing compounds, fuels, lubricants, insecticides, washwater from concrete trucks or hydroseeders, or any other pollutant in wetlands, surface waters, or unspecified locations.
 - 6. Permanent or unauthorized alteration of the flow line of any stream.
 - 7. Open burning of debris from the construction work.
- G. Any temporary working roadways required shall be clean fill approved by the Engineer. In the event fill is used, the Contractor shall take every precaution to prevent the fill from mixing with native materials of the site. All such foreign fill materials shall be removed from the site following construction.

3.02 EROSION CHECKS

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.

END OF SECTION 01565

SECTION 01570 - TRAFFIC REGULATION

PART 1 - GENERAL

1.01 WORK INCLUDED

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

PART 2 - PRODUCTS

2.01 SIGNS AND DEVICES

- A. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions.
- B. Flagman Equipment: As required by local jurisdictions.

PART 3 - EXECUTION

3.01 CONSTRUCTION PARKING CONTROL

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

3.02 TRAFFIC CONTROL

- A. Whenever and wherever, in the Engineer's opinion, traffic is sufficiently congested or public safety is endangered, Contractor shall furnish uniformed officers to direct traffic and to keep traffic off the highway area affected by construction operations.
- B. Contractor shall abide by county and state regulations governing utility construction work.

- C. Traffic control shall be provided according to the Kentucky Department of Highways Manual on Uniform Traffic Control Devices for Streets and Highways.

3.03 FLAGMEN

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

3.04 FLARES AND LIGHTS

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

3.05 HAUL ROUTES

- A. Consult with authorities, establish public thoroughfares to be used for haul routes and site access.
- B. Confine construction traffic to designated haul routes.
- C. Provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.

3.06 REMOVAL

Remove equipment and devices when no longer required.

END OF SECTION 01570

SECTION 01600 - MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 STORAGE OF MATERIALS AND EQUIPMENT

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

1.02 HANDLING AND DISTRIBUTION

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

1.03 MATERIALS, SAMPLES, INSPECTION

- A. Unless otherwise expressly provided on the Drawings or in any of the other Contract Documents, only new materials and equipment shall be incorporated in the Work. All materials and equipment furnished by the Contractor to be incorporated in the Work shall be subject to the inspection of the Engineer. No material shall be processed or fabricated for the Work or delivered to the Work site without prior concurrence of the Engineer.
- B. As soon as possible after execution of the Agreement, the Contractor shall submit to the Engineer the names and addresses of the manufacturers and suppliers of all materials and equipment he proposes to incorporate into the Work. When shop and working drawings are required as specified below, the Contractor shall submit prior to the submission of such drawings, data in sufficient detail to enable the Engineer to determine whether the manufacturer and/or the supplier have the ability to furnish a product meeting the Specifications. As requested, the Contractor shall also submit data relating to the materials and equipment he proposes to incorporate into the Work in sufficient detail to enable the Engineer to identify and evaluate the particular product

and to determine whether it conforms to the Contract requirements. Such data shall be submitted in a manner similar to that specified for submission of shop and working drawings.

- C. Facilities and labor for the storage, handling, and inspection of all materials and equipment shall be furnished by the Contractor. Defective materials and equipment shall be removed immediately from the site of the Work.
- D. If the Engineer so requires, either prior to or after commencement of the Work, the Contractor shall submit samples of materials for such special tests as the Engineer deems necessary to demonstrate that they conform to the Specifications. Such samples, including concrete test cylinders, shall be furnished, taken, stored, packed, and shipped by the Contractor as directed. The Contractor shall furnish suitable molds for and make the concrete test cylinders. Except as otherwise expressly specified, the Contractor shall make arrangements for, and pay for, the tests.
- E. All samples shall be packed so as to reach their destination in good condition, and shall be labeled to indicate the material represented, the name of the building or work and location for which the material is intended, and the name of the Contractor submitting the sample. To ensure consideration of samples, the Contractor shall notify the Engineer by letter that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples.
- F. The Contractor shall submit data and samples, or place his orders, sufficiently early to permit consideration, inspection and testing before the materials and equipment are needed for incorporation in the Work. The consequences of his failure to do so shall be the Contractor's sole responsibility.
- G. In order to demonstrate the proficiency of workmen, or to facilitate the choice among several textures, types, finishes, surfaces, etc., the Contractor shall provide such samples of workmanship of wall, floor, finish, etc., as may be required.
- H. When required, the Contractor shall furnish to the Engineer triplicate sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials, equipment performance ratings, and concrete data.
- I. After review of the samples, data, etc., the materials and equipment used on the Work shall in all respects conform therewith.

END OF SECTION 01600

SECTION 01620 - STORAGE AND PROTECTION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. General storage.
- B. Enclosed storage.
- C. Exterior storage.
- D. Maintenance of storage.

1.02 RELATED REQUIREMENTS

Division 1 - General Requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL STORAGE

- A. Store products, immediately on delivery, in accordance with manufacturer's instructions, with seals and labels intact. Protect until installed.
- B. Arrange storage in a manner to provide access for maintenance of stored items and for inspection.

3.02 ENCLOSED STORAGE

- A. Store products, subject to damage by the elements, in substantial weathertight enclosures.
- B. Maintain temperature and humidity within ranges stated in manufacturer's instructions.
- C. Provide humidity control and ventilation for sensitive products as required by manufacturer's instructions.
- D. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.
- E. The OWNER will not be responsible for providing closed storage when needed. This is the responsibility of the Contractor.

3.03 EXTERIOR STORAGE

- A. Provide substantial platforms, blocking, or skids, to support fabricated products above ground; slope to provide drainage. Protect products from soiling and staining.
- B. For products subject to discoloration or deterioration from exposure to the elements, cover with impervious sheet material. Provide ventilation to avoid condensation.
- C. Store loose granular materials on clean, solid surfaces such pavement, or on rigid sheet materials, to prevent mixing with foreign matter.
- D. Provide surface drainage to prevent erosion and ponding of water.
- E. Prevent mixing of refuse or chemically injurious materials.

3.04 MAINTENANCE OF STORAGE

- A. Periodically, inspect stored products on a scheduled basis. Maintain a log of inspections, make available to Engineer on request.
- B. Verify that storage facilities comply with manufacturer's product storage requirements.
- C. Verify that manufacturer required environmental conditions are maintained continually.
- D. Verify that surfaces of products exposed to the elements are not adversely affected. Weathering of finishes is unacceptable under the requirements of the Contract Documents.

3.05 MAINTENANCE OF EQUIPMENT STORAGE

- A. For mechanical and electrical equipment in long-term storage, provide manufacturer's service instructions to accompany each item, with notice of enclosed instructions shown on exterior of package.
- B. Service equipment on a regularly scheduled basis, in accordance with the manufacturer's recommendations, maintaining a log of services; submit as a record document.

END OF SECTION 01620

SECTION 01700 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED REQUIREMENTS

- A. Section 00700 - General Conditions.
- B. Section 01710 - Cleaning.
- C. Section 01720 - Project Record Documents.

1.02 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.

1.03 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.

1.04 FINAL CLEANING UP

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.

1.05 CLOSEOUT SUBMITTALS

- A. Project Record Documents: to requirements of Section 01720.
- B. Operation and Maintenance Data: to requirements of particular technical specifications and Section 01730.

- C. Warranties and Bonds: to requirements of particular technical specifications and Section 01740.

1.06 INSTRUCTION

Instruct Owner's personnel in operation of all systems, mechanical, electrical and other equipment.

1.07 FINAL APPLICATION FOR PAYMENT

Contractor shall submit final applications in accordance with requirements of General Conditions.

1.08 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 01700

SECTION 01710 - CLEANING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. On a continuous basis, maintain premises free from accumulations of waste, debris, and rubbish, caused by operations.
- B. 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.

1.02 RELATED REQUIREMENTS

- A. Section 01045 - Cutting and Patching.
- B. Section 01700 - Project Closeout.
- C. Cleaning for Specific Products or Work: Specification Section for that work.

1.03 SAFETY REQUIREMENTS

- A. Hazards control:
 - 1. Store volatile wastes in covered 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 - PRODUCTS

2.01 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

3.01 DURING CONSTRUCTION

- A. Execute cleaning to ensure that building, grounds and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- C. At reasonable intervals but no less than once every two weeks during progress of Work, clean site and public properties, and dispose of waste materials, debris and rubbish.
- D. Provide on-site containers for collection of waste materials, debris and rubbish.
- E. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.
- F. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.
- G. The Contractor shall thoroughly clean all materials and equipment installed.

3.02 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 cleaned areas 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 01710

SECTION 01720 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 RELATED REQUIREMENTS

- A. Section 00700 - General Conditions.
- B. Section 01300 - Submittals.

1.02 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 Engineer and Owner.

1.03 MARKING DEVICES

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

1.04 RECORDING

- A. Label each document "RECORD DRAWING" in 2-inch high printed letters.
- B. Keep record documents current.
- C. Do not permanently conceal any work until required information has been recorded.

- D. Contract Drawings: Legibly mark to record actual construction:
 - 1. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 - 2. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - 3. Field changes of dimension and detail.
 - 4. Changes made by Change Order or Field Order.
 - 5. Details not on original Contract Drawings.

- E. Specifications and Addenda: Legibly mark up each Section to record:
 - 1. Manufacturer, trade name, catalog number, and Supplier of each product and item of equipment actually installed.
 - 2. Changes made by Change Order or Field Order.
 - 3. Other matters not originally specified.

- F. Shop Drawings: Maintain as record documents; legibly annotate Shop Drawings to record changes made after review.

1.05 SUBMITTAL

- A. At completion of project, deliver record documents to Engineer.

- 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 his authorized representative.

END OF SECTION 01720

SECTION 01730 - OPERATING AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. 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.
- B. Instruct Owner's personnel in the maintenance and operation of equipment and systems as outlined herein.
- C. 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.

1.02 RELATED REQUIREMENTS

- A. Section 00700 - General Conditions.
- B. Section 01300 - Submittals.
- C. Section 01720 - Project Record Documents.
- D. Section 01740 - Warranties and Bonds.

1.03 MAINTENANCE AND OPERATIONS MANUAL

Every piece of equipment furnished and installed shall be provided with two (2) complete maintenance and operations manuals. These shall be detailed in instructions to the Owner's personnel. They shall be attractively bound for the Owner's records.

The manuals shall be submitted to the Engineer for review as to adequacy and completeness. After approval the Contractor shall store all manuals until the completion of the project or until requested by the Engineer. The manuals will be stored and delivered to the Engineer in an organized format.

1.04 FORM OF SUBMITTALS

- A. Prepare data in the form of an instructional manual for use by Owner's personnel.

B. Format:

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.

1.05 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, 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. These manuals shall be submitted to the Engineer 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 Engineer before final payment on the equipment is made.

END OF SECTION 01730

SECTION 01740 - WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 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.

1.02 RELATED REQUIREMENTS

- A. Bid Bond.
- B. Performance and Payment Bonds.
- C. Guaranty.
- D. General Warranty of Construction.
- E. Warranties and Bonds required for specific products: As listed in other Specification sections.

1.03 (NOT USED)

1.04 SUBMITTALS REQUIREMENTS

- A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers and subcontractors.
- B. Furnish two (2) original signed copies.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
 - 1. Product, equipment or work item.
 - 2. Firm name, address and telephone number.
 - 3. Scope.
 - 4. Date of beginning of warranty, bond or service and maintenance contract.
 - 5. Duration of warranty, bond or service and maintenance contract.
 - 6. Provide information for Owner's personnel:

- a. Proper procedure in case of failure.
 - b. Instances which might affect the validity of warranty or bond.
7. Contractor name, address and telephone number.

1.05 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- 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.

1.06 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.

1.07 SUBMITTALS REQUIRED

Submit warranties, bonds, service and maintenance contracts as specified in the respective sections of the Specifications. Additionally, the Contractor shall warrant the entire contract, including all concrete, paving, building, plumbing, HVAC, mechanical and electrical equipment to be free from defects in design and installation for one (1) year from the date of startup. In the event a component fails to perform as specified or is proven defective in service during the warranty period, the Contractor shall repair the defect without cost to the Owner.

END OF SECTION 01740

Division 2 – Site Work

SECTION 02150 - SHORING AND BRACING

PART 1 - GENERAL

1.01 SUMMARY

- A. Shore and brace sidewalls in deep excavations with steel sheet, soldier piles or timber lagging as required to protect existing buildings, utilities, roadways, and improvements. Prevent cave-ins, loss of ground, or damage to people and property.
- B. Maintain shoring and bracing during construction activities, and remove shoring and bracing if practical when construction and filling is complete.

1.02 SUBMITTALS

Submit for approval shop drawings and information on methods proposed for use.

1.03 QUALITY ASSURANCE

Comply with governing codes and regulations. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Sheet Steel: Heavy-gauge steel sheet suitable for service.
- B. Soldier Piles: Steel H-beams in serviceable condition.
- C. Timber Lagging: Heavy timber pressure treated with wood preservative.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install in proper relation with adjacent construction. Coordinate with work of other sections.
- B. Locate shoring and bracing to avoid permanent construction. Anchor and brace to prevent collapse.

END OF SECTION 02150

SECTION 02221 - ROCK REMOVAL

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall excavate rock, if encountered, as required to perform the required work, and shall dispose of the excavated material or stockpile for later use in non-structural areas. Contractor shall furnish acceptable material for backfill in place of the excavated rock.
- B. In general, rock in pipe trenches shall be excavated so as to be not less than 6-inches from the pipe (bottom and sides) after pipe has been laid.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Rock Definition: Solid mineral material that cannot be removed by heavy excavating equipment with ripping tools.

PART 3 - EXECUTION

3.01 MEANS OF REMOVAL

- A. No blasting will be allowed in this Contract.
- B. The Contractor shall be solely responsible for rock removal operations. The Contractor shall not hold the Owner and/or the Engineer liable for any damages resulting from rock removal operations on this project.

3.02 PAYMENT

Rock excavation shall be bid as unclassified and will not be paid for separately.

END OF SECTION 02221

SECTION 02222 - EXCAVATION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Structure excavation.
- B. Shoring excavations.

1.02 RELATED REQUIREMENTS

- A. Section 02221 - Rock Removal.
- B. Section 02223 – Embankments and Backfill.
- C. Section 02225 - Excavating, Backfilling and Compacting for Utilities.

1.03 PROTECTION

- A. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.
- B. Underpin adjacent structures which may be damaged by excavation work, including service utilities and pipe chases.
- C. Notify Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- D. Protect bottom of excavations and soil adjacent to and beneath foundations from frost.
- E. Grade excavation top perimeter to prevent surface water run-off into excavation.
- F. Contractor shall provide ample means and devices with which to intercept any water entering the excavation area.

1.04 ROCK EXCAVATION

Any rock encountered within foundation excavations for recommended soil bearing elements should be removed to a depth sufficient to provide a minimum 24 inch cushion between the bottom of the footing and the top of rock. The cushion should be constructed of properly compacted KY DOT #610 stone or DGA free of organics and deleterious materials. See Section 02223, Embankments and Backfill.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Subsoil: Excavated material, graded free of lumps larger than 12-inches, rocks larger than 12-inches, and debris.

PART 3 - EXECUTION

3.01 PREPARATION

Identify required lines, levels, contours, and datum.

3.02 EXCAVATION

- A. Excavate subsoil required for structure foundations, construction operations, and other work.
- B. Contractor is responsible to adequately brace open cuts and protect workmen and equipment from cave-in.
- C. Remove lumped subsoil, boulders, and rock up to 1/3 cu. yd., measured by volume.
- D. Correct unauthorized excavation at no cost to Owner.
- E. Fill over-excavated areas under structure bearing surfaces in accordance with direction by Engineer.
- F. Stockpile excavated material in area designated on site.

3.03 EXCAVATION FOR STRUCTURES

- A. For structures, excavate to elevations and dimensions indicated, plus ample space for construction operations and inspection of foundations.
 - 1. Unless otherwise shown on drawings, excavate for foundation bearing a minimum of 24-inches below existing grade. Structure foundations shall bear entirely on rock, or entirely on compacted granular fill. Where structures are not to be supported on rock and rock is encountered, under cut rock 24-inches and backfill with granular material, as directed.
 - 2. Structure foundations shall be installed immediately after excavation is completed, or if this cannot be done, the last 4 to 6-inches of material should not be removed until preparations for installing the foundation are complete. In no case should foundations be installed in excavations that contain water. Any soft, saturated areas in the bottom of excavations shall be removed or stabilized using granular material.

3. Make no excavation to the full depth indicated when freezing temperatures may be expected unless foundations can be installed after the excavation has been completed. Bottom of excavation shall be protected from frost if foundation installation is delayed.

3.04 REMOVAL OF WATER

- A. The Contractor, at his own expense, shall provide adequate facilities for promptly and continuously removing water from all excavation.
- B. To ensure proper conditions at all times during construction, the Contractor shall provide and maintain ample means and devices (including spare units kept ready for immediate use in case of breakdowns) with which to remove promptly and dispose properly of all water entering trenches and other excavations. Such excavation shall be kept dry until the structures, pipes, and appurtenances to be built therein have been completed to such extent that they will not be floated or otherwise damaged.
- C. All water pumped or drained from the Work shall be disposed of in a suitable manner without undue interference with other work, damage to pavements, other surfaces, or property. Suitable temporary pipes, flumes, or channels shall be provided for water that may flow along or across the site of the Work.
- D. If necessary, the Contractor shall dewater the excavations by means of an efficient drainage wellpoint system that will drain the soil and prevent saturated soil from flowing into the excavation. The wellpoints shall be designed especially for this type of service. The pumping unit shall be designed for use with the wellpoints, and shall be capable of maintaining a high vacuum and of handling large volumes of air and water at the same time.
- E. The installation of the wellpoints and pump shall be done under the supervision of a competent representative of the manufacturer. The Contractor shall do all special work such as surrounding the wellpoints with sand or gravel or other work which is necessary for the wellpoint system to operate for the successful dewatering of the excavation.

3.05 UNAUTHORIZED EXCAVATION

If the bottom of any excavation is taken out beyond the limits indicated or prescribed, the resulting void shall be backfilled at the Contractor's expense with thoroughly compacted KY DOT #610 stone or DGA free of organics and deleterious materials in accordance with Section 02223, Embankment and Backfill, or with Class A concrete, if the excavation was for a structure.

3.06 ELIMINATION OF UNSUITABLE MATERIAL

- A. If material unsuitable for foundation (in the opinion of the Engineer) is found at or below the grade to which excavation would normally be carried in accordance with the Drawings and/or Specifications, the Contractor shall remove such material to the required width and depth and replace it with thoroughly compacted, KY DOT #610 stone or DGA free of organics and deleterious materials or Controlled Low Strength Material.
- B. No excavated materials shall be removed from the site of the work or disposed of by the Contractor except as directed or permitted.
- C. Surplus excavated materials suitable for backfill shall be used to backfill normal excavations in rock or to replace other materials unacceptable for use as backfill; shall be neatly deposited and graded so as to make or widen fills, flatten side slopes, or fill depressions. All work shall be as directed or permitted and without additional compensation.
- D. Surplus excavated materials not needed as specified above shall be hauled away and dumped by the Contractor, at his expense, at appropriate on-site locations as designated by the Owner, and in accordance with arrangements made by the Contractor.

3.07 EXCESS MATERIAL

Disposal of excess material shall be the responsibility of the Contractor. The Contractor shall determine the best method and area for disposal and obtain all permits and required permission. On-site areas have been designated by the Owner.

3.08 EXISTING UTILITIES AND OTHER OBSTRUCTIONS

Prior to the commencement of construction on the project, the Contractor shall contact the utility companies whose lines, above and below ground, may be affected during construction and verify the locations of the utilities as shown on the Contract Drawings. The Contractor shall ascertain from said companies if he will be allowed to displace or alter, by necessity, those lines encountered or replace those lines disturbed by accident during construction, or if the companies themselves are only permitted by policy to perform such work. If the Contractor is permitted to perform such work, he shall leave the lines in as good condition as were originally encountered and complete the Work as quickly as possible. All such lines or underground structures damaged or molested in the construction shall be replaced at the Contractor's expense, unless in the opinion of the Engineer, such damage was caused through no fault of the Contractor.

3.09 FIELD QUALITY CONTROL

Provide for visual inspection of rock surfaces under provisions of Section 01400.

END OF SECTION 02222

SECTION 02223 – EMBANKMENTS AND BACKFILL

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Structure perimeter backfilling to subgrade elevations.
- B. Site backfilling.
- C. Compaction requirements.
- D. Access road subgrade preparation.

1.02 RELATED WORK

- A. Section 00700 - Submittals (General Conditions).
- B. Section 01400 - Quality Control: Compaction requirements of backfill.
- C. Section 02222 - Excavation.
- D. Section 02225 - Excavation, Backfilling and Compacting for Utilities.

1.03 REFERENCES

- A. Commonwealth of Kentucky, Standard Specifications for Road and Bridge Construction.
- B. ANSI/ASTM D698 - Moisture-Density Relations of Soils and Soil-Aggregate Mixture Using 5.5 lb Rammer and 12 inch Drop.
- C. ANSI/ASTM D1556 - Density of Soil in Place by the Sand-Cone Method.
- D. ASTM 2922 - Density of Soil and Soil-Aggregate in Place by Nuclear Methods.
- E. ASTM 3017 - Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

1.04 TESTS

- A. Tests and analysis of fill materials will be performed in accordance with ANSI/ASTM D698 and under provisions of Section 01400. Tests shall include but not be limited to gradation analysis and moisture/density relationships.

- B. Test will be performed by an approved independent testing laboratory and shall be the responsibility of the Contractor at no additional cost to the Owner.
- C. Density test shall be performed in sufficient number to insure the specified densities are being obtained.
- D. When ASTM D2922 is used, the calibration curves shall be checked and adjusted if necessary by the procedure described in ASTM D2922, paragraph ADJUSTING CALIBRATION CURVE. ASTM D2922 results in a wet unit weight of soil; and when using this method, ASTM D3017 shall be used to determine moisture content of the soil. The calibration checks of both the density and moisture gauges shall be made at the beginning of a job on each different type of material encountered and at intervals as directed by the testing laboratory.

1.05 SUBMITTALS

Results of soil moisture and density tests by an approved testing laboratory shall be submitted to the Engineer for review.

1.06 DEFINITIONS

Structural Areas: All locations under concrete foundations, floor slabs, footers, buildings, concrete structures, bridges, etc.

Non-structural Areas: Locations such as landscaped areas, sidewalks, roadways, etc.

PART 2 - PRODUCTS

2.01 SELECT FILL MATERIALS

- A. The on-site residual soils are considered suitable for use as compacted fill in non-structural areas. A minimum of 95 percent of the maximum dry density and plus or minus 2 percent of optimum moisture content should be obtained for fill soils supporting non-structural areas. Field density tests should be performed on each lift placed to determine if proper compaction is being achieved. If sufficient suitable material is not available from the excavations, the backfill material in non-structural areas shall be screened gravel, crushed stone or selected borrow as directed. Backfill material in structural areas shall be KY DOT #610, DGA, or Controlled Low Strength Material.
- B. Frozen material shall not be placed in the backfill nor shall backfill be placed upon frozen material. Previously frozen material shall be removed or shall be otherwise treated as required before new backfill is placed.

- C. All material, whether from the excavations or from borrow, shall be of such nature that after it has been placed and properly compacted, it will make a dense, suitable fill. It shall not contain vegetation, masses of roots, individual roots more than 18-inches long or more than 1/2-inch in diameter, stones over 6-inches in diameter, or porous matter.

2.02 COMPACTED FILL

- A. Soil used for compacted fill in non-structural areas should be inorganic clayey soils free of deleterious debris or rocks whose largest dimension is no larger than 3-inches. The soil should have a liquid limit (LL) of less than 50, a plasticity index (PI) of less than 30, and a maximum dry density according to the standard Proctor compaction test of at least 100 pcf. The fill should be compacted to at least 95 percent of the SPMDD. The top foot of structural fill shall be compacted to 100 percent of the SPMDD.
- B. The moisture content of the compacted fill material shall be within 2% of the optimum moisture content as determined by ASTM-D-698.

2.03 STRUCTURAL BACKFILL

- A. An underdrain system shall be provided for the soil bearing structures. The underdrain should be constructed of 12-inches of #57 crushed stone and designed in a manner that would promote positive drainage away from the foundation elements. Final site grading should be accomplished in such a manner as to divert surface runoff and roof drains away from all foundation elements.
- B. All structures, unless otherwise noted on the Drawings, shall be supported entirely by bedrock or well compacted crushed stone consisting of Kentucky No. 610 size aggregate, DGA, or Controlled Low Strength Material. Structures that have pressure relief valves shall have a 12-inch blanket of #57 stone to allow for proper drainage around the PRV's. Any building supported by stone should have a minimum of 12-inches of compacted crushed stone beneath the bottom of the slab (i.e. foundation elements). Structures should not be supported on a combination of crushed stone and bedrock.
- C. Crushed stone used as a bearing medium should be placed in uniform, loose lifts not exceeding 8-inches in thickness. It is recommended that each lift be compacted by a minimum of five (5) passes of a smooth drum vibratory roller having a total static weight of not less than 20,000 pounds. The diameter of the drum should be between 5.0 and 5.5 feet and 6.0 and 6.5 feet wide.
- D. Walls below final grade should be backfilled with a minimum 12-inch thick layer of free draining material up to two feet below final grade. The two feet above this free draining material should be backfilled with an impervious material that would retard surface water infiltration. The free draining material should extend down to a rock

blanket beneath the bottom slab. Areas within five (5) feet horizontally from vertical walls, the Contractor shall use a hand compactor.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify foundation perimeter drainage installation has been inspected.
- B. Verify areas to be backfilled are free of debris, snow, ice, or water, and ground surfaces are not frozen.

3.02 PREPARATION

- A. When necessary, compact subgrade surfaces to density requirements for the backfill material and prepare subgrade or previous layer of compacted fill prior to placement of additional fill by scarifying or diskings.
- B. Cut out soft areas of subgrade not readily capable of in-situ compaction. Backfill with subsoil and compact to density equal to requirements for subsequent backfill material.

3.03 BACKFILLING - GENERAL

- A. Backfill areas to contours and elevations. Use unfrozen materials. The Contractor shall keep the foundation and subgrade free from water or unacceptable materials after the fill operations have started.
- B. Backfill systematically, as early as possible, to allow maximum time for natural settlement. Do not backfill over porous, wet, or spongy subgrade surfaces.
- C. Place and compact fill materials in continuous layers not exceeding 8-inches loose depth. Field density tests shall be performed on each lift.
- D. Employ a placement method so not to disturb or damage foundation drainage.
- E. Maintain optimum moisture content of backfill material to attain required compaction density as specified. Material deposited on the fill that is too wet shall be removed or spread and permitted to dry, assisted by diskings or blading, if necessary, until the moisture content is reduced to the specified limits.
- F. All crushed stone fill and crushed stone backfill under structures and pavements adjacent to structures shall be DGA or #610 crushed stone per Kentucky Highway Department Standard Specifications for Road and Bridge Construction, unless indicated otherwise. Fill and backfill materials shall be placed in layers not exceeding

eight (8) inches in thickness and compacted to 95 percent of maximum dry density.

- G. Backfill shall not be placed against or on structures until they have attained sufficient strength to support all loads to which subjected without distortion, cracking, or damage. Deposit soil evenly around the structure.
- H. Slope grade away from structures minimum 2-inches in 10-feet, unless noted otherwise.
- I. Make changes in grade gradual. Blend slopes into level areas.
- J. Remove surplus excavation materials to designated areas.

3.04 TOLERANCES

Top Surface of Backfilling: Plus or minus 1-inch.

3.05 FIELD QUALITY CONTROL

- A. Compaction testing will be performed in accordance with ASTM D1556 or ASTM D2922 and under provisions of Sections 01400.
- B. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.

END OF SECTION 02223

SECTION 02225 - EXCAVATING, BACKFILLING, AND
COMPACTING FOR UTILITIES

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall make excavations in such widths and depths as will give suitable room for below grade vaults, pump stations, etc., laying pipe to the lines, grades and elevations, furnish, place and compact all backfill materials specified herein or denoted on the Drawings. The materials, equipment, labor, etc., required herein are to be considered as part of the requirements and costs for installing the various pipes, structures and other items they are incidental to.

1.02 RELATED WORK

- A. Section 02221 - Rock Removal.
- B. Section 02731 – Gravity Sewers
- C. Section 02732 – Sewage Force Mains

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Crushed stone material shall conform with the requirements of the applicable sections of the Kentucky Bureau of Highways Standard Specifications and shall consist of clean, hard, and durable particles or fragments, free from dirt, vegetation or objectionable materials.
- B. Two classes of crushed stone material are used in this Section. The type of material in each class is as follows:
 - 1. Class I - No. 9 Aggregate.
 - 2. Class II - Dense Graded Aggregate (DGA).

PART 3 - EXECUTION

3.01 EXCAVATION OF TRENCHES

- A. Unless otherwise directed by the Engineer, trenches are to be excavated in open cuts.
 - 1. Where pipe is to be laid in gravel bedding or concrete cradle, the trench may be excavated by machinery to, or just below, the designated subgrade, provided that

the material remaining at the bottom of the trench is no more than slightly disturbed.

2. Where pipe is to be laid directly on the trench bottom, the lower part of trenches in earth shall not be excavated to subgrade by machinery. However, just before the pipe is to be placed, the last of the material to be excavated shall be removed by means of hand tools to form a flat or shaped bottom, true to grade, so that the pipe will have a uniform and continuous bearing and support on firm and undisturbed material between joints except for limited areas where the use of pipe slings may have disturbed the bottom.
- B. Trenches shall be sufficient width to provide working space on each side of the pipe and to permit proper backfilling around the pipe.
 1. The Contractor shall remove only as much of any existing pavement as is necessary for the prosecution of the Work. The pavement shall be cut with pneumatic tools, without extra compensation to the Contractor, to prevent damage to the remaining road surface. Where pavement is removed in large pieces, it shall be disposed of before proceeding with the excavation.
 - C. All excavated materials shall be placed a safe distance back from the edge of the trench.
 - D. Unless specifically directed otherwise by the Engineer, not more than 500 feet of trench shall be opened ahead of the pipe laying work of any one crew, and not more than 500 feet of open ditch shall be left behind the pipe laying work of any one crew. Watchmen or barricades, lanterns and other such signs and signals as may be necessary to warn the public of the dangers in connection with open trenches, excavations and other obstructions, shall be provided by and at the expense of the Contractor.
 - E. When so required, or when directed by the Engineer, only one-half of street crossings and road crossings shall be excavated before placing temporary bridges over the side excavated, for the convenience of the traveling public. All backfilled ditches shall be maintained in such manner that they will offer no hazard to the passage of traffic. The convenience of the traveling public and the property owners abutting the improvements shall be taken into consideration. All public or private drives shall be promptly backfilled or bridged at the direction of the Engineer.
 - F. Trench excavation shall include the removal of earth, rock, or other materials encountered in the excavating to the depth and extent shown or indicated on the Drawings.

3.02 SEWAGE FORCE MAIN AND WATER PIPE BEDDING

- A. Piping for water mains shall be supported as follows:
 1. The trench bottom for water main piping shall be stable, continuous, relatively smooth and free of frozen material, clodded dirt, foreign material and rock or

granular material larger than 1/2 inch in diameter and shall be prepared with a minimum of 6 inches of crushed stone per the Drawings. The foundation for water main piping shall be prepared so that the entire load of the backfill on top of the pipe will be carried uniformly on the barrel of the pipe. Any uneven areas in the trench bottom shall be shaved-off or filled-in with Class I granular bedding. When the trench is made through rock, the bottom shall be lowered to provide 6-inches of clearance around the pipe. Class I granular bedding or earth material free of rocks shall be used to bring the trench bottom to grade.

- B. After each pipe has been brought to grade, aligned, and placed in final position, crushed stone material for water main piping shall be deposited and densified under the pipe haunches and on each side of the pipe up to the spring line of the pipe to prevent lateral displacement and hold the pipe in proper position during subsequent pipe jointing, bedding, and backfilling operations.
- C. In wet, yielding and mucky locations where pipe is in danger of sinking below grade or floating out of grade or line, or where backfill materials are of such a fluid nature that such movements of pipe might take place during the placing of the backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective.
- D. Where an unstable (i.e., water, mud, etc.) trench bottom is encountered, stabilization of the trench bottom is required. This is to be accomplished by undercutting the trench depth and replacing to grade with a foundation of crushed stone aggregate.
- E. The depth of the foundation is dependent upon the severity of the trench bottom. The size of stone aggregate used in the foundation will be determined by the condition of the unstable material. Once the trench bottom has been stabilized, the required Class I bedding material can be placed.
- F. It should be noted that no pipe shall be laid on solid or blasted rock.
- G. Pipe bedding as required in Paragraphs A, B, and D of this Section is **not** considered a separate pay item.

3.03 SEWAGE FORCE MAIN AND WATER PIPE BACKFILLING

- A. Initial Backfill:
 - 1. This backfill is defined as that material which is placed over the pipe from the spring line to a point 12-inches above the top of the pipe. For water main piping, initial backfill material shall be Class I material.
 - 2. Material used in the initial backfilling is **not** a separate pay item. Payment for the material is included in the unit price per linear foot of water main.
- B. Final Backfill:

1. There are two cases where the method of final backfilling varies. The various cases and their trench situations are as follows:
 - a. Case I - Areas not subject to vehicular traffic.
 - b. Case II - Paved areas including streets, drives, parking areas, and walks.
 2. In all cases, walking or working on the completed pipelines, except as may be necessary in backfilling, will not be permitted until the trench has been backfilled to a point 12-inches above the top of the pipe. The method of final backfilling for each of the above cases is as follows:
 - a. Case I - The trench shall be backfilled from a point 12-inches above the top of the pipe to a point 8-inches below the surface of the ground with earth material free from large rock (over one-half cubic foot in volume), acceptable to the Engineer. The remainder of the trench shall be backfilled with earth material reasonably free of any rocks.
 - b. Case II - The trench shall be backfilled from a point 12-inches above the top of the pipe to a point 12-inches below the existing pavement surface with Class I (No. 9 crushed stone aggregate) material. The backfill shall be mechanically tamped in approximately 6-inch layers to obtain the maximum possible compaction. The remaining backfill shall be Class II (dense graded aggregate) material mechanically tamped to maximum possible compaction. The trench may be left with a slight mound if permitted by the Engineer. Where required by state or local regulations, a bituminous binder course detailed on the Drawings and specified in Section 02510 shall be incorporated in the final backfill.
 3. Earth and Class I material used in final backfill is not a separate pay item. Payment shall be included in the price of water main.
 4. Class II material used in final backfill shall be included in the unit price of the pipe.
- C. A sufficient amount of Class II material shall be stockpiled to ensure immediate replacement by the Contractor of any settled areas. No extra payment will be made for the filling in of settled or washed areas by the Contractor.
- D. Excavated materials from trenches, in excess of quantity required for trench backfill, shall be disposed of by the Contractor. It shall be the responsibility of the Contractor to obtain location or permits for its disposal, unless specific waste areas have been designated on the Drawings or noted in these Specifications. The cost of disposal of excess excavated materials, as set forth herein, no additional compensation being allowed for hauling or overhaul.

3.04 GRAVITY SEWER BEDDING

- A. Piping for gravity sewers and force mains shall be supported as follows:
1. All gravity sewer piping shall be laid on a bed of granular material except when a concrete encasement situation occurs. All pipe bedding material shall be Class I (No. 9 crushed stone aggregate) and shall be placed to a depth of 6-inches in an

earth trench and 6-inches in a rock trench. Aggregate bedding shall be graded to provide for a uniform and continuous support beneath the pipe at all points.

2. The trench bottom for force main piping shall be stable, continuous, relatively smooth and free of frozen material, clodded dirt, foreign material and rock or granular material larger than 1/2 inch in diameter. The foundation for force main piping shall be prepared so that the entire load of the backfill on top of the pipe will be carried uniformly on the barrel of the pipe. Any uneven areas in the trench bottom shall be shaved-off or filled-in with Class I granular bedding. When the trench is made through rock, the bottom shall be lowered to provide 6-inches of clearance around the pipe. Class I granular bedding shall be used to bring the trench bottom to grade.
-
- B. After each pipe has been brought to grade, aligned, and placed in final position, Class I material for gravity sewer piping and earth material for force main piping shall be deposited and densified under the pipe haunches and on each side of the pipe up to the spring line of the pipe to prevent lateral displacement and hold the pipe in proper position during subsequent pipe jointing, bedding, and backfilling operations.
 - C. In wet, yielding and mucky locations where pipe is in danger of sinking below grade or floating out of grade or line, or where backfill materials are of such a fluid nature that such movements of pipe might take place during the placing of the backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective.
 - D. Where an unstable (i.e., water, mud, etc.) trench bottom is encountered, stabilization of the trench bottom is required. This is to be accomplished by undercutting the trench depth and replacing to grade with a foundation of crushed stone aggregate.
 - E. The depth of the foundation is dependent upon the severity of the trench bottom. The size of stone aggregate used in the foundation will be determined by the condition of the unstable material. Once the trench bottom has been stabilized, the required Class I bedding material can be placed.
 - F. It should be noted that no pipe shall be laid on solid or blasted rock.
 - G. Pipe bedding as required in Paragraphs A, B, and D of this Section is **not** considered a separate pay item.

3.05 GRAVITY SEWER BACKFILL

- A. Initial Backfill:
 1. This backfill is defined as that material which is placed over the pipe from the spring line to a point 12-inches above the top of the pipe. For gravity sewer piping the material shall be Class I (No. 9 crushed stone aggregate) and may be machine placed without compaction. Uneven places in the backfill shall be

leveled by hand. For force main piping, initial backfill material shall be earth material free of rocks, acceptable to the Engineer or with Class I material when a condition exists mentioned in Paragraph A, 3. below.

2. Material used, whether earth or Class I, in the initial backfilling is **not** a separate pay item. Payment for the material is included in the unit price per linear foot of gravity sewer or force main.
3. In areas where large quantities of rock are excavated and the available excavated earth in the immediate vicinity is insufficient for placing the required amount of backfill over the top of the pipe as set forth in Paragraph A.1, the Contractor shall either haul in earth or order Class I material for backfilling over the pipe. Neither the hauling and placement of earth nor the ordering and placement of Class I material to fulfill the backfill requirements set forth herein is considered a separate pay item.

B. Final Backfill:

1. There are two cases where the method of final backfilling varies. The various cases and their trench situations are as follows:
 - a. Case I - Areas not subject to vehicular traffic.
 - b. Case II - Paved areas including streets, drives, parking areas, and walks.
2. In all cases, walking or working on the completed pipelines, except as may be necessary in backfilling, will not be permitted until the trench has been backfilled to a point 12-inches above the top of the pipe. The method of final backfilling for each of the above cases is as follows:
 - a. Case I - The trench shall be backfilled from a point 12-inches above the top of the pipe to a point 8-inches below the surface of the ground with earth material free from large rock (over one-half cubic foot in volume), acceptable to the Engineer. The remainder of the trench shall be backfilled with earth material reasonably free of any rocks.
 - b. Case II - The trench shall be backfilled from a point 12-inches above the top of the pipe to a point 12-inches below the existing pavement surface with Class I (No. 9 crushed stone aggregate) material. The backfill shall be mechanically tamped in approximately 6-inch layers to obtain a compaction of 95 percent density as measured by the modified Procter Test. The remaining backfill shall be Class II (dense graded aggregate) material mechanically tamped to the compaction as required above for Class I material. The trench may be left with a slight mound if permitted by the Engineer. Where required by state or local regulations, a bituminous binder course detailed on the Drawings and specified in Section 02510 shall be incorporated in the final backfill.
3. Earth and Class I material used in final backfill is not a separate pay item. Payment shall be included in the price of gravity sewer and force main.
4. Class II material used in final backfill shall be included in the unit price for gravity sewer and force main.

C. A sufficient amount of Class II material shall be stockpiled to insure immediate

replacement by the Contractor of any settled areas. No extra payment will be made for the filling in of settled or washed areas by the Contractor.

- D. Excavated materials from trenches, in excess of quantity required for trench backfill, shall be disposed of by the Contractor. It shall be the responsibility of the Contractor to obtain location or permits for its disposal, unless specific waste areas have been designated on the Drawings or noted in these Specifications. The cost of disposal of excess excavated materials, as set forth herein, no additional compensation being allowed for hauling or overhaul.

3.06 PLACEMENT OF IDENTIFICATION TAPE

- A. The placement of detectable mylar underground marking tape shall be installed over all utility lines. Care shall be taken to ensure that the buried marking tape is not broken when installed and shall be Lineguard brand encased aluminum foil, Type III. The identification tape is manufactured by Lineguard, Inc., P.O. Box 426, Wheaton, IL 60187.
- B. The identification tape shall bear the printed identification of the utility line below it, such as "Caution - Buried Below". Tape shall be reverse printed; surface printing will not be acceptable. The tape shall be visible in all types and colors of soil and provide maximum color contrast to the soil. The tape shall meet the APWA color code, and shall be 2-inches in width. Colors are: yellow - gas, green - sewer, red - electric, blue - water, orange - telephone, brown - force main.
- C. The tape shall be the last equipment installed in the trench so as to be first out. The tape shall be buried 18-inches below top of grade. After trench backfilling, the tape shall be placed in the backfill and allowed to settle into place with the backfill. The tape may be plowed in after final settlement, installed with a tool during the trench backfilling process, unrolled before final restoration or installed in any other way acceptable to the Owner or Engineer.

3.07 COPPER TRACING WIRE

No. 12 solid copper wire shall be laid in top 12 inches of trench over all plastic pipe. The copper tracing wire shall be wrapped around a line marker at least three (3) times and tied one (1) foot above grade.

END OF SECTION 02225

SECTION 02510 - ASPHALT CONCRETE PAVING

PART 1 - GENERAL

1.01 SUMMARY

- A. Provide asphalt concrete paving for following applications and prepared subbase and compacted base.
 - 1. Roads.
 - 2. Parking areas.
 - 3. Driveways.
 - 4. Walkways.
 - 5. Curbs.
- B. Provide striping for parking, roadway, and handicapped markings.

1.02 SUBMITTALS

Submit for approval product data, test reports.

1.03 QUALITY ASSURANCE

Comply with governing codes and regulations. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Prime coat: Cut-back asphalt.
- B. Tack coat: Emulsified asphalt.
- C. Asphalt cement: AASHTO M226 and as required by local authorities.
- D. Aggregate: Crushed stone or crushed gravel.
- E. Traffic paint: Quick-drying chlorinated-rubber alkyd type, color as approved.
- F. Wheelstops: Precast concrete of uniform color and texture with steel stakes.

PART 3 - EXECUTION

3.01 NEW PAVEMENT INSTALLATION

- A. Asphalt/aggregate Mixture: Comply with local DPW Standard Specifications for Highways and Bridges. Class as required by loading and use.
- 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 subbase.
- C. Apply tack coat to previous laid work and adjacent in-place concrete surfaces.
- D. Place asphalt concrete at minimum temperature of 225 degrees F in strips not less than 10' wide overlapping previous strips. Complete entire base course before beginning surface course.
- E. Construct curbs to dimensions indicated or if not indicated to standard shapes. Provide tack coat between curb and pavement.
- F. Begin rolling when pavement can withstand weight of roller. Roll while still hot to obtain maximum density and to eliminate roller marks.
- G. Provide 4" lane and striping paint in uniform, straight lines. Provide wheelstops where indicated and securely dowel into pavement. Protect work from traffic and damage.
- H. Test in-place asphalt work for thickness and smoothness. Remove and replace defective work and patch to eliminate evidence of patching. Provide the following minimum thickness and smoothness unless otherwise greater thickness is required on the Drawings:
 - 1. Subbase course: 4-inch No. 2 stone and 4-inch DGA.
 - 2. Base course: 2-1/2-inch.
 - 3. Surface course: 1-1/2-inch plus or minus 1/4-inch at drives and parking; 1-inch plus or minus 1/4-inch at walks.
 - 4. Surface course smoothness: Plus or minus 1/8-inch in 10 feet. No ponding of water is acceptable.

3.02 REPLACEMENT PAVEMENT FOR UTILITIES

- A. Sections of pavement shall be replaced as required to install the pipelines. Disturbed pavement shall be reconstructed to original lines and grades with bituminous binder as detailed on the Drawings and in such manner as to leave all such surfaces in fully as good or better condition than that which existed prior to these operations.

- B. Prior to trenching, the pavement shall be scored or cut to straight edges along each side of the proposed trench to avoid unnecessary damage to the remainder of the paving. Edges of the existing pavement shall be recut and trimmed as necessary to square, straight edges after the pipe has been installed and prior to placement of the binder course or concrete.
- C. Backfilling of trenches shall be in accordance with the applicable portions of Section 02225.
- D. Bituminous concrete binder shall be one course construction in accordance with applicable provisions of the Kentucky Department of Highways Standard Specifications, Section 402.
 - 1. Placement and compaction of binder courses shall be in accordance with Section 402 of the Kentucky Department of Highways Standard Specifications. Minimum thickness after compaction shall be 2-inches for driveways and 5 ½ inches for roads.
- E. Pavement restoration shall be in accordance with the above unless shown otherwise on the plans.

END OF SECTION 02510

SECTION 02520 - PORTLAND CEMENT CONCRETE PAVING

PART 1 - GENERAL

1.01 SUMMARY

- A. Provide Portland cement concrete paving at following locations and prepared subbase and compacted base.
 - 1. Driveways and vehicular entrances.
 - 2. Walkways.
 - 3. Curbs.

1.02 SUBMITTALS

Submit for approval product data, mix design, mock-ups, test reports.

1.03 QUALITY ASSURANCE

Comply with governing codes and regulations. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Concrete mix design: Specific mixes as required for sidewalks, curbs, and vehicular ways. Submit mix proposed for use for approval.
- B. Exposed aggregate paving:
 - 1. Aggregate to match approved sample.
 - 2. Retarder.
- C. Reinforcing: 6 x 6, 1.9 x 1.9 welded flat wire mesh and ASTM A36 deformed steel bars.
- D. Joints: Preformed joint fillers/sealers.
- E. Finish:
 - 1. Paving: Fine bristled stiff broom.
 - 2. Exposed aggregate finish: Match approved sample.
 - 3. Imprinting: Tools and hardeners by Bomanite Corp.
 - 4. Curbs: Steel form finish.

- F. Thickness (Unless shown otherwise on the drawings):
 - 1. Driveways and vehicular entrances - 6 inches.
 - 2. Walkways - 4 inches.
 - 3. Curbs - 6 inches.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Proof roll subbase and check for unstable areas. Report unsatisfactory conditions in writing. Beginning paving work means acceptance of subbase.
- B. Comply with concrete section for concrete mix, testing placement, joints, tolerances, curing, repairs and protection.

END OF SECTION 02520

SECTION 02630 - ENCASEMENT PIPE

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all labor, material, and equipment necessary to install encasement pipe together with all appurtenances as shown and detailed on the Drawings and specified herein.

1.02 RELATED WORK

- A. Section 02222 - Excavation.
- B. Section 02225 - Excavating, Backfilling and Compacting for Utilities.
- C. Section 02610 - Water Pipe and Fittings.
- D. Section 02731 – Gravity Sewers
- E. Section 02732 – Sewage Force Mains

1.03 REFERENCES

- A. ASTM A139 – Standard Specifications for Electric-Fusion (Arc) Welded Steel Pipe (NPS 4 and over).

PART 2 - PRODUCTS

2.01 STEEL PIPE

- A. Steel seamless pipe shall be new material, with a minimum yield of 35,000 psi and a wall thickness as shown below. All joints encasement pipe joints shall be welded.

| Nominal Diameter Inches | Minimum Wall Thickness Inches | |
|----------------------------|-------------------------------|-------------------|
| | Highway Crossing | Railroad Crossing |
| 14 & Under | 0.250 | 0.219 |
| 16 | 0.375 | 0.250 |
| 18 | 0.375 | 0.281 |
| 20 & 22 | 0.375 | 0.312 |
| 24 | 0.500 | 0.344 |
| 26 | 0.500 | 0.375 |
| 28 | 0.500 | 0.406 |
| 30 | 0.500 | 0.438 |

| | | |
|---------|-------|-------|
| 32 | 0.500 | 0.469 |
| 34 & 36 | 0.500 | 0.500 |
| 42 | 0.625 | 0.625 |
| 48 | 0.625 | 0.625 |

- B. Weldings of the steel casing pipe shall be solidly butt-welded with a smooth non-obstructing joint inside and conform to all specifications as required by American Welding Society (AWS). The casing pipe shall be installed without bends. All welders and welding operators shall be qualified as prescribed by AWS requirements.
- C. The material shall conform to the chemical and mechanical requirements of the latest revision of ASTM A139 "Electric-Fusion (ARC) - Welded Steel Pipe (NPS 4 and Over)," unless otherwise stated herein.
- D. Grade B steel shall be used. The steel shall be new and previously unused.
- E. Hydrostatic testing shall not be necessary.
- F. The wall thickness at any point shall be within 0.025 inches of the nominal metal thickness specified.
- G. A protective coating shall be applied to each length of pipe. Following an SSPC SP-7 "Brush-Off Blast Cleaning" surface preparation, 3 (dry) mils of Tnemec-Primer 10-99 (red), or of an approved equal shall be applied in the manner recommended by the respective paint manufacturer.
- H. Each length of pipe shall be legibly marked, stating: manufacturer, diameter, wall thickness and primer.
- I. Precaution shall be taken to avoid deforming the pipe and damaging the primer during shipping.
- J. Pipe shall be within the following tolerances:

Straightness 1/4 -- 3/8.
Roundness 1 Percent.
Thickness 12 1/2 Percent.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Where shown on the Drawings, the Contractor shall install encasement pipe. Two methods of installation are designated, the open-cut method and the boring method.
 - 1. The open-cut method shall consist of placing the encasement pipe in the

- excavated trench, then installing the carrier pipe inside the encasement pipe. Excavation, bedding and backfilling shall be in accordance with Section 02225.
2. The boring method consists of pushing or jacking the encasement pipe into the hole as an auger cuts out the material or after the auger has completed the bore. The encasement pipe shall be installed in a manner that will not disrupt traffic.
- B. The carrier pipe shall be ductile iron, polyvinyl chloride, or polyethylene pipe as designated on the Drawings. The carrier pipe will not be permitted to rest on bells or couplings.
- C. Pipeline Spacers
1. Carrier pipes installed inside encasement pipes shall be centered throughout the length of encasement pipe. Centering shall be accomplished by the installation of polyethylene pipeline spacers attached to the carrier pipe in such manner as to prevent the dislodgement of the spacers as the carrier pipe is pulled or pushed through the encasement pipe. Spacers shall be of such dimensions to provide: full supportive load capacity of the pipe and contents; of such thickness to allow installation and/or removal of the pipe; and to allow no greater than 1/2 inch movement of the carrier pipe within the cover pipe after carrier pipe is installed.
 2. Spacers shall be located immediately behind each bell and at a maximum spacing distance as follows:

| Carrier Pipe Diameter (inches) | Maximum Spacing (feet) |
|---------------------------------------|-------------------------------|
| 2 - 2-1/2 | 4 |
| 3 - 8 | 7 |
| 10 - 26 | 10 |
| 28 | 9 |
| 30 | 8 |
| 32 | 7 |
| 34 | 6 |
| 36 - 38 | 5.5 |
| 40 - 44 | 5 |
| 46 - 48 | 4 |

The materials and spacing to be used shall be accepted by the Engineer prior to installation. The polyethylene pipeline spacers shall be manufactured by Pipeline Seal and Insulator, Inc. (PSI), Raci Spacers, Inc., or equal. Installation shall be in accordance with manufacture's recommendations.

3.02 SEALING

After installation of the carrier pipe within the encasement pipe, the ends of the casing shall be sealed in the following manner. The space between the casing and the carrier pipe shall be filled with a waterproofing bitumastic compound until a tight seal is obtained. An Ethylene Propylene Diene Monomer (EPDM) elastomeric membrane shall be wrapped around the end of the encasement pipe in three layers and securely bound to the casing and the carrier pipe barrel with stainless steel bands. The EPDM membrane shall be 0.045 inches thick and have a tear resistance of 125 pounds/inches. The membrane shall be manufactured by Carlisle Tire & Rubber Company, Firestone Industrial Products Company, or approved equal. The casing sealant should be constructed to allow drainage of liquid (water).

3.03 DAMAGE

The cost of repairing damage that is caused by the boring operation to the highway or railroad shall be borne by the Contractor.

END OF SECTION 02630

SECTION 02642 - SEWAGE VALVES AND GATES

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall furnish and install valves, gates, and miscellaneous piping appurtenances, as indicated on the Drawings and as herein specified.
- B. The Drawings and Specifications direct attention to certain features of the equipment, but do not purport to cover all the details of their design. The equipment furnished shall be designed and constructed equal to the high quality equipment manufactured by such firms as are mentioned hereinafter, or as permitted by the Engineer. The Contractor shall furnish and install the equipment complete in all details and ready for operation.
- C. Valves for use in the following services are specified under their appropriate sections:
 - 1. Chemical piping.
 - 2. Heating and air conditioning.
 - 3. Plumbing.
 - 4. Instrumentation.
 - 5. Electrical.
- D. Electrical work and equipment specified herein shall conform to the requirements of the applicable electrical sections.
- E. Enclosures shall be of a suitable type for the atmospheres in which they are installed.
- F. Sizes and capacities not specified herein are indicated on the Drawings.

1.02 RELATED WORK

- A. Section 02225 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 02732 - Sewage Force Mains.

1.03 SUBMITTALS

- A. Complete shop drawings of all valves and appurtenances shall be submitted to the Engineer in accordance with the requirements of Section 01300.
- B. The manufacturer shall furnish the Engineer two (2) copies of an affidavit stating that the valve and all materials used in its construction conform to the applicable requirements of ANSI/AWWA valve, and that all tests specified therein have been performed and that all test requirements have been met.

- C. The Engineer shall be furnished two (2) copies of affidavit that the "valve protection testing" has been done and that all test requirements have been met.
- D. The Engineer shall be furnished with two (2) copies of affidavit that inspection, testing and rejection are in accordance with AWWA Standard.

PART 2 - PRODUCTS

2.01 BALL VALVES

- A. Ball valves shall have double union ends to permit removal of the valve without disconnecting the pipeline and shall be of the type which will not leak when the downstream union end is disconnected.
- B. Viton "O" ring seals shall be used with teflon seats. Ball valves shall be installed with the flow arrow pointed in the direction of flow to permit disconnection of downstream piping.
- C. During installation, the valve handle shall be oriented for ease of operation by rotating the valve body about its axis prior to tightening the ends.
- D. Where indicated on the Drawings, the valve shall be equipped with a pointer and scale plate which will indicate the position of the valve at all times.

2.02 CHECK VALVES

- A. Check valves 3 inches and larger shall be iron body, stainless mounted, full opening, swing type check valves with bolted covers and flanged ends. Flanges shall be faced and drilled in accordance with the 125-pound ANSI Standard. Valves shall comply with AWWA Standard C508 latest revision.
- B. Valves shall be equipped with outside lever and weight and shall be manufactured by M&H Valve Company, or equal.
- C. Valves shall be designed for working pressures as follows:

| <u>Valve Size (Diameter)</u> | <u>Pressure</u> |
|------------------------------|-----------------|
| 3 to 12 inches | 175 psi |
| 14 to 24 inches | 150 psi |
| 30 inches and larger | 120 psi |

- D. Check valves smaller than 3 inches in size shall be 200-pound WOG minimum bronze or all brass swing check valves. Valves shall have screw-on cap and renewable composition

disks. Valve body shall be as herein specified for gate valves.

- E. Check valves in pipelines carrying sewage or sludge shall be installed horizontally.

2.03 PLUG VALVES

- A. Plug valves shall conform to the latest revision of AWWA C507 and shall be of the non-lubricated eccentric type with resilient plugs faced with natural or synthetic rubber suitable for service in sewage and sludge piping. Plugs shall be one piece solid ductile iron, ASTM A536. All plugs shall have a cylindrical seating surface.
- B. Port areas shall be rectangular and unobstructed when open and have smoothly shaped waterways of one hundred percent (100%) of standard, full pipe area regardless of the CV values.
- C. Valve bodies shall be straight-through design with flushing port to maximize flow capacity and reduce headloss. Valve bodies shall be constructed of ASTM A126 class B cast iron, suitable for 125-pound working water pressure and shall have raised seats.
- D. Valves 3 inches and larger shall have seats of a welded in overlay of not less than 90 percent (90%) pure nickel or other acceptable material.
- E. Valves less than 3 inches shall have plastic-covered seats.
- F. Valves shall have permanently lubricated upper and lower stainless steel bushings on plug journal ends. Valve bodies shall be provided with grit excluders in the upper and lower journal areas.
- G. Valves shall have bolted bonnets. The valve stem packing shall be externally adjustable and provided with a spacer bonnet in order to allow visual inspection of the packing chamber. The packing shall be adjustable and replaceable without removing the bonnet of the valve and/or with the valve under pressure. Valves with non-adjustable packing shall not be acceptable.
- H. Valves 6 inches and larger shall be gear-operated with hand wheels and valves smaller than 6 inches shall be wrench operated, except as hereinafter specified or indicated on the Drawings. Gear operators shall have a stainless steel input shaft.
- I. Where there is a lack of space for the valve wrench to operate gear operators, hand wheels shall be provided in lieu of the wrench.
- J. Chain operators, consisting of sprocket wheels, chain guides and operating chains shall be provided for all valves with operator centerlines located more than 6 feet 6 inches above the operating level. Operating chain shall be galvanized and shall extend within 3 feet of the operating level.

- K. Gear operators shall be totally enclosed, worm gear type, permanently lubricated, and shall be watertight and dust tight.
- L. Gear operators shall be provided with adjustable stops for the open and closed position to prevent over travel, and shall have a valve disk position indicator.
- M. A suitable lever or wrench shall be provided for each six wrench operated valves but at least one wrench for each operating station. Wrenches or wheels and chains shall be of suitable size and sufficient length for easy operation of the valves at their rated working pressure.
- N. Plug valves 2-1/2 inches and smaller shall have screwed ends.
- O. Plug valves 3 inches and larger shall have mechanical joint or flanged ends faced and drilled in accordance with 125-pound ANSI Standard.
- P. Plug valves shall be PEF Series as manufactured by DeZurik, or equal.

2.04 GATE VALVES

- A. All gate valves shall be of the resilient wedge type, iron body, non-rising stem. Valves shall be of standard manufacture and of the highest quality both as to materials and workmanship and shall conform to the latest revisions of AWWA Specification C-509. Valves 2" through 12" shall have a rated working pressure of 250-psi and valves 12" through 24" shall have a rated working pressure of 200-psi.
- B. Gate valves for buried service shall be furnished with mechanical joint end connections, unless otherwise shown on the Drawings or specified herein. The end connection shall be suitable to receive ductile iron or PVC pipe.
- C. Gate valves for meter pits, pump stations, or other installations as shown on the Drawings shall be furnished with flanged joint end connections and hand wheel operator. The gate valve shall have the direction of opening cast on the rim of the hand wheel and provided with chain and lock.
- D. All gate valves shall have the name or monogram of the manufacturer, the year the valve casting was made, the size of the valve, and the working pressure cast on the body of the valve. Valves 18" and larger shall be provided with gear actuators.
- E. Buried service gate valves shall be provided with a 2-inch square operating nut and shall be opened by turning to the left (counterclockwise).
- F. Buried service gate valves shall be installed in a vertical position with valve box as detailed on the Drawings. They shall be set vertically and properly adjusted so that the

cover will be in the same plane as the finished surface of the ground or paved surface (concrete, bituminous, etc.).

- G. Valves shall be those manufactured by Mueller, M&H Valve Company, American, or equal.

2.05 SOLENOID VALVES

- A. Solenoid valves shall be bronze body, screwed-end, single integral seat, full pipe area, globe type valves, with renewable composition disk seats.
- B. Solenoid enclosures shall meet NEMA Type 4X requirements with coils epoxy encapsulated and suitable for high ambient temperatures (140 degrees F). NEMA 7 enclosures shall be provided in Class I or Class II hazardous areas.
- C. Valves shall be suitable for operation on 120 volt, single-phase, 60 Hz current, and designed to open when energized.
- D. The solenoid valves shall be manufactured by Automatic Valve Co., Inc., Indianapolis, IN; J.D. Gould Co., Indianapolis, IN; Automatic Switch Co., Florham Park, NJ; Magnatrol Valve Corp., Hawthorne, NJ; or equal.

2.06 TAPPING SLEEVES AND VALVES

- A. Tapping sleeves and valves shall consist of a split cast iron sleeve tee with mechanical joint ends on the main and a flange on the branch, and a tapping type gate valve with one flange end and one mechanical joint end.
- B. The valve shall, in general, conform to the requirements hereinbefore specified for gate valves and shall be furnished with a 2-inch square operating nut.
- C. The Contractor shall be responsible for verifying the outside diameter of the pipe to be correct. Sleeves and valves shall be manufactured by M&H Valve & Fittings, Div. of Dresser, Inc., Anniston, AL; Clow Corporation, Chicago, IL; Traverse City Iron Works, Traverse City, MI; or equal.

2.07 MUD VALVES

- A. Mud valves shall be located and sized as indicated on the Drawings and as specified herein. Mud valves shall be designed for basin drain applications, and shall be of the non-rising stem type. Mud valves shall be constructed entirely of stainless steel. All hardware shall be stainless steel. Valves shall have flanged end configurations.
- B. The valves shall be furnished with operating nuts to be located at the positions shown on the Drawings. They shall also be furnished with extension stems, stem guides if required,

and bench stands.

- C. The mud valves shall be as manufactured by H. Fontaine LTD., Quebec Canada, Clow Corporation, or equal.

2.08 TELESCOPING VALVES

Telescoping valves shall be equipped with hand wheel operated floorstands and shall be sized as indicated on the Drawings. Valves shall be as manufactured by Troy Valve, H. Fontaine LTD., Quebec Canada, or equal.

2.09 AIR RELEASE AND AIR/VACUUM VALVES

- A. The combination valve shall be of the type that automatically exhausts large quantities of air during the filling of a system and allows air to re-enter during draining or when a vacuum occurs. Valves shall also release small quantities of air as they gather in the valve body during normal operation. The over-all height less back wash accessories shall not exceed 21 inches.
- B. All back wash accessories shall be furnished and assembled to the valve, consisting of an inlet shut-off valve clear water inlet valve, rubber supply hose and quick disconnect couplings.
- C. All parts of the valves and the operating mechanisms shall be made of non-corrodible materials.
- D. On sewage or sludge lines, the combination air/vacuum valve shall be 2-inch unless noted otherwise, model D-025 as manufactured by A.R.I. USA, Inc., or equal.

2.10 SLIDE GATES

- A. Self-contained slide gates shall be rising stem, fabricated gates complete with frames and anchor rods, plate disk, stem, and bench stand. All metal parts, with the exception of the stem and bench stand shall be of aluminum. Stems shall be made of stainless steel. Bench stands are described hereinafter.
- B. Side frame shall be made of extruded aluminum members having a slot in which the disk shall be guided. The bottom frame members shall be an aluminum tee or an angle to serve as a flat seat for the rubber seat on the bottom edge of the disk.
- C. The disk shall be reinforced as necessary to prevent buckling and to support the attachment for the stem.
- D. The top frame member or concrete structure shall support the bench stand as indicated on the Drawings.

- E. The slide gates shall be flush bottom fabricated metal gates made by H. Fontaine LTD., Quebec, Canada; Rodney-Hunt Machine Co., Orange, MA; or equal.
- F. Manually lifted slide gates shall have embedded or surface mounted frames and shall be as indicated on the Drawings and as herein specified.
- G. Disk and frame shall be 6061-T6 aluminum alloy and temper designation of the Aluminum Association. Disk shall be formed from aluminum plate and frames for the disk shall be of extruded aluminum. The handle shall be of the same material as the gates.
- H. Frame shall be set into the concrete as the concrete is being placed. The frame shall be straight and true, and shall permit the gates to be moved easily and to seat tight without binding.

2.11 DOWNWARD OPENING WEIR GATES

- A. Weir gates shall be supplied with all the necessary parts and accessories required for a complete, properly operating installation. All parts except for the stem shall be manufactured from ASTM B-209 Alloy 6061-T6 Aluminum. Stem and guides shall be manufactured from ASTM A-276 type 304L stainless steel. Weir gates shall conform to the applicable requirements of AWWA C501's latest edition.
- B. The frame shall be of the frame back design welded to form a rigid one-piece frame suitable for mounting on a concrete wall. The guide slot shall be provided with an ASTM D-1248 ultra high molecular weight polyethylene (UHMWPE).
- C. The slide shall consist of a flat plate reinforced with additional structural members to limit deflection to $1/720$ of the gate's span under the design loading conditions.
- D. The seals shall be made of UHMWPE of the self-adjusting type. A compression cord shall ensure contact in all positions providing a watertight seal. A watertight seal shall be maintained under design head conditions. Leakage shall not exceed 0.1 gallon per minute (gpm) per foot of seal periphery under seating head and 0.2 gpm per foot for the unseating head.
- E. Stems and couplings shall be manufactured of stainless steel designed to transmit in compression at least 2 times the rated output of the operating mechanism with a 40 pound effort on the crank. The stem shall have a slenderness ratio less than 200 and be provided with machined cut threads of the ACME type.
- F. For stems more than one-piece, individual sections shall be joined by solid couplings.
- G. Gates with widths equal to or greater than two times the height shall be provided with two lifting mechanisms connected by a tandem shaft.

- H. Weir gates shall be manufactured by H. Fontaine LTD., Quebec, Canada; Rodney-Hunt Co., Orange, MA; or equal. All weir gates shall be products of the same manufacturer.

2.12 SLUICE GATES

- A. Sluice gates shall conform to the AWWA Standard for sluice gates (C501-80) and as supplemented hereinafter. Sluice gates shall be manufactured by H. Fontaine LTD., Quebec Canada; Rodney-Hunt Co., Orange, MA; or equal. All sluice gates shall be products of the same manufacturer.
- B. The general equipment provided under this section shall be fabricated, assembled, erected and placed in proper operating condition in full conformity with the drawings, specifications, engineering data, instructions and recommendations of the equipment manufacturer unless exceptions are noted by the engineer.
- C. Large rectangular thimbles shall be provided with holes in the invert to allow satisfactory concrete placement beneath the thimble, where required.
- D. Sluice gates shall be substantially watertight under the design head conditions. Under the design seating head, the leakage shall not exceed 0.05 gallon per minute per foot of seating perimeter. Under the design unseating head, the leakage for heads of 20 feet or less shall not exceed 0.1 gallon per minute per foot of perimeter. The sluice gates shall be designed to withstand the design head show in the schedule.
- E. The gates sealing system shall have been tested through a cycle test in an abrasive environment and should show that the leakage requirements are still obtained after 25,000 cycles. These documents shall be provided to the engineer and owner in the submittal package.
- F. All gates shall be self contained and of the non-rising stem type.
- G. The gate frame shall be constructed of structural members of formed plate welded to form a rigid one-piece frame and fabricated from 304L stainless steel. The frame shall be of the flange back design suitable for mounting on a concrete wall, wall thimble or standard pipe flange as shown on the drawings. The frame configuration shall be of the flush-bottom type and shall allow the replacement of the top and side seals without removing the gate frame from the concrete or wall thimble. The yoke shall be 304L stainless steel.
- H. The slide shall consist of a flat plate reinforced with formed plates or structural members to limit its deflection to 1/720 of the gate's span under the design head. The slide shall be fabricated from 304L stainless steel.
- I. The guides shall be made of UHMWPE (ultra high molecular weight polyethylene) and shall be of such length as to retain and support at least two-thirds (2/3) of the vertical

height of the slide in the fully open position. Side and top seals shall be made of UHMWPE of the self-adjusting type. A compression cord made of Nitrile shall ensure contact between the UHMWPE guide and the gate in all positions. The sealing system shall maintain efficient sealing in any position of the slide and allow the water to flow only in the opened part of the gate. The bottom seal shall be made of resilient neoprene set into the bottom member of the frame and shall form a flush-bottom.

- J. The operating stem shall be of 303 MX stainless steel and designed to transmit in compression at least 2-times the rated output of the operating manual mechanism with a 40LB effort on the crank or hand wheel. The stem shall have a slenderness ratio less than 200. The threaded portion of the stem shall have machined cut threads of the Acme type. For stems in more than one piece and with a diameter of 1-3/4 inches and larger, the different sections shall be joined together by solid couplings. Stems with a diameter smaller than 1-3/4 inches shall be pinned to an extension tube. Gates having an equal to or greater than 2-times their height shall be provided with two lifting mechanisms connected by a tandem shaft. The lifting nut shall be bronze.
- K. If the gates are mounted directly to a concrete wall, an EPDM gasket shall be provided for mounting between the frame and the wall. Rising stem gates shall be provided with a clear stem tube cover.

2.13 VALVE BOXES

- A. Each buried stop and valve shall be provided with a suitable valve box. Boxes shall be of the adjustable, telescoping, heavy-pattern type with the lower part of cast iron and the upper part of steel or cast iron. They shall be so designed and constructed as to prevent the direct transmission of traffic loads to the pipe or valve.
- B. The upper or sliding section of the box shall be provided with a flange having sufficient bearing area to prevent undue settlement. The lower section of the box shall be designed to enclose the operating nut and stuffing box of the valve and rest on the valve bonnet.
- C. The boxes shall be adjustable through at least 6 inches vertically without reduction of the lap between sections to less than 4 inches.
- D. The inside diameter of boxes for valves shall be at least 4-1/2 inches, and the lengths shall be as necessary for the depths of the valves or stops with which the boxes are to be used.
- E. Covers for valves shall be close fitting and substantially dirt-tight.
- F. The top of the cover shall be flush with the top of the box rim. An arrow and the word OPEN to indicate the direction of turning to open the valve shall be cast in the top of the valve covers.

2.14 FLOORSTANDS

- A. Floorstands shall be hand wheel or crank operated as indicated on the Drawings or as required to suit the application.
- B. Hand wheel operated type shall be without gear reduction and crank-operated type will have either single or double gear reduction depending upon the lifting capacity required. Each type shall be provided with a threaded cast bronze lift nut to engage the operating stem. Tapered roller bearings shall be provided above and below a flange on the operating nut to support both opening and closing thrusts. Floor stands shall develop their maximum capacity with not greater than a 40-pound pull on the crank or hand wheel. Gears, where required, shall be steel with machined cut teeth designed for smooth operation. The pinion shafts on crank-operated floorstands, either single or double ratio, shall be supported on tapered roller bearings or other approved bearings. All components shall be totally enclosed in a cast iron case and cover. Positive mechanical seals will be provided on the operating nut and the pinion shafts to exclude moisture and dirt and prevent leakage of lubricant out of the hoist. Lubricating fittings shall be provided for the lubrication of all gears and bearings. Floorstands shall include a cast iron pedestal with the input shaft or hand wheel approximately 36 in. above the operating floor. An arrow with the word OPEN shall be cast on the floorstand or hand wheel indicating the direction of rotation to open.
- C. Floorstands for rising stem sluice gates shall have clear, transparent, rigid, plastic stem covers.
- D. Floorstands for non-rising stem sluice gates shall have stem indicators.
- E. Floorstands shall be provided by the valve or gate manufacturer with each valve or gate requiring floorstands.

2.15 T-HANDLE OPERATING WRENCHES

T-handle operating wrenches shall be provided in the number and lengths necessary to permit operation of all valves by operators of average height working in normal positions.

2.16 FLOOR BOXES

- A. The floor boxes shall be cast iron with a bronze bushing of the size necessary to accommodate the extension stem. The boxes shall be suitable for installation in a concrete floor of the thickness indicated on the Drawings.
- B. They shall be similar to those made by Mueller Co., Decatur, IL; Clow Corporation, Chicago, IL; or equal.

2.17 PRESSURE GAUGES

- A. Pressure gauges shall have cast brass cases with bourdon tubes and precision rotary

movements of bronze, nickel, or other material suitable to the environment in which they will be located. Dials shall be 6 inches in diameter with a pressure range of 0 to 50 psi. Provide female quick coupler for connection to corporation stop.

- B. Corporation stops shall be similar to Mueller and shall have iron pipe threads with pack joint connection outlets. Provide male quick coupler for attachment of pressure gauge.
- C. Pressure gauges shall have a snuffer to prevent shock damage to gauges. Pressure gauges shall be diaphragm sealed.

2.18 FIBERGLASS LINE MARKER

A. General:

1. Design: The continuous fiberglass reinforced composite line marker (CRM-375) shall be a single piece marker capable of simple, permanent installation by one person using a manual driving tool. The CRM-375 upon proper installation shall resist displacement from wind and vehicle impact forces. The CRM-375 shall be of a constant flat "T" cross sectional design with reinforcing support ribs incorporated longitudinally along each edge to provide sheeting protection and structural rigidity. The bottom end of the marker shall be pointed for ease of ground penetration.
2. Material: The CRM-375 marker shall be constructed of a durable, UV resistant, continuous glass fiber and marble reinforced, thermosetting composite material which is resistant to impact, ozone, and hydrocarbons within a service temperature range of -40⁰ F to +140⁰ F.
3. Workmanship: The CRM-375 marker shall exhibit good workmanship and shall be free of burns, discoloration, cracks, bulges or other objectionable marks which would adversely affect the marker's performance or serviceability.
4. Marking: Each CRM-375 shall be permanently marked "Sewer Line Below". The letters shall be a minimum of 2 inches in height. A black line shall be stamped horizontally across the front of the marker near the bottom to indicate proper burial depth as shown in the standard detail.

B. Physical and Mechanical Requirements:

1. Dimensions: The CRM-375 marker shall conform to the shape and overall dimensions shown in the standard detail.
2. Mechanical Properties: The CRM-375 shall have the minimum mechanical properties as shown in the following table:

| Property | ASTM Test Method | Minimum Value |
|-------------------------------|------------------|---------------|
| Ultimate Tensile Strength | D-638 | 50,000 psi |
| Ultimate Compressive Strength | D-638 | 45,000 psi |
| Specific Gravity | D-792 | 1.7 |
| Weight % Glass Reinforcement | D-2584 | 50% |

| | | |
|-----------------|--------|----|
| Barcol Hardness | D-2583 | 47 |
|-----------------|--------|----|

3. Color Fastness: The CRM-375 shall be pigmented throughout the entire cross-section so as to produce a uniform color which is an integral part of the material. Ultraviolet resistant materials shall be incorporated in the construction to inhibit fading or cracking of the delineator upon field exposure.
4. Vehicle Impact Resistance: The Carsonite CRM-375 marker shall be capable of self-erecting and remain functional after being subjected to a series of ten head on impacts by a typical passenger sedan at 35 m.p.h. The CRM-375 shall retain a minimum of 60 percent (60%) of its sheeting.

C. Reflectors:

1. The reflector shall be of impact resistant, pressure sensitive retroreflective sheeting which shall be subject to approval by the Engineer. The sheeting shall be of appropriate color to meet MUTCD requirements.
2. Mounting: The retroreflective sheeting shall consist of a minimum of a three-inch wide strip placed a maximum of two inches from the top of the post unless otherwise specified.

2.19 SURGE RELIEF VALVE

A. General:

1. The angle surge relief valve shall be heavily constructed cast iron body with a ductile iron cover/spacer to withstand severe shock conditions. The body shape shall be 90° angle patten to permit side or downward discharge.
2. The cover/spacer shall provide an air gap between the surge valve and the hydraulic cylinder. The valve stem shall be connected to the hydraulic cylinder by means of a self-aligning universal connector to ensure smooth positive opening without biding during shock opening of the valve.
3. The hydraulic cylinder shall be removable from the valve, without dismantling or removing the valve from the line.
4. Closing speed shall be externally adjustable by means of a micrometer control valve.
5. The valve disc shall be normally closed against the system operating pressure by means of a spring or springs. When the system pressure exceeds the normal operating pressure by 10%, the valve shall open immediately to relieve the pressure surge and close slowly as the system pressure returns to normal, by means of the hydraulic cylinder. The hydraulic cylinder shall be capped on both ends (totally enclosed) to prevent dirt or dust from fouling up the cylinder operation. It shall be fitted with an atmospheric oil reservoir.
6. The shut-off pressure shall be set at the factory, but additional adjustments can be made in the field by increasing or decreasing the tension on the externally adjustable springs.
7. Valve exterior to be painted with primer.

8. All materials shall be certified in writing to conform with ASTM specifications.
9. Valve to be APCO Series 3000 Angle Surge Relief Valve, as manufactured by Valve & Primer Corporation; Schaumburg, Illinois; GA Industries, Inc., or equal.

2.20 FLANGED PRESSURE SENSORS

A. General:

1. The sensor shall be flanged and bolted directly into ANSI flanged pipelines. Face-to-face shall be no greater than a wafer style of a butterfly valve. The flanges shall have thru bolt holes to enable positive alignment in the pipeline. Inside diameter of the sensor shall be the same as the mating pipe with a full thru uninterrupted flow. There shall be no dead ends or crevices and flow passage shall make the sensor self-cleaning.
2. The pressure sensing ring shall measure pressure for 360⁰ around the full inside circumference of the pipeline. The sensing ring shall also be clamped into the body for the full radial width of the sensor. Pressure shall be transmitted to the gauge by a locked in and sealed fluid such as ethylene glycol or silicone oil. The sensor shall have an auxiliary tapped and plugged port to allow filling connection of other equipment.
3. All sensors shall be Series 40, as manufactured by the Red Valve Co., Carnegie, PA., or equal.

2.21 FLAP VALVES

- A. Flap gates shall be entirely constructed of 304 stainless steel. All hardware shall be 304 stainless steel. The frame shall be made of structural members or formed plate welded to form a rigid one-piece frame. The frame shall be of the flange back design suitable for mounting on a concrete wall or standard pipe flange. The gate cover shall be made of structural members or formed plate adequately reinforced to withstand the maximum specified seating head. Seals shall be made of resilient neoprene attached to the body by means of a retainer ring for flaps up to 24-inches. The hinges shall consist of a stainless steel hinge pin and shall have a UHMWPE bushing. Flap valves shall be Fontaine series 60 or equal.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Valves shall be installed as nearly as possible in the positions indicated on the Drawings consistent with conveniences of operating the hand wheel or wrench. All valves shall be carefully erected and supported in their respective positions free from all distortion and strain on appurtenances during handling and installation.
- B. All material shall be carefully inspected for defects in workmanship and material, all

debris and foreign material cleaned out of valve openings and seats, all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness.

- C. Valves and other equipment that do not operate easily or are otherwise defective shall be repaired or replaced at the Contractor's expense.
- D. Valves shall not be installed with stems below the horizontal.
- E. Valves shall be set plumb and supported adequately in conformance with the instructions of the manufacturer. Valves mounted on the face of concrete shall be shimmed vertically and grouted in place. Valves in the control piping shall be installed so as to be easily accessible.
- F. Where chain wheels are provided for remote operation of valves, two S-shaped hooks shall be provided for each valve to enable the chains to be hooked so as not to interfere with personnel traffic.
- G. Valves shall be provided with extension stems where required for convenience of operation. Extension stems shall be provided for valves installed underground and elsewhere so that the operating wrench does not exceed 6 feet in length.
- H. A permanent type gasket of uniform thickness shall be provided between flanges of valves and sluice gates and their wall thimble.
- I. Wall thimbles shall be accurately set in the concrete walls so that the gates can be mounted in their respective positions without distortion or strain.
- J. Plug valves in horizontal sewage and sludge piping shall be installed with the shaft horizontal such that when in the open position, the plug is located in the upper part of the valve body. Valves shall be oriented so that in the closed position, the plug is at the downstream end of the valve.
- K. Floorstand operators and stem guides shall be set so that the stems shall run smoothly in true alignment. Guides shall be anchored firmly to the walls. Distances from the centerlines of gates to the operating level or base of floorstand shall be checked by the Contractor and adjusted if necessary to suit the actual conditions of installation.

3.02 PAINTING

- A. Valves shall be factory primed and fully coated, inside and out, with epoxy paint in accordance with the valve manufacturer's recommendation.
- B. All valve vault piping, valves, and other metal products that are not stainless steel or hot-dip galvanized shall receive 2-3 mils of 1074 Endurashield II as manufactured by The

Themic Company, or equal, over the factory primer.

END OF SECTION 02642

SECTION 02731 - GRAVITY SEWERS

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all labor, material, and equipment necessary to install gravity sewer piping together with all appurtenances as shown and detailed on the Drawings and specified herein.

1.02 RELATED WORK

- A. Section 02222 - Excavation.
- B. Section 02225 - Excavating, Backfilling, and Compacting for Utilities.

PART 2 - PRODUCTS

2.01 PIPE AND FITTINGS

- A. Ductile Iron (DI) Pipe:
 - 1. Ductile iron pipe shall conform to ANSI A21.50 (AWWA C150) and ANSI A21.51 (AWWA C151) (latest revision). The pipe shall be designed for an internal working pressure of 150 psi and external loading based on flat bottom trenches without blocks and untamped backfill-laying conditions. The pipe shall have a minimum pressure class of 150 psi.
 - 2. Fittings shall be ductile iron fittings in accordance with AWWA C153.
 - 3. Joints shall be push-on type or mechanical joint type conforming to ANSI A21.11 (AWWA C111). Unless specifically required at designated locations by the Drawings, the type of joint used is optional.
 - a. Push-on joints shall have an annular recess in the pipe socket to accommodate a single rubber gasket. Plain ends shall be suitably beveled to permit easy entry into the bell. The gasket and annular recess of the socket shall be so designed and shaped that the gasket is located in place against displacement as the joint is assembled.
 - b. Mechanical joints shall be bolted and of the stuffing box type and shall consist of a bell with exterior flange and interior recess for the sealing gasket, a pipe or fitting plain end, a sealing gasket, a follower gland, tee-head bolts and hexagon nuts.
 - 4. All ductile iron pipe and fittings shall have the manufacturer's outside asphaltic coating and a cement lining and bituminous seal coat on the inside. Cement mortar lining and bituminous seal coat inside shall conform to ANSI A21.4 (AWWA C104).

5. Pipe shall be furnished in lengths of 16, 16.5, 18, or 20 feet nominal laying lengths. The weight of any single pipe shall not be less than the tabulated weight by more than 5 percent for pipe 12 inches or smaller in diameter, not by more than 4 percent for pipe larger than 12 inches in diameter.
6. The net weight, class or nominal thickness and sampling period shall be marked on each pipe. The pipe shall also be marked to show that it is ductile iron.
7. Pipe shall be as manufactured by U.S. Pipe & Foundry Company, American Cast Iron Pipe Company, or equal.

B. Polyvinyl Chloride (PVC) Pipe:

1. Solid Wall PVC Pipe (SDR 35):
 - a. PVC pipe and fittings less than 15 inches in diameter shall conform to the requirements of ASTM Standard Specifications for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings, Designation D 3034. Pipe and fittings shall have a minimum cell classification of 12454B or 12454C as defined in ASTM D-1784. All pipe shall have a pipe diameter to wall thickness ratio (SDR) of a maximum of 35.
 - b. PVC pipe and fitting with diameters 18-inch through 27-inch shall conform to the requirements of ASTM D-1784 and ASTM F-679. Pipe and fittings shall have a minimum cell classification of 12454C. The minimum wall thickness shall conform to T-1 as specified in ASTM F-679.
 - c. Joints shall be push-on bell and spigot type using elastomeric ring gaskets conforming to ASTM D 3212 and F 477. The gaskets shall be securely fixed into place in the bells so that they cannot be dislodged during joint assembly. The gaskets shall be of a composition and texture which is resistant to common ingredients of sewage and industrial wastes, including oils and groundwater, and which will endure permanently under the conditions of the proposed use.
 - d. Pipe shall be furnished in lengths of not more than 13 feet. The centerline of each pipe section shall not deviate from a straight line drawn between the centers of the openings at the ends by more than 1/16 inch per foot of length.
 - e. PVC pipe shall not have a filler content greater than ten percent (10%) by weight relative to PVC resin in the compound.
 - f. PVC pipe shall be clearly marked at intervals of 5 feet or less with the manufacturer's name or trademark, nominal pipe size, PVC cell classification, the legend "Type PSM SDR 35 PVC Sewer Pipe" and the designation "ASTM D 3034", or "ASTM F-679". Fittings shall be clearly marked with the manufacturer's name or trademark, nominal size, the material designation "PVC", "PSM" and the designation "ASTM D 3034", or "ASTM F-679".
 - g. PVC pipe shall have a minimum pipe stiffness of 46 psi for each diameter when measured at 5 percent vertical ring deflection and tested in accordance with ASTM D-2412.

- h. Five (5) copies of directions for handling and installing the pipe shall be furnished to the Contractor by the manufacturer at the first delivery of pipe to the job. PVC pipe installation shall conform to ASTM D-2321 latest revision.
 - i. Pipe shall be as manufactured by H & W Pipe Company, or equal.
2. Corrugated Wall PVC Pipe with Smooth Interior:
- a. Corrugated PVC pipe and fittings greater than 15 inches in diameter shall conform to the requirements of ASTM F-949. Pipe and fittings shall have a minimum cell classification of 12454B or 12454C in accordance with ASTM D-1784.
 - b. Joints shall be push-on bell and spigot type using elastomeric ring gaskets conforming to ASTM D 3212 and F 477. The gaskets shall be double sealed so that they cannot be dislodged during joint assembly. The gaskets shall be of a composition and texture which is resistant to common ingredients of sewage and industrial waste, including oils and groundwater, and which will endure permanently under the conditions of the proposed use.
 - c. Corrugated PVC pipe shall be furnished in lengths of 13 or 20 feet. The centerline of each pipe section shall not deviate from a straight line drawn between the centers of the openings at the ends by more than 1/16 inch per foot of length.
 - d. Corrugated PVC pipe shall have a smooth interior.
 - e. PVC pipe shall not have a filler content greater than ten percent (10%) by weight relative to PVC resin in the compound.
 - f. Corrugated PVC pipe shall be clearly marked at intervals of 5 feet or less with the manufacturer's name or trademark, nominal pipe size, PVC cell classification, the plastic "PVC", the designation "ASTM F-949", and extrusion code, including date and location of manufacture. Fittings shall be clearly marked with the manufacturer's name or trademark, nominal size, the material designation "PVC", and the designation "ASTM F-949".
 - g. Corrugated PVC pipe shall have a minimum stiffness of 50 psi when measured at 5 percent vertical ring deflection (tested in accordance with ASTM D-2412), as defined in ASTM F-949.
 - h. Five (5) copies of directions for handling and installing the pipe shall be furnished to the Contractor by the manufacturer at the first delivery of pipe to the job. PVC pipe installation shall conform to ASTM D-2321 latest revision.
 - i. Corrugated PVC pipe shall be A2000 as manufactured by Contech Construction Products, Inc. or approved equal.

C. Truss Pipe:

- 1. Truss pipe and fittings shall conform to the requirements of ASTM D-2680.
- 2. The thermoplastic material shall be rigid PVC plastic and shall be in accordance with ASTM D-1784. PVC plastic shall be manufactured with minimum cell

- classification of 12454B or 12454C.
3. The truss annulus shall be filled with cement pearlite concrete (or other inert filler material exhibiting the same degree of performance as cement pearlite concrete) to form a semi-rigid composite pipe.
 4. Truss pipe and fittings shall have a minimum stiffness of 200 psi for each diameter when measured at 5 percent vertical ring deflection and tested in accordance with ASTM D-2412.
 5. Joints shall be push-on bell and spigot type using elastomeric ring gaskets conforming to ASTM D-3212 and F-477. The gaskets shall be securely fixed into place in the bells so that they cannot be dislodged during joint assembly. The gaskets shall be of a composition and texture which is resistant to common ingredients of sewage and industrial wastes, including oils and groundwater, and which will endure permanently under the conditions of the proposed use. No solvent cement joints shall be allowed.
 6. All field cutting of pipe shall be done in a neat, trim manner using a hand saw per manufacturer's recommendations. Care shall be taken to protect the filler material. All field cuts shall be sealed according to manufacturer's recommendations.
 7. Pipe shall be furnished in lengths of not more than 13 feet. The centerline of each pipe section shall not deviate from a straight line drawn between the centers of the openings at the ends by more than 1/16 inch per foot of length.
 8. PVC pipe shall be clearly marked at intervals of 5 feet or less with the manufacturer's name or trademark, nominal pipe size, PVC cell classification, the legend "PVC Composite Pipe", the designation "ASTM D-2680", and the extrusion code, including date and location of manufacture. Fittings shall be clearly marked with the manufacturer's name or trademark, nominal size, the material designation "PVC", and the designation "ASTM D-2680".
 9. Five (5) copies of directions for handling and installing the pipe shall be furnished to the Contractor by the manufacturer at the first delivery of pipe to the job. PVC pipe installation shall conform to ASTM D-2680 latest revision.
 10. Truss pipe shall be PVC truss pipe as manufactured by Contech Construction Products, Inc. or an approved equal.

D. Reinforced Concrete Pipe:

1. All reinforced concrete pipe shall conform to the requirements of ASTM C76-89. Class shall be as shown on the Drawings.
2. Joints shall be bell and spigot type using Forsheda 138 or Forsheda 103 gaskets (or equal) and shall conform to ASTM C443.
3. The pipe shall be furnish in standard lengths of 8 feet to 16 feet.
4. The pipe shall be permanently marked showing the nominal inside diameter, manufacture date, ASTM C76 class, and manufacturer's name. These markings for 30-inch diameter and larger shall be inscribed on the pipe exterior and stenciled on the interior with paint or permanent ink.
5. There shall be no lift holes.
6. Pipe shall be as manufactured by Independent Concrete Pipe Company, equal.

7. Coating and Lining:
 - a. All concrete pipe shall be coated and lined at the pipe manufacturer's plant.
 - b. The exterior coating and interior lining shall be a high build multi-component Amine cured Novalac epoxy polymeric coating/lining equal to the Protecto 401 as manufactured by Vulcan Painters, Inc. of Birmingham, AL.
 - c. The coating/lining shall have a permeability rating in accordance with Method A of ASTM E-96-66.
 - d. The surface preparation shall remove all loose laitance, form oils, and other loose materials and include a "brush blast" per SSPC.
 - e. The coating and lining shall be applied in accordance with the manufacturer's requirements and have a minimum dry film thickness (DFT) of:
 - (1) Exterior Coating: 25 mil DFT.
 - (2) Interior Coating: 40 mil DFT.
 8. Connection of existing and proposed sewer lines to the reinforced concrete pipe shall be accomplished by the following methods:
 - a. Precast concrete fittings with joints using Forsheda 138 or Forsheda 103 gaskets (or equal) conforming to ASTM C443, or
 - b. Core drilling the reinforced concrete pipe and installing a KOR-N-TEE Model 1200 GP flexible watertight connector (or equal) as manufactured by KOR-N-SEAL. Connector shall be made of EPDM rubber. All hardware shall be 304 stainless steel.
- E. High Density Polyethylene Pipe:
1. Material: The polyethylene pipe shall be high performance, high molecular weight, high density polyethylene pipe equal to Driscopipe 1000 as manufactured by Phillips Driscopipe, Inc., Richardson, TX, conforming to ASTM D 1248 (Type III, Class C, Category 5, Grade P34). Minimum cell classification values shall be 3 4 5 4 3 4 C as referenced in ASTM D 3350.
 2. Physical Properties of Pipe Compound:
 - a. Density - The density shall be no less than 0.941 - 0.955 gm/cm³ as referenced in ASTM D 1505.
 - b. Melt Flow - Flow rate shall not be greater than 0.14gm/10 min when tested in accordance with Method D1238 - Condition E.
 - c. Flex Modulus - Shall be 120,000 to less than 160,000 psi as referenced in ASTM D 790.
 - d. Tensile Strength at Yield - Shall be 3000 - to less than 3500 psi as referenced in ASTM 638.
 - e. ESCR - The stress crack resistance shall be in excess of 1000 hours with less than 20 percent failure when tested in accordance with ASTM D 1693 Condition C.
 - f. Hydrostatic design shall be 1600 psi at 23° C when tested in accordance with ASTM 2837.

3. Owner may request certified lab data to verify the physical properties of pipe or may take random samples and have them tested at an independent laboratory.
4. Rejection: Polyethylene pipe and fittings may be rejected for failure to meet any of the requirements of this Specification.
5. Rating: The polyethylene pipe shall have a manufacturer's recommended hydrostatic design stress rating of 800 psi based on a material with a 1600 psi design basis determined in accordance with ASTM D-2837. Standard method for obtaining hydrostatic design basis for thermoplastic pipe materials.
6. Dimensions: The polyethylene sewer pipe to be nominal I.P.S. with a wall thickness minimum of SDR-32.5. The pipe shall be nominal I.P.S. size.

PART 3 - EXECUTION

3.01 PIPE LAYING

- A. All pipe shall be laid with ends abutting and true to the lines and grades indicated on the Drawings. The pipe shall be laid straight between changes in alignment and at uniform grade between changes in grade. Pipe shall be fitted and matched so that when laid in the trench, it will provide a smooth and uniform invert. Supporting of pipe shall be as set out in Section 02225 and in no case shall the supporting of pipe on blocks be permitted.
- B. Before each piece of pipe is lowered into the trench, it shall be thoroughly swabbed out to insure its being clean. Any piece of pipe or fitting which is known to be defective shall not be laid or placed in the lines. If any defective pipe or fitting shall be discovered after the pipe is laid, it shall be removed and replaced with a satisfactory pipe or fitting without additional charge. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe and beveled to match the factory bevel for insertion into gasketed joints. Bevel can be made with hand or power tools.
- C. The interior of the pipe, as the work progresses, shall be cleaned of dirt, jointing materials, and superfluous materials of every description. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be closed with a plywood plug fitted into the pipe bell so as to exclude earth or other material and precautions taken to prevent flotation of pipe by runoff into trench.
- D. All pipe shall be laid starting at the lowest point and installed so that the spigot ends point in the direction of flow.

3.02 JOINTING

All joint surfaces shall be cleaned immediately before jointing the pipe. The bell or

groove shall be lubricated in accordance with the manufacturer's recommendation. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket. All pipe shall be provided with home marks to insure proper gasket seating. Details of gasket installation and joint assembly shall follow the direction of the manufacturer's of the joint material and of the pipe. The resulting joints shall be watertight and flexible. **No solvent cement joints shall be allowed.**

3.03 UTILITY CROSSING CONCRETE ENCASUREMENT

- A. At locations shown on the Drawings, required by the Specifications, or as directed by the Engineer, concrete encasement shall be used when the clearance between the proposed sanitary sewer pipe and any existing utility pipe is 18 inches or less. Utility pipe includes underground water, gas, telephone and electrical conduit, storm sewers, and any other pipe as determined by the Engineer.
- B. There are two cases of utility crossing encasement. Case I is applicable when the proposed sanitary sewer line is **below** the existing utility line. Case II is applicable when the proposed sanitary sewer line is laid **above** the utility line. In either case, the concrete shall extend to at least the spring line of each pipe involved.
- C. Concrete shall be Class B (3000 psi) and shall be mixed sufficiently wet to permit it to flow between the pipes to form a continuous bridge. In tamping the concrete, care shall be taken not to disturb the grade or line of either pipe or damage the joints.
- D. Concrete for this Work is not a separate pay item and will be considered incidental to utility pipe installation.

3.04 TESTING OF GRAVITY SEWER LINES

- A. After the gravity piping system has been brought to completion, and prior to final inspection, the Contractor shall rod out the entire system by pushing through each individual line in the system, from manhole to manhole, appropriate tools for the removal from the line of any and all dirt, debris, and trash. If necessary during the process of rodding the system, water shall be turned into the system in such quantities to carry off the dirt, debris and trash.
- B. During the final inspection, the Engineer will require all flexible sanitary sewer pipe to be mandrel deflection tested after installation.
 - 1. The mandrel (go/no-go) device shall be cylindrical in shape and constructed with nine (9) evenly spaced arms of prongs. The mandrel dimension shall be 95 percent of the flexible pipe's published ASTM average inside diameter. Allowances for pipe wall thickness tolerances of ovality (from shipment, heat, shipping loads, poor production, etc.) shall not be deducted from the ASTM average inside diameter, but shall be counted as part of the 5 percent allowance. The contact length of the mandrel's arms shall equal or exceed the nominal

- diameter of the sewer to be inspected. Critical mandrel dimensions shall carry a tolerance " 0.001 inch.
2. The mandrel inspection shall be conducted no earlier than 30 days after reaching final trench backfill grade provided, in the opinion of the Engineer, sufficient water densification or rainfall has occurred to thoroughly settle the soil throughout the entire trench depth. Short-term (tested 30 days after installation) deflection shall not exceed 5 percent of the pipe's average inside diameter. The mandrel shall be hand pulled by the contractor through all sewer lines. Any sections of the sewer not passing the mandrel test shall be uncovered and the Contractor shall replace and recompact the embedment backfill material to the satisfaction of the Engineer. These repaired sections shall be retested with the go/no-go mandrel until passing.
 3. The Engineer shall be responsible for approving the mandrel. Proving rings may be used to assist in this. Drawings of the mandrel with complete dimensioning shall be furnished by the Contractor to the Engineer for each diameter and type of flexible pipe.
- C. The pipeline shall be made as nearly watertight as practicable, and leakage tests and measurements shall be made. All apparatus and equipment required for testing shall be furnished by the Contractor and the cost shall be included in the unit price bid for pipe and manholes.
1. The Engineer may require the Contractor to smoke test the first section (manhole to manhole) of each size of pipe and type of joint prior to backfilling, to establish and check laying and jointing procedures. The test shall consist of smoke blown into closed-off sections of sewer under pressure and observing any smoke coming from the pipeline indicating the presence of leaks. Other supplementary smoke tests prior to backfilling may be performed by the Contractor at his option; however, any such tests shall not supplant the final tests of the completed work unless such final tests are waived by the Engineer.
 2. Where the groundwater level is more than 1 foot above the top of the pipe at its upper end, the Contractor shall conduct either infiltration tests or low-pressure air tests on the completed pipeline.
 3. Where the groundwater level is less than 1 foot above the top of the pipe at its upper end, the Contractor shall conduct either exfiltration tests or low-pressure air tests on the completed pipeline.
- D. Low pressure air tests shall be made using equipment specifically designed and manufactured for the purpose of testing sewer lines using low-pressure air. The equipment shall be provided with an air regulator valve or air safety valve so set that the internal pressure in the pipeline cannot exceed 8 psig.
1. The test shall be made on each manhole-to-manhole section of pipeline after placement of the backfill. The Engineer or his designated representative must be present to witness each satisfactory air test before it will be accepted as fulfilling the requirements of these Specifications.
 2. Pneumatic plugs shall have a sealing length equal to or greater than the diameter

of the pipe to be tested. Pneumatic plugs shall resist internal test pressures without requiring external bracing or blocking.

3. Low pressure air passing through a single control panel, shall be introduced into the sealed line until the internal air pressure reaches 4 psig greater than the maximum pressure exerted by groundwater that may be above the invert of the pipe at the time of test. However, the internal air pressure in the sealed line shall not be allowed to exceed 8 psig. When the maximum pressure exerted by the groundwater is greater than 4 psig, the Contractor shall conduct only an infiltration test.
4. At least two minutes shall be allowed for the air pressure to stabilize in the section under test. After the stabilization period, the low-pressure air supply hose shall be quickly disconnected from control panel. The time required in minutes for the pressure in the section under test to decrease from 3.5 to 2.5 psig (greater than the maximum pressure exerted by groundwater that may be above the invert of the pipe) shall not be less than that shown in the following table:

| Pipe in Diameter in Inches | Minutes |
|---------------------------------------|----------------|
| 4 | 2.0 |
| 6 | 3.0 |
| 8 | 4.0 |
| 10 | 5.0 |
| 12 | 5.5 |
| 15 | 7.5 |
| 18 | 8.5 |
| 21 | 10.0 |
| 24 | 11.5 |
| 30 & larger | 13.5 |

5. When the sewer section to be tested contains more than one size of pipe, the minimum allowable time shall be based on the largest diameter pipe in the section, and shall be the time shown in the table reduced by 0.5 minutes.
 6. Reinforced concrete pipe shall be tested in accordance with ASTM C 924 (joint testing shall be in accordance with ASTM C 1103). Test time shall be a function of pipe diameter and the length of installed line to be tested as provided in ASTM C 924.
- E. Infiltration tests shall be made after underdrains, if present, have been plugged and other groundwater drainage has been stopped such that the groundwater is permitted to return to its normal level insofar as practicable.
1. Upon completion of a section of the pipeline, the line shall be dewatered and a satisfactory test conducted to measure infiltration for at least 24 hours. The amount of infiltration, including manholes, tees and connections shall not

exceed 200 gallons per nominal inch diameter per mile of sewer per 24 hours.

- F. Exfiltration tests which subject the pipeline to an internal pressure, shall be made by plugging the pipe at the lower end and then filling the line and manholes with clean water to a height of 2 feet above the top of the sewer at its upper end. Where conditions between manholes may result in test pressures, which would cause leakage at the plugs or stoppers in branches, provisions shall be made by suitable ties, braces and wedges to secure the plugs against leakage resulting from the test pressure.
 - 1. The rate of leakage from the sewers shall be determined by measuring the amount of water required to maintain the level 2 feet above the top of the pipe.
 - 2. Leakage from the sewers under test shall not exceed the requirements for leakage into sewers as hereinbefore specified.
- G. The Contractor shall furnish suitable test plugs, water pumps, and appurtenances, and all labor required to properly conduct the tests. Suitable bulkheads shall be installed, as required, to permit the test of the sewer. The Contractor shall construct weirs or other means of measurements as may be necessary.
- H. Should the sections under test fail to meet the requirements, the Contractor shall do all work of locating and repairing the leaks and retesting as the Engineer may require without additional compensation.
- I. If in the judgment of the Engineer, it is impracticable to follow the foregoing procedures for any reason, modifications in the procedures shall be made as required and as acceptable to the Engineer, but in any event, the Contractor shall be responsible for the ultimate tightness of the line within the above test requirements.

3.05 INSTALLATION OF HDPE PIPE

- A. Construction Practices:
 - 1. Handling Pipe:
 - a. Pipe shall be stored on clean level ground to prevent undue scratching or gouging.
 - b. Sections of pipe with deep cuts or gouges in excess of 10 percent of the wall thickness shall be removed completely and the ends of pipeline rejoined.
 - c. The handling of the joined pipe shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects.
 - 2. Pipe Joining:
 - a. Sections of the polyethylene pipe shall be joined into continuous lengths on the job site above the ground. The joining method shall be the butt fusion method and shall be done in strict accordance with the pipe manufacturer's recommendation.
 - b. The hydraulically operated machines shall have a pressure regulator to preset the correct pressure for the desired fusion force, and there shall be

an auxiliary system to control "feed" rate for the pipe face-off. Each machine shall be permanently equipped with a chart showing correct fusion pressure for each pipe size and wall thickness (SDR).

3. Direct Burial Installation:
 - a. The trench and trench bottom shall be constructed in accordance with the Drawings.
 - b. Embedment materials to be used shall be as recommended in ASTM D-2321-74, Section 6.
 - c. The proper bedding practices to be followed shall be subject to those described in ASTM D-2321-74, Section 8.
 - d. Installation practices shall be those specified in ASTM D-2321-74, Section 9.

END OF SECTION 02731

SECTION 02732 - SEWAGE FORCE MAINS

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all labor, material, and equipment necessary to install force main piping together with all appurtenances as shown and detailed on the Drawings and specified herein.

1.02 RELATED WORK

- A. Section 02222 - Excavation.
- B. Section 02225 - Excavating, Backfilling, and Compacting for Utilities.
- C. Section 02733 - Sewage Pump Station.

PART 2 - PRODUCTS

2.01 DUCTILE IRON PIPE (DIP) AND FITTINGS

- A. Ductile iron pipe (DIP) shall conform to ANSI/AWWA C150/A21.50, ANSI/AWWA C151/A21.51 Standard (latest). The pipe shall conform to pressure class 150 unless noted otherwise. All pipe, fittings and joints should be capable of accommodating pressure up to 150 psi. The ductile iron pipe shall be as manufactured by Clow Corporation, U.S. Pipe & Foundry Company, American Cast Iron Pipe Company, or equal.
- B. Fittings shall be ductile iron in accordance with AWWA C153 and have a body thickness and radii of curvature conforming to ANSI A21.10 or ANSI A21.53 for compact fittings and shall conform to the details and dimensions shown therein. Fittings shall have rubber gasket joints meeting the requirements of AWWA C111. Fittings shall be cement-mortar lined and bituminous coated to conform to the latest revision of ANSI/AWWA standards.
- C. Ductile iron flanged joint pipe shall conform to ANSI/AWWA C115/A 21.15 Standard and have a thickness Class of 53. The pipe shall have a rated working pressure of 250 psi with Class 125 flanges. Gaskets shall be ring gaskets with a thickness of 1/8 inch. Flange bolts shall conform to ANSI B 16.1.
- D. Flanged fittings shall meet all requirements of ANSI/AWWA C110/A21.10 and have Class 125 flanges. Fittings shall accommodate a working pressure up to 250 psi and be supplied with all accessories.

- E. All pipe and fittings shall be tar coated outside and shall receive a standard cement lining with bituminous seal coat on the inside in accordance with ASA Specification A21.40 (AWWA-C104).
- F. Cement mortar lining and seal coating for pipe and fittings, where applicable shall be in accordance with ANSI/AWWA C104/A21.4. Bituminous outside coating shall be in accordance with ANSI/AWWA C151/A21.51 for pipe and ANSI/AWWA C110/A21.10 for fittings.
- G. All ductile fittings shall be rated at 250 psi water working pressure plus water hammer. Ductile iron fittings shall be ductile cast-iron grade 80-60-03 per ASTM Specification A339-55.
- H. Restrained joint pipe and fittings shall be a boltless system equal to "Field Lok" restraining gaskets or "TRFLEX Joint" as manufactured by U.S. Pipe & Foundry Company.
- I. No separate pay item has been established for fittings and no determination of the number of fittings required on the job has been made. The Contractor, during the bidding phase, shall determine the number of fittings required on the job and include the cost of the fittings and installation in the Contract unit price.

2.02 POLYVINYL CHLORIDE (PVC) FORCE MAIN PIPE

- A. Polyvinyl chloride (PVC) pipe for force mains shall be Class 200 (SDR 21) PVC pressure rated pipe with integral bell joints with rubber O-ring seals.
- B. All PVC pipe shall conform to the latest revisions of ASTM D-1784 (PVC Compounds), ASTM D-2241 (PVC Plastic Pipe, SDR) and ASTM D-2672 (Bell - End PVC Pipe). PVC pipe shall have a minimum cell classification of 12454B or 12454C as defined in ASTM D-1784. Rubber gasketed joints shall conform to ASTM D-3139. The gaskets for the PVC pipe joint shall conform to ASTM F-477 and D-1869.
- C. Fittings shall be ductile iron and in accordance with Article 2.01 B of this section.
- D. All pipe and couplings shall bear identification markings that will remain legible during normal handling, storage and installation, which have been applied in a manner that will not reduce the strength of the pipe or coupling or otherwise damage them. Pipe and coupling markings shall include the nominal size and OD base, material code designation, dimension ratio number, ASTM Pressure Class, ASTM designation number for this standard, manufacturer's name or trademark, seal (mark) of the testing agency that verified the suitability of the pipe material for sanitary sewer service. Each marking shall be applied at intervals of not more than 5 feet for the pipe and shall be marked on each coupling.

2.03 POLYETHYLENE PIPE

- A. Polyethylene pipe shall be of high density, high molecular weight polyethylene and conform to the requirements of ASTM Specification D-3350 (SDR 21) and have recommended designation values of 3-4-5-4-3-4-C. Fittings shall be SDR 9.3.
- B. Pipe shall have dimensions and workmanship in accordance with ASTM F-714.
- C. Polyethylene pipe shall be supplied in standard lengths of at least 12 feet 6 inches. Longer lengths are permitted.
- D. Polyethylene pipe shall be marked with the manufacturer's name, production lot number, ASTM designation, and nominal diameter.
- E. Polyethylene pipe shall be joined by the butt-fusion technique utilizing controlled temperature and pressure to produce a fused, leak-free joint, stronger than the pipe itself in both tension and hydrostatic loading.
- F. Pipe shall be Phillips Driscopipe, or equal.

PART 3 - EXECUTION

3.01 LAYING DEPTHS

In general, force mains shall be laid with a minimum cover of 30 inches, except as otherwise indicated on the Drawings.

3.02 RELATIONSHIP TO WATER LINE

Where a force main and water line cross one another, the force main shall be laid under the water line and encased with concrete in accordance with Section 02731 and as detailed on the Drawings.

3.03 PIPE LAYING

- A. All pipe shall be laid with ends abutting and true to the lines and grades indicated on the Drawings. Pipe shall be fitted and matched so that when laid in the Work, it will provide a smooth and uniform invert. Supporting of pipe shall be as set out in Section 02225 and in no case shall the supporting of pipe on blocks be permitted.
- B. Before each piece of pipe is lowered into the trench, it shall be thoroughly swabbed out to insure it being clean. Any piece of pipe or fitting which is known to be defective shall not be laid or placed in the lines. If any defective pipe or fittings shall be discovered after the pipe is laid, it shall be removed and replaced with a satisfactory pipe or fitting without

additional charge. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe. Bevel can be made with hand or power tools.

- C. The interior of the pipe, as the Work progresses, shall be cleaned of dirt, jointing materials, and superfluous materials of every description. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be closed with a plywood plug fitted so as to exclude earth or other material and precautions taken to prevent floatation of pipe by runoff into trench.
- D. Anchorage of Bends:
 - 1. At all tees, plugs, caps and bends of 11-1/4 degrees and over, and at reducers or in fittings where changes in pipe diameter occur, movement shall be prevented by using suitable harness, thrust blocks or ballast. Thrust blocks shall be as shown on the Drawings, with sufficient volumes of concrete being provided; however care shall be taken to leave weep holes unobstructed and allow for future tightening of all nearby joints. Unless otherwise directed by the Engineer, thrust blocks shall be placed so that pipe and fitting joints will be accessible for repair.
 - 2. Bridles, harness or pipe ballasting shall meet with the approval of the Engineer. Steel rods and clamps shall be galvanized or otherwise rust-proofed or painted.
 - 3. No extra pay shall be allowed for work on proper anchorage of pipe, fittings or other appurtenances. Such items shall be included in the price bid for the supported item.

3.04 JOINTING

All joint surfaces shall be cleaned immediately before jointing the pipe. The bell or groove shall be lubricated in accordance with the pipe manufacturer's recommendations. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket.

All pipe shall be provided with home marks to insure proper gasket seating. Details of gasket installation and joint assembly shall follow the direction of the manufacturer's of the joint material and of the pipe. The resulting joints shall be watertight and flexible.

3.05 TESTING OF FORCE MAINS

- A. The completed work shall comply with the provisions listed herein, or similar requirements which will insure equal or better results. Suitable test plugs, water pump or other equipment and apparatus, and all labor required to properly conduct the tests shall be furnished by the Contractor at no expense to the Owner.
- B. Force main piping shall be pressure tested to 250 percent of the normal system operating pressure or to 150 percent of the rated working pressure of the pipe, whichever is less. At no time shall the test pressure exceed 150 percent of the pipe's rated working pressure. A pipe section shall be accepted if the test pressure does not fall more than 5 percent during the 4-hour period.

- C. All piping shall be tested for leakage at a pressure no less than that specified for the pressure test. The leakage shall be less than an allowable amount determined by the following equation:

$$L = \frac{ND (P)^{1/2}}{7400}$$

Where

- L = allowable leakage (gallon/hour)
- N = number of joints in length of pipeline tested
- D = nominal diameter of pipe (inches)
- P = test pressure (psig)

- D. Should the sections under test fail to meet the requirements, the Contractor shall do all work locating and repairing the leaks and retesting as the Engineer may require without additional compensation.
- E. If in the judgement of the Engineer, it is impracticable to follow the foregoing procedures for any reason, modifications in the procedures shall be made as required and as acceptable to the Engineer, but in any event, the Contractor shall be responsible for the ultimate tightness of the line within the above test requirements.

END OF SECTION 02732

SECTION 02734 – SIMPLEX GRINDER PUMP STATION

PART 1 - GENERAL

1.01 DESCRIPTION

The manufacturer shall furnish complete factory-built and tested Grinder Pump Station(s), each consisting of a basin package, control panel, alarm device, unitized level control system, grinder pump and all necessary appurtenances to form a complete U.L. listed package system. Grinder pump shall be listed to U.L. 778 and CSA 108, basin package shall be listed to U.L. 1951, and control panel shall be listed to U.L. 508A. All equipment in the wet well shall be capable of constant submergence in sewage to a minimum depth of ten feet without electrical power being energized.

1.02 SHOP DRAWINGS AND MANUALS

After receipt of notice to proceed, the manufacturer shall furnish the engineer a set of shop drawings detailing the equipment to be furnished including dimensional data and materials of construction. The engineer shall promptly review this data, and return a copy to the manufacturer as approved, or approved as noted. Upon receipt of accepted shop drawings, the manufacturer shall proceed with order entry and fabrication of the equipment. Prior to completion of equipment delivery, the manufacturer shall supply a copy of Operation and Maintenance Manuals to the owner, and one (1) copy of the same to the engineer.

1.03 WARRANTY

The manufacturer shall provide a warranty on materials and workmanship for a period of twenty-four (24) months after notice of owner's acceptance, but no greater than twenty-seven (27) months after receipt of shipment. The Contractor shall return any equipment found to be defective to the manufacturer for inspection and validation of the defect. Defective equipment will be repaired or replaced and shipped back to customer at no charge. Consult factory for extended warranty information.

1.04 ACCEPTABLE MANUFACTURERS(S)

Acceptable grinder pump station manufacturer(s) are Barnes, Myers, or E-One.

1.05 CORROSION PROTECTION

All materials exposed to wastewater shall have inherent corrosion protection: i.e., painted cast iron, fiberglass, stainless steel, PVC, CPVC.

1.06 SAFETY

The Grinder Pump Station shall be free from electrical and fire hazards as required in a residential environment. As evidence of compliance with this requirement, the completely assembled, factory wired and tested grinder pump station assembly shall be U.L. listed. Grinder pump stations not U.L. listed will not be acceptable.

PART 2 – BASIN PACKAGES

2.01 STATION CONFIGURATION

Basins shall be supplied in a wet well configuration. Wet well must have minimum storage volumes above alarm level according to the following table:

| Overall Station Height | Minimum Reserve Storage Above Alarm Level |
|------------------------|---|
| 48" (1.2 Meters) | 35.7 gallons (135 Liters) |
| 60" (1.5 Meters) | 59.2 gallons (224 Liters) |
| 72" (1.8 Meters) | 82.7 gallons (313 Liters) |
| 84" (2.1 Meters) | 106.2 gallons (402 Liters) |
| 96" (2.4 Meters) | 129.7 gallons (491 Liters) |
| 108" (2.7 Meters) | 153.2 gallons (580 Liters) |
| 120" (3.0 Meters) | 176.7 gallons (669 Liters) |

2.02 FACTORY WIRING

Not Applicable

2.03 CHECK VALVE

The stainless steel pump discharge piping shall be equipped with factory installed gravity operated flapper-type check valve. Gravity operated ball type check valve shall not be permitted. This valve will provide a full ported passageway when open, and shall introduce a friction loss of less than six inches of water at maximum rated flow. Working parts will be made of 300 series stainless steel and non-wicking fabric reinforced neoprene flap to ensure corrosion resistance, repeatability, and dimensional stability. The valve body shall be powder-coated cast iron for corrosion resistance.

2.04 REDUNDANT CHECK VALVE

Not Applicable

2.05 LEVEL DETECTION

Level detection for controlling pump and alarm operation shall be accomplished by use of a detection mechanism specifically designed for use in a sewage grinder pump basin and shall be removable without the need to remove the pump. Switches utilized in the system shall be hermetically sealed in a submersible, watertight protective housing, with an integral pressure-compensating diaphragm. Level controls requiring breather tubes are not acceptable as they are susceptible to moisture infiltration failures.

Level detection mechanism shall be a Barnes "ESPS-100 TM " type design to provide switch protection from solids, greases, oils, fats and corrosive sewer gasses. Level detection mechanism shall not require any regular, preventive maintenance. The level detection mechanism shall consist of two switches, with independent circuits, one for each function (HIGH WATER ALARM and ON/OFF functions). The level detection mechanism shall include an automatically resetting, heat sensing thermal device that interrupts current flow if excessive liquid temperature is detected. Such device shall be a part of the U.L. Listing. The switch assembly shall be equipped with type 18-5 SOW cable, with color coded leads, and is 100% tested prior to shipment. The power cable and switch leads shall be connected via quick disconnect pin terminals located within the switch housing. Pin receptacles shall be crimped and molded to the power cord in a PVC plug. The plug assembly shall be guaranteed by the manufacturer to meet UL approval for submersion. The plug shall be secured with a stainless steel compression plate to prevent water from entering the switch housing and to provide strain relief at the point of cable entry.

The control assembly shall be part of the U.L.1951 listing. The level controls shall be serviceable without the need for a confined space entry as defined by OSHA or the need to remove the pump. Conventional suspending of floats, mechanical or swing arm floats for HIGH WATER ALARM and ON/OFF functions will not be acceptable.

2.06 SHUT-OFF VALVE

The station discharge shall be equipped with a factory installed, true union, manual ball valve. Ball valves shall be full ported, constructed of PVC, with a minimum rated pressure of 150 PSI. All valves shall be operable from ground level. Shut off valve must be replaceable without excavating basin exterior. Duplex station shall utilize two shut off valves, each equal to the size of the pump discharge.

2.07 ANTI-SIPHON FUNCTION

The pump shall be constructed with a positively primed flooded suction configuration. As added assurance that the pump cannot lose prime even under negative pressure conditions in the discharge piping system, the discharge piping system must include an anti-siphon capability. The design shall provide for a maximum bypass, under normal operating conditions, of no more than 1 GPM.

2.08 BASIN CONSTRUCTION AND ASSEMBLY

- A. The basin shall be fiberglass reinforced polyester resin with a 3" ballast support flange. The basin shall be furnished with one flexible inlet flange (shipped loose to facilitate field location) to accept a 4" schedule 40 PVC pipe. Inlet location can vary to accommodate ease of installation. (See installation instructions or consult factory for details.) Basin capacities and dimensions shall be as shown on the contract drawings or as specified herein. The basin FRP wall laminate thickness shall vary with the wetwell depth to provide the aggregate strength to meet the tensile and flexural physical property requirements. The basin FRP wall laminate must be designed to withstand wall collapse or buckling based on a hydrostatic pressure of 62.4 pounds per square foot, a saturated soil weight of 120 pounds per cubic foot, a soil modulus of 700 pounds per square foot. Basin must comply with the pipe stiffness values as specified in ASTM D 3753. The basin laminate must be constructed to withstand or exceed 150% of the assumed loading on any depth. The finished FRP laminate will have a Barcol hardness of at least 90% of the resin manufacturer's specified hardness for the fully cured resin. The Barcol Hardness shall be the same for both interior and exterior surfaces. Manufacture must submit documentation including calculation and production certification that basin (s) on the project are in compliance with the above requirements.
- B. All piping inside the basin silhouette shall be at a level in the station that is lower than the frost depth or depth of bury specified for the low pressure sewer piping, which ever is lowest. The basin package shall be furnished with a 2 inch conduit hub (shipped loose to facilitate field location) for the pump and level control cables to be routed back to the control panel.
- C. Cover shall be a fiberglass reinforced, grass green color. The cover assembly shall be capable of providing adequate means of venting the basin. A 2 inch threaded bug proof mushroom vent shall be provided.
- D. Basin shall be UL Listed to Standard 1951.
- E. All discharge pipe shall be constructed of 300 Series Stainless Steel and terminate outside the bulkhead with a stainless steel, female 1.25 inch NPT fitting. The manufacturer shall guarantee all bulkhead penetrations watertight.

2.09 PUMP AND LEVEL CONTROL REMOVAL SYSTEM

Each basin shall be equipped with a 300 series stainless steel "C" channel rail assembly to facilitate removal of the pump(s) and level control(s) from ground level. A 1/2" diameter knotted polypropylene rope with a breaking strength of 3,780 lbs. shall be supplied for pump removal and 1/4" diameter knotted polypropylene rope with a breaking strength of 1200 lbs. shall be supplied for level control removal. Removal system must not require the loosening of fasteners to facilitate removal of pump or

level control and shall provide for automatic alignment and re-connection of discharge piping for the replacement pump and correct height location for level control. Pump and level control replacement shall be accomplished while the basin is full of sewage without the need to de-water the basin.

PART 3 – PUMPS

3.01 DESIGN

A centrifugal submersible grinder pump designed to reduce all material found in normal domestic sewage, including plastic, rubber, sanitary napkins, and disposable diapers into a finely ground slurry. The resultant slurry is then pumped through small diameter piping, gravity interceptor, or treatment facility. The temperature limitation of the liquid being pumped is 160 °F (71°C) intermittent and shall be capable of running dry for extended periods of time.

Pump(s) shall be suitable for long term submergence in sewage. Grinder pump(s) shall be U.L. Listed to Standard 778 and CSA Listed to Standard 108.

3.02 PERFORMANCE

In order to insure proper operation in all conditions, pump(s) must provide, without overheating in continuous operation, maximum head condition required by the system. Pump(s) must also be capable of operating at zero or negative heads without damage to the pump(s).

3.03 CONSTRUCTION

The volute, seal plates and motor housing shall be constructed of high quality ASTM A-48 class 30 cast iron. The pump(s) shall be painted with air dry enamel of 2 mil minimum thickness. All exposed hardware shall be 300 series stainless steel. Discharge connection shall be a standard 1.25 inch NPT in the vertical position using a threaded bolt on discharge flange.

The pump impeller shall be of the recessed, vortex design. Pumps with standard centrifugal semi-open impeller designs shall not be acceptable. The impeller shall be of 85-5-5-5 bronze construction and machined for threading to the motor shaft. The impeller shall be capable of being trimmed to meet specific performance characteristics.

The pump shall be a three bearing design consisting of an upper ball bearing, an intermediate ball bearing restrained for the purpose of carrying the thrust loads, and an oil lubricated lower bronze sleeve bearing to carry radial loads and prevent shaft deflection imposed by the pump impeller and grinder operation. The oil lubricated

sleeve bearing shall be located between two mechanical seals. Lip type seals are not acceptable. Designs reducing the number of bearings or substituting sleeve bearings for ball bearings will not be considered equal.

3.04 GRINDER

The grinder mechanism shall be specifically designed for use in a grinder pump. Garbage disposal cutting mechanisms are not acceptable. The mechanism shall consist of a radial cutter threaded and locked on the motor shaft by a washer in conjunction with a counter sunk flat head cap screw, and a matching shredding ring. Grinding shall be accomplished by a slicing action as opposed to a chopping action. Chopping-type cutter mechanisms will not be allowed. Grinder design shall be able to alternately engage cutters at start and shall exert a minimum cutting force of 30 pounds, thus eliminating the need for excessive motors. The shredding ring shall be reversible to provide twice the cutting life. All grinding mechanism components, including both the shredding ring and radial cutter and its impeller (if required), shall be constructed of 440C stainless steel hardened to a minimum Rockwell C55 and shall be finish ground for a fine cutting edge. Two stage cutter mechanisms and/or those requiring external adjustment for proper clearance shall not be acceptable.

The grinder shall be placed immediately below the pumping elements and shall be direct-driven by a single, one-piece, stainless steel motor shaft. The grinding assembly operate without objectionable noise or vibration over the entire range of recommended operating pressures. The grinder shall be constructed so as to eliminate clogging and jamming under all normal operating conditions including starting. In order to demonstrate adequate flow velocity and grinding capability, the grinder pump shall be capable of passing a series of stringy type solids (diapers, rags, feminine products, etc.) through the pump without roping or winding the material in or immediately below the pump suction.

The grinder shall be capable of reducing all components in normal domestic sewage, including a reasonable amount of "foreign objects", such as paper, wood, plastic, glass, rubber and the like, to finely-divided particles which will pass freely through the passages of the pump and the discharge piping. The grinding mechanism must be capable of handling reasonable amounts of grit, often found in domestic sewage systems.

3.05 ELECTRIC MOTOR

Single phase motors shall be of the capacitor start, capacitor run, NEMA L design and three phase motors shall be of the dual-voltage 240/480, NEMA B design. The motor shall be designed to be non-overloading throughout the entire pump curve. The motor shall be constructed with the open windings operating in a sealed housing, which contains clean dielectric oil for heat dissipation from the windings and for lubrication of the bearings, making it capable of operating in a totally, partially, or non-submerged

condition for extended periods of time without damage due to heat being generated. Oil used must be able to be disposed of as non-hazardous waste. Air-filled motors shall not be acceptable. The rotor and stator assembly shall be of the standard frame design and secured to the pump seal plate by four threaded fasteners allowing for easy serviceability. Motor designs incorporating shrink or press fit assemblies between the stator and motor housing shall not be considered acceptable. The motor shaft shall be of 416 stainless steel.

Protection against excessive temperature shall be provided by heat sensor thermostat attached to the stator windings and connected in series with the contactor coil in the control panel for all models except the 200 and 240 volt, single phase SGV*2022L and SGV*2002L. The 200 and 240 volt, single phase models shall provide protection against excessive temperature through the use of an in-line heat/current sensor. The sensor shall be connected in series with, and attached to the motor windings. 240 volt, single phase pumps requiring a sensor to be wired in series with the contactor coil shall not be acceptable.

The pumps shall be equipped with type SOW power cable. The power cable is connected to the motor via quick disconnect pin terminals. Threaded cord grip type cord entries are not acceptable. Pin receptacles shall be crimped and molded to the power cord in a PVC plug. The plug shall be secured with a stainless steel compression plate to prevent water from entering the motor housing and to provide strain relief at the point of cable entry. A stainless steel clamp shall compress the PVC molding against the cable jacket to prevent water from entering the jacket. A polybutylene terephthalate terminal block with brass pin inserts shall connect the power cord leads with motor leads. The ground pin shall be longer than the other pins such that the ground connection is the first connection made and the last connection broken when the plug is inserted and removed, respectively. A Buna-N o-ring shall provide isolation sealing between terminal block and the motor housing. The plug assembly shall be guaranteed by the manufacturer to meet UL approval for submersion.

3.06 MECHANICAL SEAL

The pump shall utilize a tandem mechanical shaft seal arrangement and shall operate in an oil atmosphere. Each seal shall be double floating, self-aligning rotary shaft seals to prevent leakage between the motor and pump. The materials of construction shall be carbon for the rotating face and ceramic for the stationary face, lapped and polished to a tolerance of one light band, with 300 stainless steel hardware, with all elastomer parts of Buna-N. The seal shall be commercially available and not a proprietary design of the manufacturer.

3.07 MOISTURE DETECTION

Not Applicable

3.08 CLOSED VALVE PROTECTION

Not Applicable

3.09 TESTING

Each grinder pump shall be submerged, operated and tested for performance compliance to its respective curve. Testing process and periodic inspection of testing process shall be conducted and approved by U.L.

PART 4 – CONTROL PANEL

4.01 GENERAL

A wall mounted control panel shall be supplied with each station. All control panels shall be UL Listed to meet Standard 508A. Each panel shall be constructed with a padlockable NEMA 4X non-metallic enclosure and utilize stainless steel hardware.

4.02 SIMPLEX CONTROL PANELS

The control panel shall include as a minimum: circuit breakers, fuses, terminal strip, ground lug, capacitors when required, IEC rated motor starters, adjustable overload, relays, alarm light and internal push to run button.

4.03 HIGH WATER ALARM DEVICE(S)

Each control panel shall include a visual and audible, with silence, high water alarm device. Alarm circuit shall be separately fused from motor control circuit. The visual alarm shall be a red fluted lens mounted to the top of the enclosure in such a manner as to maintain rain-proof integrity. The 90db audible device shall be capable of being deactivated by means of a NEMA 4X silence button mounted on the exterior of the enclosure. Visual alarm will remain on as long as a high water condition exists in the basin. Both visual and audio alarms will automatically reset when the high water condition subsides.

4.04 MOISTURE SENSOR INDICATOR

Not Applicable

END OF SECTION 02734

SECTION 02930 - SEEDING AND SODDING

PART 1 - WORK INCLUDED

1.01 CLEAN-UP

Upon completion of the Project, the Contractor shall remove all debris and surplus construction materials resulting from his work. The Contractor shall grade the ground along each side of the pipe trenches and/or structures in a uniform and neat manner leaving the construction area in a shape as near as possible to the original ground line, or as shown on the Drawings.

PART 2 - PRODUCTS

2.01 SEED

Grass seed shall be mixed and guaranteed by the supplier to consist of the following:

| | |
|--------------------|------------|
| Annual Rye | 60 percent |
| Kentucky Bluegrass | 20 percent |
| Falcon Fescue | 20 percent |

2.02 TOPSOIL

Topsoil shall be material stripped and stored under work of Section 02200 and shall be used for all work under this Section. If the quantity of stored topsoil is inadequate or if none has been salvaged from the Project site, the Contractor shall furnish at his own expense sufficient topsoil to properly install all work as specified herein. Topsoil shall be original surface loam obtained from well drained areas from which topsoil has not been removed previously, either by erosion, clearing and removal of trees or mechanical means. It shall not contain subsoil material and shall be clean and free of clay lumps, roots, stones or similar substances more than 2 inches in any dimension, debris, discarded fragments of building materials or weeds and weed seeds.

2.03 SOIL IMPROVEMENTS

- A. Commercial fertilizers shall be of analyses specified, or as recommended by the Agricultural Extension Service for treatment of topsoil in the area from which removed, and shall conform to the applicable state fertilizer laws. Fertilizer shall be uniform in composition, dry and free flowing, and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any fertilizer which becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted.
- B. Lime, if recommended for soil treatment by the Agricultural Extension Service, shall

be ground limestone (Dolomite) containing not less than 85 percent of total carbonates, and shall be ground to such a fineness that 50 percent will pass through a 100-mesh sieve, and 90 percent will pass through a 20-mesh sieve. Coarser material shall be acceptable provided that required rates of application are increased proportionally on the basis of quantities passing the 100-mesh sieve.

PART 3 - EXECUTION

3.01 SEEDING AND SODDING

- A. After installation of the Project, topsoil shall be spread evenly to a minimum 4-inch depth and lightly compacted. No topsoil shall be spread in a frozen or muddy condition.
 - 1. Any stored topsoil remaining after work is in place shall be disposed of by the Contractor as directed by the Engineer.
- B. Soil improvement shall be made if and as recommended by the Agricultural Extension Service prior to seeding.
 - 1. Ground limestone, if required, shall be applied at the recommended rates per square yard and shall be thoroughly mixed into the topsoil.
 - 2. Fertilizers, if required shall be of analysis and rates per square yard as recommended in the topsoil analysis and shall be mixed lightly in the top few inches of topsoil.
- C. Immediately before any seed is to be sown, the ground shall be scarified as necessary and shall be raked until the surface is smooth, friable and of a uniformly fine texture. Areas shall be seeded evenly with a mechanical spreader at a rate of 2 pounds per 1,000 square feet, lightly raked and watered with a fine spray.
- D. After seed has been distributed, the Contractor shall cover areas that are likely to washout with straw to a depth of 1-1/2 inches.
- E. Seeded areas shall be protected and maintained by watering, regular mowing and reseeded as may be necessary to produce a uniform stand of grass. Maintenance shall continue throughout the guarantee period until a dense, uniform turf is established.
- F. All paved streets, roads, sidewalks, curbs, fences, stonewalls, lawns, etc., disturbed during construction shall be restored, repaired, or replaced to as good a condition as existed prior to construction. All materials and workmanship shall conform to standard practices and specifications of the Owner and/or the Kentucky Department of Highways, whichever applies.
- G. The Contractor shall remove from the site all equipment, unused materials and other items at his expense. The construction site shall be left in a neat, orderly condition, clear of all unsightly items, before the Work is finally accepted.

END OF SECTION 02930

Division 3 – Concrete

SECTION 03310 - STRUCTURAL CONCRETE

PART 1 - GENERAL

1.01 WORK INCLUDED

The work in this section shall include all formwork, shoring, bracing, anchorage, concrete reinforcement and accessories for cast-in-place concrete.

1.02 GENERAL REQUIREMENT

All concrete construction shall conform to all applicable requirements of ACI 301, ACI 318 and ACI 350 R, except as modified by the supplemental requirements specified herein.

1.03 RELATED WORK

Section 02222 - Excavation.

1.04 REFERENCES

- A. The Contractor shall obtain and have available in the field office at all times the following references:
1. Specifications for Structural Concrete for Building ACI 301 (latest revision).
 2. Field Reference Manual: Specifications for Structural Concrete for Buildings ACI Sp-15(88).
 3. Manual of Standard Practice - CRSI (latest revision).
 4. Placing Reinforcing Bars - CRSI (latest revision).
 5. Building Code Requirements for Reinforced Concrete ACI 318.
 6. Environmental Engineering Concrete Structures ACI 350R.
- B. The following standard shall also apply to this work:
1. ASTM C-143.
 2. ASTM C-150.
 3. ASTM C-33.
 4. ASTM C-260.
 5. ASTM C-494.
 6. ASTM A-615.
 7. ASTM D-638.
 8. ASTM D-695.
 9. ASTM D-570.
 10. ASTM D-1252.
 11. ASNI A-116.1.
 12. ASTM A-120.

13. ASTM C-94.
14. ASTM D-2146.
15. Federal Specifications FF-S-325.

1.05 SUBMITTALS

- A. The Contractor shall submit the following data to the Engineer for review:
 1. Proposed mix designs, test results, plotted curves and all other substantiating data as required by Sections 3.8 and 3.9 of ACI 301.
 2. Mix designs for all mixes proposed or required to be used, including all mixes containing admixtures.
 3. A certified copy of the control records of the proposed production facility establishing the standard deviation as defined in Section 3.9 of ACI 301.
- B. Certification attesting that admixtures equal or exceeds the physical requirements of ASTM C-494 for Type A admixture and when required, for Type D admixture.
- C. Notarized certifications by the manufacturer that epoxy bonding adhesive meets the specification contained herein.
- D. Drawings showing locations of all proposed construction joints.
- E. Shop drawing for reinforcing steel showing bar schedules, location, and splices.

1.06 QUALITY ASSURANCE

- A. Consistency:
 1. Concrete shall be of such consistency that it can be worked readily into all parts of the forms and around embedded work, without permitting the materials to segregate, or free water to collect on the surface. Consistency shall be measured by the ASTM Standard Test Method for Slump of Portland Cement Concrete, Designation C143-78. The consistency of concrete shall be as given in Table I.
 2. Slump tests shall be made in the field by the Contractor, as directed by the Engineer.
- B. Compression Tests:
 1. During the progress of the work, at least one set of four compression test cylinders shall be made for each 50 cubic yards of concrete or major fraction thereof, and not less than one such set for each type of concrete for each days' pouring. Cylinders made in the field shall be made and cured in accordance with ASTM Standard Method of Making and Curing Concrete Test Specimens in the Field, Designation C31-69, except that wherever possible molds shall be left on cylinders until they have reached the laboratory.
 2. One (1) cylinder of each set shall be broken in accordance with ASTM C-39 at seven (7) days and two (2) at twenty-eight (28) days. Two (2) copies of these test

results shall be submitted to the Engineer on the same day of the tests. The remaining cylinder shall be reserved for future testing if required.

3. On evidence of these tests, any concrete that fails to meet the specified strength requirements shall be strengthened or replaced as directed by the Engineer at the Contractor's expense.
- C. Inserts in Concrete by Other Trades:
1. All trades shall be notified, at the proper time, to install items to be embedded in concrete.
 2. All castings, inserts, conduits, and other metalwork shall be accurately built into or encased in the concrete by the Contractor as directed and all necessary precautions shall be taken to prevent the metalwork from being displaced or deformed.
 3. Anchor bolts shall be set by means of substantial templates.
 4. The Contractor shall build into new concrete against which facing brick or tile is to be laid, suitable, acceptable, non-corrodible metal, dovetail grooves for ties for securing the brickwork to the concrete.
- D. Testing:
1. All testing shall be in accordance with provisions of ACI 301.
 2. Testing services listed in ACI 301 Sections 16.3, 16.4 and 16.5 shall be performed by a testing agency acceptable to the Engineer. Testing services to meet the requirements of ACI shall be paid for by the Contractor at his expense. Test shall be made for each 50 cubic yards of concrete and/or each day concrete is placed.
- E. Additional Requirements:
1. Unless otherwise directed by the Engineer, the vertical surfaces of all footings shall be formed. Excavations and reinforcement for all footings shall have been inspected by the Engineer before any concrete is placed.
 2. The installation of underground and embedded items shall be inspected before slabs are placed. Pipes and conduits shall be installed below the concrete unless otherwise indicated. Fill required to raise the subgrade shall be placed as specified in Division 2. Unless shown otherwise, porous fill not less than 6 inches in compacted thickness shall be installed under all slabs, tank bottoms, and foundations. The fill shall be leveled and uniformly compacted to a reasonably true and even surface. The surfaces shall be clean, free from frost, ice, mud and water. Where indicated, waterproof paper, polyethylene sheeting of nominal 4-mil minimum thickness, or polyethylene coated burlap shall be laid over surfaces receiving concrete. Structures having pressure relief valves shall have a free draining granular stone layer of not less than 12" directly beneath the base slab.
- F. Hot Weather Requirements: Placing of concrete under conditions of high temperatures, low humidity or wind shall be done in accordance with the American Concrete Institute "Hot Weather Concreting" (ACI 305R-77).
- G. Cold Weather Requirements: Cold weather concreting procedures and precautions shall

conform with American Concrete Institute "Cold Weather Concreting" (ACI 306 R-78).

PART 2 - PRODUCTS

2.01 Contractor shall supply concrete only from an approved ready mixed concrete supplier.

2.02 CONCRETE MIX WITHOUT FLY ASH

Structural concrete required for this project shall be proportioned by Section 3.9 of ACI 301 to produce the following 28-day compressive strengths:

- A. Selection of Proportions for Class A Concrete:
1. 4,500 psi compressive for strength at 28 days.
 2. Type II cement plus water reducing, dispersing agent and air. Type IP cement may be used in place of Type II.
 3. Maximum water/cement plus water reducing dispersing agent ratio = 0.42.
 4. Minimum cement content = 564 pounds (6.0 bags)/cubic yards concrete.
 5. Nominal maximum size coarse aggregate = No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
 6. Air content = 6 percent plus or minus 2 percent by volume.
 7. Slump = 2 inches to 3 inches in accordance with ASTM C-143.

2.03 OPTIONAL CONCRETE MIX USING FLY ASH

- A. Selection of Proportions for Class A Concrete:
1. 4,500 psi compressive for strength at 28 days.
 2. Type II cement plus water reducing dispersing agent and air.
 3. Maximum (water)/(cement plus water reducing dispersing agent) ratio = 0.42.
 4. Minimum cement content = 517 pounds (5.5 bags)/cubic yards concrete.
 5. Maximum Fly Ash Content = 71 pounds/cubic yards
 6. Nominal maximum size coarse aggregate = No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
 7. Air content = 6 percent plus or minus 2 percent by volume.
 8. Slump = 2 inches to 3 inches in accordance with ASTM C-143.
- B. Applicable Standards:
1. ANSI C 311-77 "Standard Methods of Sampling and Testing Fly Ash for Use as an Admixture in Portland Cement Concrete".
 2. ANSI C 618-80 "Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete".
- C. All concrete work shall use Class A concrete.
- D. All testing shall be or have been performed by an approved independent testing laboratory.

- E. Cement for exposed concrete shall have a uniform color classification.
- F. Type II cement conforming to ASTM C-150 shall be used in all structural concrete. The alkali content shall not exceed 0.6 percent calculated as sodium oxide. Type IP Cement may be used in place of Type II cement.
- G. Coarse aggregate shall conform to all requirements of ASTM C-33.
- H. Manufactured sand shall not be used as fine aggregate in concrete.

2.04 FLY ASH CONCRETE

- A. In the absence of a verified and acceptable history of fly ash concrete mixes, the following procedure is required to establish the quality of the concrete mix.
- B. Trial batches must be made starting thirty (30) days ahead of initial concrete pour. Four (4) mixes shall be designed and produced at no cost to the Owner or the Engineer as follows:
 - 1. Mix using Type II cement with water reducing admixture for normal temperatures (Class A).
 - 2. Mix using Type II cement with water reducing admixture for cold weather temperatures (Class A).
 - 3. Mix using Type II cement with water reducing admixture for hot weather temperatures (Class A).
- C. Four (4) test cylinders shall be cast for each of the three (3) mixes. Two (2) cylinders shall be broken at 7 days, and two (2) cylinders shall be broken at 28 days, for each of the three (3) mixes. The trial batch design report shall include strength breaks at 7 days and 28 days, air content, etc.
- D. The water-reducing, cement dispersing admixture (such as Master Builders Pozzolith 344-N, Nox-Crete Plastiflow, Plastocrete 161 by SIKA Chemical Company, or approved equal) used in fly ash concrete, shall be a normal, accelerated, or retarded hardening admixture. The admixture shall be used at optimum dosage to offset the slow strength development and setting characteristics of the fly ash. Only those brands of admixture that can provide readily available field service on short notice to provide field services, inspection, and assistance, will be acceptable.
- E. Prior to the use of fly ash concrete, recent mill reports shall be submitted on a regular basis during the project. Maximum loss of ignition (LOI) shall be 6 percent.
- F. Tests for air content shall be made twice a day at the jobsite prior to pouring, for all mixes containing fly ash.

2.05 ADMIXTURES

- A. An air entraining admixture shall be used on all concrete and shall be the neutralized vinsol resin type such as Master Builders MB-VR, or Euclid Chemical Co. AIR-MIX or equal. The admixture shall meet the requirements of ASTM C-260. Certification attesting to the percent of effective solids and compliance of the material with ASTM C-260 shall be furnished, if requested.
- B. A water reducing, set controlling admixture (non-lignin type) shall be used in all concrete. The admixture shall be a combination of polyhydroxylated polymers including catalysts and components to produce the required setting time based on job site conditions, specified early strength development, finishing characteristics required, and surface texture, as determined by the Engineer.
- C. Certification shall be furnished attesting that the admixture exceeds the physical requirements of ASTM C-494, Type A, water reducing and normal setting admixture, and when required, for ASTM C-494, Type D, water reducing and retarding admixture when used with local materials with which the subject concrete is composed.
- D. The admixture manufacturer, when requested, shall provide a qualified concrete technician employed by the manufacturer to assist in proportioning concrete for optimum use. He also will be available when requested to advise on proper addition of the admixture to the concrete and on adjustment of the concrete mix proportions to meet changing job conditions.
- E. The use of admixtures to retard setting of the concrete during hot weather, to accelerate setting during cold weather, and to reduce water content without impairing workability will be permitted if the following conditions are met.
- F. The admixture shall conform to ASTM C-494 except that the durability factor for concrete containing the admixture shall be at least 100 percent of control, the water content a maximum of 90 percent of control and length change shall not be greater than control, as defined in ASTM C-494.
- G. Where the Contractor finds it impractical to employ fully the recommended procedures for hot weather concreting, the Engineer may at his discretion require the use of a set retardant admixture for mass concrete greater than 2.5 feet thick and for all concrete whenever the temperature at the time concrete is cast exceeds 80 degrees F. The admixture shall be selected by the Contractor subject to the review of the Engineer. The admixture and concrete containing the admixture shall meet all the requirements of these Specifications. Preliminary tests of this concrete shall be required at the Contractor's expense.
- H. Admixtures shall be used in concrete design mixes in the same manner and proportions as in the field so that the effects of the admixtures are included in preliminary tests submitted

to the Engineer for review prior to the start of construction.

- I. When more than one admixture is used, all admixtures shall be compatible. They should preferably be by the same manufacturer.
- J. Calcium chloride will not be permitted as an admixture in any concrete.

2.06 WATER

The water for concrete shall be clean, fresh, and free from injurious amounts of oil, acid, alkali, organic matter, or other deleterious substances. Mix water shall also be potable.

2.07 AGGREGATES

- A. Fine aggregates shall be natural sand having clean, hard, uncoated grains, free from injurious amounts of clay, dust, organic matter or other deleterious substances, and shall conform to ASTM C-33.
- B. Coarse aggregates shall be crushed stone having clean, hard, uncoated particles, and shall be free from injurious amounts of soft, friable, thin, elongated or laminated pieces. Shale may not be used as aggregate. Coarse aggregates shall conform to ASTM C-33 and shall not exceed the following maximum sizes:
 - 1. 3/4-inch for slabs, beams, girders, and walls.
 - 2. 1-inch for all other concrete.

2.08 TESTING AGGREGATES AND DETERMINING PROPORTIONS

- A. No concrete shall be used in the work until the materials and mix design have been accepted by the Engineer.
- B. The conformity of aggregates to the specifications hereinbefore given shall be demonstrated and determined by tests per ASTM C-33 made with representative samples of the materials to be used on the work.
- C. The actual proportions of cement, aggregates, admixtures and water necessary to produce concrete conforming to the requirements set forth shall be determined by making test cylinders using representative samples of the materials to be used in the work. A set of four (4) standard 6-inch cylinders shall be made and cured per ASTM C-31. Two (2) shall be tested at 7 days and two (2) at 28 days per ASTM C-39. The slump shall not be less than the greatest slump expected to be used in the work.
- D. Reports on the tests and a statement of the proportions proposed for the concrete mixture, shall be submitted in triplicate to the Engineer for review as soon as possible, but not less than five (5) days prior to the proposed beginning of the concrete work. If the Contractor furnishes in writing, similar, reliable detailed information from an acceptable source, and

of date not more than four (4) months prior to the time when concrete will be used on this project, the above requirements for laboratory tests may be modified by the Engineer. Such data shall derive from mixtures containing constituents, including the admixtures where used, of the same types and from the same sources as will be used on this project.

- E. The Engineer shall have the right to make check tests of aggregates and concrete, using the same materials, and to order changes as may be necessary to meet the specified requirements.
- F. The Contractor may request permission to add water at the job site, and when the addition of water is permitted by the Engineer, the quantity added shall be the responsibility of the Contractor and in no case shall the total water per bag of cement exceed that determined by the designed mix.
- G. All concrete exposed to weather, such as foundations, walls, exterior steps and retaining walls, etc. shall be air entrained.
- H. If concrete of the required characteristics is not being produced as the work progresses, the Engineer may order such changes in proportions or materials, or both, as may be necessary to secure concrete of the specified quality. The Contractor shall make such changes at his own expense and no extra compensation will be allowed because of such changes.

2.09 MIXING

All central plant and rolling stock equipment and methods shall conform to the Truck Mixer and Agitator Standards of the Truck Mixer Manufacturers' Bureau of the National Ready Mixed Concrete Assn., as well as the ACI Standards for Measuring, Mixing and Placing Concrete (ACI 614), and with Sections 7 to 14, inclusive, of the ASTM Standard Specification for Ready Mixed Concrete, Designation C94-78a, insofar as applicable.

2.10 WATERSTOPS

See Section 03251 - Expansion and Contraction Joints.

PART 3 - EXECUTION

3.01 PLACING AND COMPACTING CONCRETE

- A. At least 24 hours before the Contractor proposes to make any placement of concrete, he shall notify the Engineer of his intention and planned procedure. Unless otherwise permitted, the work shall be so executed that a section begun on any day shall be completed during daylight of the same day.

- B. Ready mixed concrete shall be transported to the site in watertight agitator or mixer trucks. The quantity of concrete to be mixed or delivered in any one batch shall not exceed the rated capacity of the mixer or agitator for the respective conditions as stated on the nameplates.
- C. Central mixed concrete shall be plant mixed a minimum of 1-1/2 minutes per batch, and then shall be truck mixed or agitated a minimum of 8 minutes. Agitation shall begin immediately after the premixed concrete is placed in the truck and shall continue without interruption until discharge. For transit mixed concrete, the major portion of the mixing water shall be added and mixing started immediately after the truck is charged.
- D. The amount of water initially added shall be recorded on the delivery slip for the Engineer's information, no additional water shall be added, either in transit or at the site, except as directed. Mixing (at mixing speed) shall be continued for at least 10 minutes followed by agitation without interruption until discharge. Concrete shall be discharged at the site within 1-1/2 hours after water was first added to the mix, and shall be mixed at least 5 minutes after all water has been added.
- E. Concrete that has become compacted or segregated during transportation to or on the site of the work shall be satisfactorily remixed just prior to being placed in the forms.
- F. Partially hardened concrete shall not be deposited in the forms. The retempering of concrete that has partially hardened (that is, the remixing of concrete with or without additional cement, aggregate, or water) will not be permitted.
- G. The concrete shall be mixed only in the quantity required for immediate use. Concrete that has developed an initial set shall not be used. The Contractor shall have sufficient plant capacity and transporting apparatus to insure continuous delivery at the rate required.
- H. The temperature of the concrete mixture immediately before placement shall be between 50 degrees F and 90 degrees F.
- I. Concrete mixed in stationary mixers and transported by non-agitating equipment shall be placed in the forms within 45 minutes from the time ingredients are charged into the mixing drum. Concrete that is truck mixed or transported in truck mixers or truck agitators shall be delivered to the site of the work and discharge completed in the forms within the time specified in paragraph 10.7 of ASTM C-94, except that when the concrete temperature exceeds 85 degrees F, the time shall be reduced to 30 minutes. Transit mixed concrete that is completely mixed at the site of concrete placement or batched cement and aggregates transported to mixers shall be placed in the forms within 1-1/2 hours after cement has been added. Concrete shall be placed in the forms within 15 minutes after discharge from the mixer at the job site.
- J. If concrete is placed by pumping, no aluminum shall be used in any parts of the pumping

system that contact or might contaminate the concrete. Aluminum chutes and conveyors shall not be used.

- K. No concrete shall be placed on frozen subgrade or in water, or until the subgrade, forms, and preliminary work have been accepted. No concrete shall be placed until all materials to be built into the concrete have been set and have been accepted by the various trades and by the Engineer. All such materials shall be thoroughly clean and free from rust, scale, oil, or any other foreign matter.
- L. Forms and excavations shall be free from water and all dirt, debris, and foreign matter when concrete is placed. Except as otherwise directed, wood forms and embedded wood called for or allowed shall be thoroughly wetted just prior to placement of concrete.
- M. Concrete placed at air temperatures below 40 degrees F shall have a minimum temperature of 50 degrees F and a maximum of 70 degrees F when placed.
- N. Chutes for conveying concrete shall be metal or metal lined and of such size, design, and slope as to ensure a continuous flow of concrete without segregation. The slope of chutes shall have approximately the same slope. The discharge end of the chute shall be provided with a baffle, or if required, a spout and the end of the chute. The spout shall be kept as close as practicable to, but in no event more than 5 feet above the surface of the fresh concrete. When the operation is intermittent, the chute shall discharge into a hopper.
- O. In thin sections of considerable height (such as walls and columns), concrete shall be placed in such manner as will prevent segregation and accumulations of hardened concrete on the forms or reinforcement above the mass of concrete being placed. To achieve this end, suitable hoppers spouts with restricted outlets, etc. shall be used as required or permitted unless the forms are provided with suitable openings.
- P. Chutes, hoppers, spouts, etc. shall be thoroughly cleaned before and after each run and the water and debris shall not be discharged inside the form.
- Q. For any one placement, concrete shall be deposited continuously in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams and planes of weakness within the section, and so as to maintain until the completion of the unit, an approximately horizontal plastic surface.
- R. No wooden spreaders shall be left in the concrete.
- S. During and immediately after being deposited, concrete shall be thoroughly compacted by means of suitable tools and methods, such as internal type mechanical vibrators operating at not less than 5,000 rpm. or other tool spading to produce the required density and quality of finish. Vibration shall be done only by experienced operators and shall be carried in such manner and only long enough to produce homogeneity and optimum

consolidation without permitting segregation of the solid constituents, "pumping" of air, or other objectionable results.

- T. The concrete shall be thoroughly rodded and tamped about embedded materials so as to secure proper adhesion and prevent leakage. Care shall be taken to prevent the displacement of such materials during concreting.
- U. The distance between construction joints shall not exceed 25 feet for all concrete construction and not less than 48 hours shall elapse between casting of adjoining units unless these requirements are waived by the Engineer. Provision shall be made for jointing successive units as indicated or required. Where joints are not shown on the Drawings, they are required to be made at a spacing of approximately 25 feet. Additional construction joints required to satisfy the 25 foot spacing requirement shall be located by the Contractor subject to the review of the Engineer. The Contractor shall submit for review Drawings separate from the steel reinforcing Drawings, showing the location of all proposed construction joints. All construction joints shall be prepared for bonding as specified in paragraph 6.1.4.3 of ACI Standard 301 and Section 3.02 Bonding Concrete at Construction Joints. Joints in walls and columns shall be maintained level.
- V. Formwork for beam soffits and slabs and other parts that support the weight of concrete shall remain in place until the concrete has reached its specified 28-day strength, unless otherwise specified or permitted.

3.02 BONDING CONCRETE AT CONSTRUCTION JOINTS

- A. In order to secure full bond at construction joints, the surface of the concrete previously placed (including vertical, inclined, and substantially horizontal areas) shall be thoroughly cleaned of foreign materials and laitance, if any, and then roughened.
- B. The previously placed concrete at the joint shall be free of standing water.
- C. Waterstops shall be used on all construction joints below water level and as otherwise indicated on the drawings.

3.03 CURING AND PROTECTION

- A. All concrete, particularly slabs and including finished surfaces, shall be treated immediately after concreting or cement finishing is completed, to provide continuous moist curing for at least seven days, regardless of the adjacent air temperature. Walls and vertical surfaces may be covered with continuously saturated burlap, or kept moist by other acceptable means. Horizontal surfaces, slabs, etc., shall be ponded to a depth of 1/2-inch wherever practicable, or kept continuously wet by the use of lawn sprinklers, a complete covering of continuously saturated burlap, or by other acceptable means.
- B. For at least seven days after having been placed, all concrete shall be so protected that the

temperature at the surface will not fall below 45 degrees F. The methods of protecting the concrete shall be as specified in that section of the General Specifications titled "Precautions During Adverse Weather" and shall be subject to the review of the Engineer.

- C. No manure, salt, or other chemicals shall be used for protection.
- D. The above mentioned 7-day periods may be reduced to 3 days in each case if high-early-strength cement is allowed to be used in the concrete.
- E. Wherever practicable, finished slabs shall be protected from the direct rays of the sun to prevent checking and crazing.

3.04 TRIMMING AND REPAIRS

- A. The Contractor shall use suitable forms, mixture of concrete, and workmanship so that concrete surfaces, when exposed, will not require patching. Concrete which, in the opinion of the Engineer has excessive honeycomb, aggregate pockets, or depressions will be rejected and the Contractor shall, at his own expense remove the entire section containing such defects and replace it with acceptable concrete.
- B. As soon as the forms have been stripped and the concrete surfaces exposed, fins and other projections shall be removed, recesses left by the removal of form ties shall be filled and surface defects which do not impair structural strength shall be repaired.
- C. Defective concrete shall be cut perpendicular to the surface until sound concrete is reached, but not less than 1-inch deep. The remaining concrete shall be thoroughly roughened and cleaned. Concrete around the cavity or the form tie recess shall be thoroughly wetted and promptly painted with a 1/16-inch brush coat of neat cement mixed to the consistency of thick paint. The hole shall then be filled with mortar.
- D. Mortar shall be 1:1-1/2 cement and sand mix with sufficient white cement, or fine limestone screening in lieu of sand, to produce a surface matching the adjoining work. Cement and sand shall be from the same sources as in the parent concrete.
- E. Mortar in patches shall be applied so that after partial set it can be compressed and rubbed to produce a finish flush and uniform in texture with the adjoining work. All patches shall be warm-moist cured as above specified.
- F. The use of mortar patching as above specified shall be confined to the repair of small defects in relatively green concrete. If substantial repairs are required, the defective portions shall be cut out to sound concrete and the defective concrete replaced by means of a cement gun, or the structure shall be taken down and rebuilt, all as the Engineer may decide or direct.

3.05 FINISHES

A. Exposed to View Concrete Surfaces:

1. All concrete exposed to view in the completed structure shall be produced using materials and workmanship to such quality that only nominal finishing will be required. The provisions of paragraphs 13.3, 13.4, and 13.6 of ACI shall apply to all exposed to view concrete surfaces (limited to 1 foot below grade and 1 foot below the minimum liquid level for structures that will contain liquids).
2. Forms for exposed concrete surfaces shall be exterior grade, high density overlay plywood, steel, or wood forms with smooth tempered hard board form liners.
3. Forms shall be coated with Nox-Crete Form Coating Release Agent, Debond Form Coating by L & M Construction Chemicals, Inc. or an approved equal, before initial pour and between subsequent pours, in accordance with the manufacturer's printed instructions. Form boards shall not be wet with water prior to placing concrete.
4. Recessed joints in concrete shall be formed using lacquer coated wooden battens or forms, milled to indicated profiles. Battens and corner strips shall be carefully inspected before concrete is placed and damaged pieces replaced.
5. Chamfer strips shall be 1-inch radius with leg, polyvinyl chloride strips by Gateway Building Products, Saf-T-Grip Specialties Cor., Vinylex Corp., or equal.
6. Particular attention is directed to the requirements of paragraphs 10.2.2 and 13.3 of ACI 301. Form panels shall be provided in the maximum form joints. Wherever practicable, form joints shall occur at recessed joints. All form joints in exterior exposed to view surfaces shall be carefully caulked with an approved nonstaining caulking compound. Joints shall not be taped. Form oil or other material which will impart a stain to the concrete shall not be allowed to contact concrete surfaces.
7. Care shall be taken to prevent chipping of corners or other damage to concrete when forms are removed. Exposed corners and other surfaces which may be damaged by ensuing operations shall be protected from damage by boxing, corner boards or other approved means until construction is completed.
8. Form ties shall remain in the walls and shall be equipped with a waterseal to prevent passage of water through the walls. Particular care shall be taken to bend tie wire ends away from exposed faces of beams, slabs and columns. In no case shall ends to tie wires project toward or touch formwork. Minimum set back of form ties shall be 1 inch from faces of wall. The hole left by removal of tie ends shall be sealed and grouted as per ACI Par. 9.3 and in accordance with procedure described hereinafter in Par. 3.04.E. Form ties will be permitted to fall within as cast areas of architecturally treated wall surfaces (ACI Chapter 13); this does not apply to walls receiving textured decorative waterproof masonry coating.
9. All formed exposed to view concrete shall be prepared as paragraph 3.04 B, then receive a grout-cleaned finish. The grout-cleaned finish shall use a mix of one part white Portland cement and 1½ parts of fine sand mixed with sufficient water to form a grout having the consistency of thick paint. Apply to damp surface and rub down in such a manner as to obtain a smooth, filled surface uniform in color and free from defects and blemishes. Exterior vertical surfaces shall be finished to one foot below grade. Interior exposed to view vertical surfaces of dry pits shall be finished full height, interior vertical surfaces of liquid containers shall be finished to

- one foot below the minimum liquid level that will occur during normal operations.
10. Slope all slabs to prevent water pocketing.
- B. All vertical surfaces below minimum liquid level in liquid containing structures shall have a smooth form finish.
 - C. All smooth form concrete vertical surfaces shall be true plane within 1/4-inch in 10 feet as determined by a 10 foot straight edge place anywhere on the surface in any direction. Abrupt irregularities shall not exceed 1/8-inch.
 - D. Basin, flume, conduit and tank floors shall have a "troweled" finish unless shown otherwise on Drawings.
 - E. Weirs and overflow surfaces shall be given a troweled finish.
 - F. Exterior platforms, steps and landings shall be given a broom finish. Broom finish shall be applied to surfaces which have been steel troweled to an even smooth finish. The troweled surface shall then be broomed with a fiber bristle brush in the direction transverse to that of the main traffic.
 - G. Walking surfaces of slabs shall have a troweled finish unless shown otherwise on Drawings.
 - H. Patching of holes due to removal of tie ends and other repairable defective areas shall be as follows: Entire contact area of hole shall be coated with two part moisture insensitive epoxy bonding compound in accordance with manufacturer's specifications, and prior to placing of freshly mixed patching mortar. Patching mortar shall be mixed and placed in general accordance with ACI Par. 9.2.2, 9.2.3, and 13.6.
 - I. Nox-Crete Harbeton, Chem Hard by L & M Construction Chemicals hardener treatment, or an approved equal shall be applied to all exposed concrete floors in occupied spaces. The floors shall be thoroughly cured, cleaned, and perfectly dry with all work above them completed. The hardener shall be applied evenly and freely and in conformance with manufacturer's instructions, using not less than three (3) coats, allowing 24 hours between coats. One gallon of hardener shall cover not more than 100 square feet. After the final coat is completed and dry, surplus hardener shall be removed from the surface of the concrete by scrubbing and mopping with water.

3.06 CONCRETE WALKS AND CURBS:

- A. Subgrade shall be true and well compacted at the required grades. Spongy and otherwise unsuitable material shall have been removed and replaced with properly compacted, approved material. Concrete walks shall be placed upon 8-inch DGA unless noted otherwise on the Drawings.

- B. Concrete walks shall be not less than 4 inches in thickness. Walks shall have contraction joints every 5 linear feet in each direction, formed in the fresh concrete by cutting a groove in the top surface of the slab to a depth of at least one-fourth the slab thickness with a jointing tool. Transverse expansion joints shall be installed at driveways, and opposite expansion joints in adjacent curbs. Where curbs are not adjacent, transverse expansion joints shall be installed at intervals of approximately 25 feet. Sidewalks shall receive a broomed finish. Scoring shall be in a transverse direction. Edges of the sidewalks and joints shall be edged with a tool having a radius not greater than 1/6-inch. Sidewalks adjacent to curbs shall have a slope of 1/4-inch per foot toward the curb. Sidewalks not adjacent to curbs shall have a transverse slope of 1/4-inch per foot or shall be crowned as directed by the Engineer. The surface of the concrete shall show no variation in cross section in excess of 1/4-inch in 5 feet. Concrete walks shall be reinforced with 6 x 6 - W1.4 x W1.4 welded wire fabric unless noted otherwise on the Drawings.
- C. Concrete curbs shall be constructed to the section indicated on the Drawings, and all horizontal and vertical curves shall be incorporated as indicated or required. Forms shall be steel or as approved by the Engineer. At the option of the Contractor, the curbs may be precast or cast-in-place. Cast-in-place curbs shall be divided into Sections 8 to 10 feet in length using steel divider plates. The divider plates shall extend through the concrete and shall be removed. Precast curbs shall be finished smooth. Dividers shall be installed where the curb crosses pipe trenches or other insecure area. Transverse expansion joints shall be installed at all curb returns and at intervals of approximately 40 feet.

3.07 WATERTIGHTNESS

- A. The structures which are intended to contain liquids and/or will be subjected to exterior hydrostatic pressures shall be so constructed that when completed and tested, there shall be no loss of water and no wet spots shall show.
- B. As soon as practicable after the completion of the structures, the Contractor shall fill such structures with water and if leakages develop or wet spots show, the Contractor shall empty such structures and correct the leakage in an approved manner. Any cracks which appear in the concrete shall be dug out and suitably repaired. Temporary bulkheads over pipe openings in walls shall be provided as required for the testing.
- C. After repairs, if any are required, the structures shall be tested again and further repaired if necessary until satisfactory results are obtained. All work in connection with these tests and repairs shall be at the expense of the Contractor.
- D. Waterstops shall be placed in all locations as indicated on the Drawings and as may be required to assure the watertightness of all containers of liquids. Special shop fabricated ells, tees and crosses shall be provided at junctions. Waterstops shall be extended at least 6 inches beyond end of placement in order to provide splice length for subsequent placement. In slabs and tank bottoms, waterstops shall be turned up to be made

continuous with waterstops at bottom of walls or in walls. All joints between adjacent, continuing, and intersecting sections of waterstop including butt joints, tee joints, and other angled joints shall be heat fused to form a watertight seal. Waterstops shall not be lapped. Waterstops shall be secured in place to maintain proper position during placement of concrete. Care shall be taken to avoid folding while concrete is being placed and to prevent voids in the concrete surrounding the waterstop. All materials shall be installed in accordance with the manufacturer's recommendations.

- E. Joints between pipe (except cast iron wall pipe) and cast-in-place concrete walls shall be sealed as required by the Drawings.
- F. The top surface of all concrete decks (except slabs on grade) shall be coated with Sikagard-70 water-repellant penetrating sealer as manufactured by the Sika Corporation, Nox-Crete Stifel, or another approved equal. The manufacturer's recommendations shall be followed in all areas of application.

3.08 GROUTING BASE PLATES, BEARING PLATES AND MACHINE BASES

- A. Column base plates, bearing plates for beams and similar structural members, machinery and equipment bases shall, after being plumbed and properly positioned, be provided with full bearing on epoxy nonshrink grout. Concrete surfaces shall be rough, clean, free of oil, grease and laitance and shall be moistened thoroughly immediately before grout is placed. Metal surfaces shall be clean and free of oil, grease and rust. Mixing and placing shall be in conformance with the material manufacturer's printed instructions.
- B. Grout fill that is formed in place by using rotating equipment as a screed, such as for clarifiers and similar types of equipment, shall be mixed in proportions and consistencies as required by the manufacturer or supplier of the equipment.

3.09 EQUIPMENT PADS

Unless otherwise shown or directed, all equipment and items such as lockers, motor control centers, etc., shall be installed on concrete bases. The bases shall be constructed to the dimensions shown on the Drawings or as required to meet plan elevations. Where no specific plan elevations are required, the bases shall be 6 inches thick and shall extend 3 inches outside the equipment base. In general, the concrete bases shall be placed up to 1-inch below the base. The equipment shall then be properly shimmed to grade and the 1-inch void filled with nonshrink epoxy grout.

END OF SECTION 03310

SECTION 03600 - PRECISION GROUTING

PART 1 - GENERAL

1.01 WORK INCLUDED

Provide all labor, material, equipment and services required for grouting of equipment, machinery, structural steel, handrails, anchor bolts and other items or work for which grouting is specified or required. All unnecessary holes, openings and cracks in existing concrete shall be filled and patched.

1.02 DESCRIPTION OF WORK

- A. High strength, precision support of machine bases and soleplates, setting anchor bolts, including equipment subject to thermal movement and repetitive dynamic loading.
- B. Work includes providing a non-shrink, ready-to-use, fluid precision epoxy grout material; proportioned, pre-mixed and packaged at the factory; delivered to the job site to place with only the addition of water; forming, placing and curing as specified in this section.

1.03 RELATED WORK

- A. Section 03310 - Structural Concrete.
- B. Review all divisions and sections for equipment, machinery and other items to be grouted.

1.04 QUALITY ASSURANCE

Comply with the following codes, standards, test and recommended practices for foundation concrete as apply to precision grouting:

- A. ACI 347 "Recommended Practice for Concrete Formwork".
- B. ASTM C 309 "Standard Specifications for Liquid Membrane Forming Compounds for Curing Concrete".
- C. Manufacturer's Information on Use of Grout: Attached to each bag of grout.

1.05 SUBMITTALS

- A. Manufacturer's data of grout to be used shall be submitted to Engineer for review (see Section 01300).

PART 2 - PRODUCTS

2.01 GROUT

- A. Precision-support grout shall consist of an epoxy three component system, special graded and processed (non-ferrous metallic internal reinforcing aggregate), carefully graded natural fine aggregate and additional technical components.
- B. Grouts which depend upon aluminum powders, chemicals, or other agents which produce gas for expansion are not acceptable.
- C. Precision-support grout shall also meet the following requirements:
 - 1. Free of gas producing agents.
 - 2. Free of oxidizing catalysts.
 - 3. Free of inorganic accelerators, including chlorides.

2.02 WATER

Water shall be suitable for drinking.

PART 3 - EXECUTION

3.01 PREPARATION FOR GROUTING

- A. Remove laitance down to sound concrete.
- B. Surface to receive grout shall be rough and reasonably level.
- C. Surface shall be properly cured. DO NOT USE CURING COMPOUNDS.
- D. Clean surface of oil, grease, dirt, and loose particles.
- E. Clean bolt holes, bolts and underside of equipment base.
- F. Install per manufacturer's recommendations.

3.02 FORMWORK

- A. Formwork shall be compatible with proposed method of placing grout. Design for rapid, continuous and complete filling of space to be grouted.
- B. Build strong, tight forms braced so they will not leak or buckle under weight of fluid grout.

3.03 FINISHING AND CURING

- A. Follow manufacturer's printed instructions for the brand and type of grout being used.
- B. The grout shall meet the following strengths:

| | <u>Plastic Mix</u> | <u>Flowable Mix</u> |
|---------|---------------------------|----------------------------|
| 1 day | 4,000 psi | 2,000 psi |
| 3 days | 6,000 psi | 3,000 psi |
| 7 days | 8,000 psi | 5,000 psi |
| 28 days | 10,000 psi | 7,000 psi |

END OF SECTION 03600

ADDENDUM NO. 1
San. Sewer System Collection System Ext. – Phase One – Contract 39
McCreary County Water District
Morehead, Kentucky

TO: All Planholders

PROJECT: Sanitary Sewer Collection System Extension – Phase One – Contract 39
Morehead Utility Plant Board
456 North Hwy 27
Whitley City, Kentucky 42653
Bid Date: December 9, 2020 at 2:00pm local time

DATE: December 3, 2020

SUBJECT: Revisions to Contract Documents

All Bidders shall incorporate the following alterations and/or additions into the Contract Documents for the referenced project:

SPECIFICATION REVISIONS:

1. SECTION 00300 – BID FORM

- BASE BID Item No. 8. Gravity Sewer Laterals shall be either PVC SDR 35 or SCH 40 PVC. This change shall apply to all Bid Forms.
- BASE BID Item No. 2. 1.5-inch HDPE DR11 CTS Force Main (green). This item may be green striped in lieu of solid green if the Contractor chooses. This change shall apply to all Bid Forms.
- BASE BID Item No. 11. 4-inch HDPE DR 11 IPS Casing Pipe. This item shall be changed to DR 17 to accommodate the carrier pipe outside diameter. This change shall apply to all Bid Forms.

2. SECTION 00700 – GENERAL CONDITIONS

- Paragraph 1.23 WAGES AND HOURS – Replace with the following: “Contractor shall refer to Section 01030 for project wage determinations.”

3. SECTION 01450 – SERVICES OF MANUFACTURER’S REPRESENTATIVE

- Delete this Section in its entirety. The Contractor shall assure that all grinder pump station systems are properly installed. The Owner will startup each station once completed by the Contractor.

4. SECTION 02734 – SIMPLEX GRINDER PUMP STATION

- Part 1 – General, 1.03 Warranty: Change twenty-four (24) months to twelve (12) months and change twenty-seven (27) months to eighteen (18) months.

- Part 2 – Basin Packages, 2.03 Check Valve: Add the following sentence: “Check valve shall be factory-installed cast iron with anti-siphon feature.”
- Part 2 – Basin Packages, 2.05 Level Detection: Change the last sentence to the following: “Manufacturer may utilize a 3-float system in lieu of the ESPS system described above. System shall be mechanical pilot duty floats float switches and shall be provided and mounted on tank wall using a SS cable rack. Three floats provided shall be pump off, pump on, and alarm.”
- Part 2 – Basin Packages, 2.09 Pump and Level Control Removal System: Add the following sentence: “Manufacturer may supply either a C-channel rail system or comparable flex hose discharge configuration.”
- Part 3 – Pumps, 3.01 Design: Add the following sentence to the 1st paragraph: “Pump shall be equal to model SGVF capable of pumping 20 GPM at 95 feet TDH and 40 GPM at 80 feet TDH”.
- Note: It is the intent to for the Owner/Engineer to accept one of three manufacturers that are listed in this Section and Section 00400. This Section as advertised is based around a Barnes grinder pump station package. Attached are specifications to be considered an equal for Myers and EOne. Each manufacturer is required to meet their associated specifications.

DRAWING REVISIONS:

1. DRAWING 2 – GENERAL NOTES, ABBREVIATIONS, LEGEND AND UTILITIES

- General Notes, Add General Note 43 as follows: “Minimum cover over proposed sanitary sewer force mains shall be 30 inches and underneath KY routes shall be 48 inches minimum.”

2. DRAWING 92 – SIMPLEX GRINDER PUMP STATION

Contractor shall NOT install alarm panel on the house/structure as shown. Panel shall be installed at the station pedestal mounted with a 6x6 treated wood post.

Electric service note shall delete the term (N.I.C.) from the paragraph. Contractor shall perform this work per Base Bid Item No. 14.

Basin standard dimensions shall be changed from 24” inside diameter and 60” tank depth to 30” inside diameter and 48” tank depth.

Basin shall include a 2-inch mushroom vent as specified.

Grinder Check Valve Assembly – Ball valve shall be 2-inch, not 1.5-inch as shown in the section view. Box lids shall be green in color.

3. DRAWING 94 – STANDARD DETAILS

- All box lids shall be green in color.
- Inline cleanout detail shall have a 2-inch valve in the vertical position.
- All 2-inch and 3-inch flushing connection valves shall be brass.

- All 4-inch valves shall be Plug valves.

4. DRAWING 95 – STANDARD DETAILS

- **PIPE BEDDING AND BACKFILLING**

Note 1 shall be changed to the following:

“Area 1 material: gravity sewer = No. 9 crushed stone. Force main material = earth bedding and backfill free of all rock.”

Engineer’s intent is for force mains to be bedded and backfilled with earth free of rock other than bituminous and concrete surfaces. These areas require No. 9 crushed stone bedding and backfill per the details. In earthen areas where rock is encountered, a minimum of 6 inches of No. 9 crushed stone shall be used for bedding and 12 inches of No. 9 crushed stone shall be used for initial backfill.

STEEL ENCASEMENT AND ASSEMBLY – Delete this Detail in its entirety.

END OF ADDENDUM NO. 1

SECTION: GRINDER PUMP STATIONS – ENVIRONMENT ONE CORPORATION

1.0 General

1.01 GENERAL DESCRIPTION: The **MANUFACTURER** shall furnish complete factory-built and tested grinder pump unit(s), each consisting of a grinder pump core suitably mounted on an integral stand of stainless steel, tank, electrical quick disconnect (NEMA 6P), pump removal harness, discharge assembly/shut-off valve, anti-siphon valve/check valve assembly, electrical alarm assembly and all necessary internal wiring and controls. For ease of serviceability, all pump motor/grinder units shall be of like type and horsepower throughout the system.

1.02 SUBMITTALS: After receipt of notice to proceed, the **MANUFACTURER** shall furnish a minimum of six sets of shop drawings detailing the equipment to be furnished including dimensional data and materials of construction. The **ENGINEER** shall promptly review this data, and return two copies as accepted, or with requested modifications. Upon receipt of accepted shop drawings, the **MANUFACTURER** shall proceed immediately with fabrication of the equipment.

1.03 MANUFACTURER: Grinder pump stations, complete with all appurtenances, form an integral system, and as such, shall be supplied by one grinder pump station manufacturer. The **CONTRACTOR** shall be responsible for the satisfactory operation of the entire system. The equipment specified shall be a product of a company experienced in the design and manufacture of grinder pumps for specific use in low pressure sewage systems. The company shall submit detailed installation and user instructions for its product, submit evidence of an established service program including complete parts and service manuals, and be responsible for maintaining a continuing inventory of grinder pump replacement parts. The **MANUFACTURER** shall provide, upon request, a reference and contact list from ten of its largest contiguous grinder pump installations of the type of grinder pumps described within this specification.

The **MANUFACTURER** of the grinder pump station shall be Environment One Corporation, or equal.

1.04 OPERATING CONDITIONS: The pumps shall be capable of delivering 15 GPM against a rated total dynamic head of 0 feet (0 PSIG), 11 GPM against a rated total dynamic head of 92 feet (40 PSIG), and 7.8 GPM against a rated total dynamic head of 185 feet (80 PSIG). The pump(s) must also be capable of operating at negative total dynamic head without overloading the motor(s). Under no conditions shall in-line piping or valving be allowed to create a false apparent head.

1.05 WARRANTY: The grinder pump **MANUFACTURER** shall provide a part(s) and labor warranty on the complete station and accessories, including, but not limited to, the panel for a period of 12 months after notice of **OWNER'S** acceptance, but no greater than 18 months after receipt of shipment. Any manufacturing defects found during the warranty period will be reported to the **MANUFACTURER** by the **OWNER** and will be corrected by the **MANUFACTURER** at no cost to the **OWNER**.

1.06 WARRANTY PERFORMANCE CERTIFICATION: As a bid certification requirement, each bidder shall provide with their bid schedule a Warranty Performance Certification statement executed by the most senior executive officer of the grinder pump **MANUFACTURER**, which certifies a minimum of a 12-month warranty. They must further detail any exclusions from the warranty or additional cost items required to maintain the equipment in warrantable condition, including all associated labor and shipping fees, and certify that the **MANUFACTURER** will bear **all** costs to correct any original equipment deficiency for the effective period of the warranty. All preventive maintenance type requirements shall be included in this form as exclusions. These requirements include, but are not limited to, unjamming of grinder mechanism, periodic motor maintenance, and periodic cleaning of liquid level controls. Should the **CONTRACTOR** (supplier) elect to submit a performance bond in lieu of the experience clause outlined above, this Warranty Performance Certification shall also be used as a criterion to evaluate the **CONTRACTOR'S** (supplier's) performance over the warranty period. A Warranty Performance Certification form is included with the bid schedule and must be completed and submitted as part of the bid package. Bids with incomplete forms or missing forms will be considered nonresponsive.

2.0 PRODUCT

2.01 PUMP: The pump shall be a custom designed, integral, vertical rotor, motor driven, solids handling pump of the **progressing cavity type** with a single mechanical seal. Double radial O-ring seals are required at all casting joints to minimize corrosion and create a protective barrier. All pump castings shall be cast iron, fully epoxy coated to 8-10 mil Nominal dry thickness, wet applied. The rotor shall be through-hardened, highly polished, precipitation hardened stainless steel. The stator shall be of a specifically compounded ethylene propylene synthetic elastomer. This material shall be suitable for domestic wastewater service. Its physical properties shall include high tear and abrasion resistance, grease resistance, water and detergent resistance, temperature stability, excellent aging properties, and outstanding wear resistance. Buna-N is not acceptable as a stator material because it does not exhibit the properties as outlined above and required for wastewater service.

2.02 GRINDER: The grinder shall be placed immediately below the pumping elements and shall be direct-driven by a single, one-piece motor shaft. The grinder impeller (cutter wheel) assembly shall be securely fastened to the pump motor shaft by means of a threaded connection attaching the grinder impeller to the motor shaft. Attachment by means of pins or keys will not be acceptable. The grinder impeller shall be a one-piece, 4140 cutter wheel of the rotating type with inductively hardened cutter teeth. The cutter teeth shall be inductively hardened to Rockwell 50 – 60c for abrasion resistance. The shredder ring shall be of the stationary type and the material shall be white cast iron. The teeth shall be ground into the material to achieve effective grinding. The shredder ring shall have a staggered tooth pattern with only one edge engaged at a time, maximizing the cutting torque. These materials have been chosen for their capacity to perform in the intended environment as they are materials with wear and corrosive resistant properties.

This assembly shall be dynamically balanced and operate without objectionable noise or vibration over the entire range of recommended operating pressures. The grinder shall be constructed so as to minimize clogging and jamming under all normal operating conditions including starting. Sufficient vortex action shall be created to scour the tank free of deposits or sludge banks which would impair the operation of the pump. These requirements shall be accomplished by the following, in conjunction with the pump:

1. The grinder shall be positioned in such a way that solids are fed in an upward flow direction.
2. The maximum flow rate through the cutting mechanism must not exceed 4 feet per second. This is a critical design element to minimize jamming and as such must be adhered to.
3. The inlet shroud shall have a diameter of no less than 5 inches. Inlet shrouds that are less than 5 inches in diameter will not be accepted due to their inability to maintain the specified 4 feet per second maximum inlet velocity which by design prevents unnecessary jamming of the cutter mechanism and minimizes blinding of the pump by large objects that block the inlet shroud.
4. The impeller mechanism must rotate at a nominal speed of no greater than 1800 rpm.

The grinder shall be capable of reducing all components in normal domestic sewage, including a reasonable amount of "foreign objects," such as paper, wood, plastic, glass, wipes, rubber and the like, to finely-divided particles which will pass freely through the passages of the pump and the 1-1/4" diameter stainless steel discharge piping.

2.03 ELECTRIC MOTOR: As a maximum, the motor shall be a 1 HP, 1725 RPM, 240 Volt 60 Hertz, 1 Phase, capacitor start, ball bearing, air-cooled induction type with Class F insulation, low starting current not to exceed 30 amperes and high starting torque of 8.4 foot pounds. The motor shall be press-fit into the casting for better heat transfer and longer winding life. Inherent protection against running overloads or locked rotor conditions for the pump motor shall be provided by the use of an automatic-reset, integral thermal overload protector incorporated into the motor. The motor protector shall be specifically investigated and listed by Underwriters Laboratories Inc. for the application. Non-capacitor start motors or permanent split capacitor motors will not be accepted because of their reduced starting torque and consequent diminished grinding capability. The wet portion of the motor armature must be 300 Series stainless steel. To reduce the potential of environmental concerns, the expense of handling and disposing of oil, and the associated maintenance costs, oil-filled motors will

not be accepted. Pump operation during instances of potentially damaging high current or low voltage conditions shall be inhibited by an in-pump electrical monitoring system that has been investigated and listed by Underwriters Laboratories Inc. for the application. Motor start shall be controlled by a DC driven electromechanical relay integrated within the control compartment of the pump. Electrical monitoring shall ensure the relay operates reliably. AC Mechanical contactors for motor start are susceptible to damage from short cycling and will not be accepted.

2.04 MECHANICAL SEAL: The pump/core shall be provided with a mechanical shaft seal to prevent leakage between the motor and pump. The seal shall have a stationary ceramic seat and carbon rotating surface with faces precision lapped and held in position by a stainless steel spring.

2.05 FIBERGLASS TANKS: The tank shall be a wetwell design consisting of a single wall, laminated fiberglass construction. The resin used shall be of a commercial grade suitable for the environment. The reinforcing material shall be a commercial grade of glass fiber capable of bonding with the selected resin. The inner surface shall have a smooth finish and be free of cracks and crazing. The exterior tank surface shall be relatively smooth with no exposed fiber or sharp projections present.

The tank wall and bottom shall be of sufficient thickness and construction to withstand the imposed loading due to saturated soil at the specified burial depth for each available tank height. All station components must function normally when exposed to the external soil and hydrostatic pressures developed at the specified burial depth. The tank bottom shall be reinforced with a fiberglass plate extending beyond the tank walls to support concrete anchoring, as required, to prevent flotation.

The Fiberglass tank shall have a stainless steel discharge bulkhead which terminates outside the tank wall with a 1-1/4" female pipe thread. The discharge bulkhead shall be factory installed and warranted by the manufacturer to be watertight. The tank shall be furnished with a field installed EPDM grommet to accept a 4.50" OD (4" DWV or SCH 40) inlet pipe.

The power and control cable shall connect to the pump by means of the provided NEMA 6P Electrical Quick Disconnect (EQD) and shall enter the tank through a field installed watertight strain relief connector supplied by the manufacturer. An electrical junction box shall not be permitted in the tank. Installation of the inlet grommet and cable strain relief shall require field penetration of the tank wall by the installing party. The tank shall also be vented to prevent sewage gases from accumulating inside the tank by means of a factory-provided, field-installed mushroom vent. The station cover shall be factory drilled to accept the mushroom vent. The tank and stainless steel discharge bulkhead shall be factory-tested to be watertight.

Consult the contract drawings for station tank sizes (diameter and height).

2.06 DISCHARGE HOSE AND DISCONNECT/VALVE: All discharge fittings and piping shall be constructed of polypropylene, EPDM or PVC. The discharge hose assembly shall include a shut-off valve rated for 200 psi WOG and a quick disconnect feature to simplify installation and pump removal. The bulkhead penetration shall be factory installed and warranted by the manufacturer to be watertight.

2.07 ELECTRICAL QUICK DISCONNECT: The grinder pump core shall include a factory-installed NEMA 6P electrical quick disconnect (EQD) for all power and control functions. The EQD will be supplied with 32', 25' of useable, electrical supply cable (ESC) to connect to the alarm panel. The EQD shall require no tools for assembly, seal against water before the electrical connection is made, and include radial seals to assure a watertight seal regardless of tightening torque. Plug-type connections of the power cable onto the pump housing will not be acceptable due to the potential for leaks and electrical shorts. Junction boxes are not acceptable due to the large number of potential leak points. The EQD shall be so designed to be conducive to field wiring as required.

2.08 CHECK VALVE: The pump discharge shall be equipped with a factory installed, gravity operated, flapper-type integral check valve built into the discharge piping. The check valve will provide a full-ported passageway when open, and shall introduce a friction loss of less than 6 inches of water at maximum rated flow. Moving parts will be made of a 300 Series stainless steel and fabric reinforced synthetic elastomer to ensure corrosion resistance, dimensional stability, and fatigue strength. A nonmetallic hinge shall be an integral part of the flapper assembly providing a maximum degree of

freedom to assure seating even at a very low back-pressure. The valve body shall be an injection molded part made of an engineered thermoplastic resin. The valve shall be rated for continuous operating pressure of 235 psi. Ball-type check valves are unacceptable due to their limited sealing capacity in slurry applications.

- 2.09 ANTI-SIPHON VALVE:** The pump discharge shall be equipped with a factory-installed, gravity-operated, flapper-type integral anti-siphon valve built into the discharge piping. Moving parts will be made of 300 Series stainless steel and fabric-reinforced synthetic elastomer to ensure corrosion resistance, dimensional stability, and fatigue strength. A nonmetallic hinge shall be an integral part of the flapper assembly, providing a maximum degree of freedom to ensure proper operation even at a very low pressure. The valve body shall be injection-molded from an engineered thermoplastic resin. Holes or ports in the discharge piping are not acceptable anti-siphon devices due to their tendency to clog from the solids in the slurry being pumped. The anti-siphon port diameter shall be no less than 60% of the inside diameter of the pump discharge piping.
- 2.10 CORE UNIT:** The grinder pump station shall have an easily removable core assembly containing pump, motor, grinder, all motor controls, check valve, anti-siphon valve, electrical quick disconnect and wiring. The watertight integrity of the core unit shall be established by a 100% factory test at a minimum of 5 PSIG.
- 2.11 CONTROLS:** All necessary motor starting controls shall be located in the cast iron enclosure of the core unit secured by stainless steel fasteners. Locating motor starting controls in a plastic enclosure is not acceptable. Wastewater level sensing controls shall be housed in a separate enclosure from motor starting controls. Level sensor housing must be sealed via a radial type seal; solvents or glues are not acceptable. Level sensing control housing must be integrally attached to pump assembly so that it may be removed from the station with the pump and in such a way as to minimize the potential for the accumulation of grease and debris accumulation, etc. Level sensing housing must be a high-impact thermoplastic copolymer over-molded with a thermo plastic elastomer. The use of PVC for the level sensing housing is not acceptable.

Non-fouling wastewater level controls for controlling pump operation shall be accomplished by monitoring the pressure changes in an integral air column connected to a pressure switch. The air column shall be integrally molded from a thermoplastic elastomer suitable for use in wastewater and with excellent impact resistance. The air column shall have only a single connection between the water level being monitored and the pressure switch. Any connections are to be radial sealed with redundant O-rings. The level detection device shall have no moving parts in direct contact with the wastewater and shall be integral to the pump core assembly in a single, readily-exchanged unit. Depressing the push to run button must operate the pump even with the level sensor housing removed from the pump.

All fasteners throughout the assembly shall be 300 Series stainless steel. High-level sensing will be accomplished in the manner detailed above by a separate air column sensor and pressure switch of the same type. Closure of the high-level sensing device will energize an alarm circuit as well as a redundant pump-on circuit. For increased reliability, pump ON/OFF and high-level alarm functions shall not be controlled by the same switch. Float switches of any kind, including float trees, will not be accepted due to the periodic need to maintain (rinsing, cleaning) such devices and their tendency to malfunction because of incorrect wiring, tangling, grease buildup, and mechanical cord fatigue. To assure reliable operation of the pressure switches, each core shall be equipped with a factory installed equalizer diaphragm that compensates for any atmospheric pressure or temperature changes. Tube or piping runs outside of the station tank or into tank-mounted junction boxes providing pressure switch equalization will not be permitted due to their susceptibility to condensation, kinking, pinching, and insect infestation. The grinder pump will be furnished with a 6 conductor 14 gauge, type SJOW cable, pre-wired and watertight to meet UL requirements with a **FACTORY INSTALLED NEMA 6P EQD** half attached to it.

- 2.12 ALARM PANEL:** Each grinder pump station shall include a NEMA 4X, UL-listed alarm panel suitable for wall or pole mounting. The NEMA 4X enclosure shall be manufactured of thermoplastic polyester to ensure corrosion resistance. The enclosure shall include a hinged, lockable cover with padlock, preventing access to electrical components, and creating a secured safety front to allow access only to

authorized personnel. The enclosure shall not exceed 10.5" W x 14" H x 7" D, or 12.5" W x 16" H x 7.5" D if certain options are included.

The alarm panel shall contain one 15-amp, double-pole circuit breaker for the pump core's power circuit and one 15-amp single-pole circuit breaker for the alarm circuit. The panel shall contain a push-to-run feature, an internal run indicator, and a complete alarm circuit. All circuit boards in the alarm panel are to be protected with a conformal coating on both sides and the AC power circuit shall include an auto resetting fuse.

The alarm panel shall include the following features: external audible and visual alarm; push-to-run switch; push-to-silence switch; redundant pump start; and high level alarm capability. The alarm sequence is to be as follows when the pump and alarm breakers are on:

1. When liquid level in the sewage wet-well rises above the alarm level, the contacts on the alarm pressure switch activate, audible and visual alarms are activated, and the redundant pump starting system is energized.
2. The audible alarm may be silenced by means of the externally mounted, push-to-silence button.
3. Visual alarm remains illuminated until the sewage level in the wet-well drops below the "off" setting of the alarm pressure switch.

The visual alarm lamp shall be inside a red, oblong lens at least 3.75" L x 2.38" W x 1.5" H. Visual alarm shall be mounted to the top of the enclosure in such a manner as to maintain NEMA 4X rating. The audible alarm shall be externally mounted on the bottom of the enclosure, capable of 93 dB @ 2 feet. The audible alarm shall be capable of being deactivated by depressing a push-type switch that is encapsulated in a weatherproof silicone boot and mounted on the bottom of the enclosure (push-to-silence button).

The entire alarm panel, as manufactured and including any of the following options shall be listed by Underwriters Laboratories, Inc.

SENTRY SIMPLEX PROTECT

Provides protection from the following operating conditions:

- **Low Voltage (Brownout) Protection** – A lockout cycle will prevent the motor from operating and will illuminate an LED if:
 - the incoming AC Mains voltage drops below a predetermined minimum, typically 12% of nameplate (211 volts for a 240 volt system) for 2 to 3 seconds, regardless of whether the motor is running
 - the lockout cycle will end if the incoming AC Mains voltage returns to a predetermined value, typically 10% of nameplate (216 volts for a 240 volt system)

The system continues to retest the voltage every second indefinitely. If the lockout cycle has been initiated and the voltage comes back above the predetermined starting voltage, the system will function normally. The LED remains illuminated during a Brownout condition and remains latched until the pump breaker is turned off and then on again (reset). The audible and visual alarm will not be activated unless there is a high wastewater level in the tank.

- **Run Dry Protection** – A 20-minute lockout cycle will prevent the motor from operating and will illuminate an LED when the wastewater level in the tank is below the pump inlet level. The condition is rechecked every 20 minutes. If the lockout cycle has been initiated and the condition is satisfied, the pump is not allowed to cycle normally but the LED remains latched. The LED will remain latched until the pump breaker is turned off and then on again (reset). If the condition is not satisfied after 3 consecutive attempts, the visual alarm will be activated until the pump breaker is turned off and on (reset) or until there is one cycle of normal operation. If a high level condition is presented at any time, a pump run cycle will be activated.
- **High System Pressure Protection** – A 20-minute lockout cycle will prevent the motor from operating and will illuminate an LED when the pressure in the discharge line is atypically high

(closed valve or abnormal line plug). The condition is rechecked every 20 minutes. If the condition is satisfied, the pump is allowed to cycle normally but the LED remains latched. If the condition is not satisfied after 3 consecutive attempts, the pump is locked out indefinitely until the condition is removed and power is reset. The LED will remain latched until the pump breaker is turned off and then on again (reset). The audible and visual alarm will be activated.

In all of the above cases, if more than one error condition is presented, the LED depicting the most recent error condition will be displayed.

Other included features:

- Alarm Activated Dry Contacts – Normally open relay contact closes upon alarm activation.
- Alarm Activated Contacts for Remote Indoor Alarm Module – Will work with or without power to the alarm panel and is designed to work with E/One's Remote Sentry.
- Includes Inner Door Dead Front
- Separate LED's for each condition

SENTRY SIMPLEX PROTECT PLUS:

- All Sentry Protect features (as detailed above)
- High/Low Voltage monitoring with Trouble indication
- High/Low Wattage (wattage is used instead of current because it is a better indicator of pump performance) monitoring with Trouble indication
- Extended Run Time monitoring with Trouble indication
- Cycle/Event Counter
- Run Time Counter (Hour Meter)
- Run Time Limit (time adjustable, user selected options: 10 minutes (default) to 120 minutes in 1-minute intervals)
- Power-up Delay (time adjustable, user selected options: None (default), to 300 minutes in 1-minute intervals)
- Alarm Delay (time adjustable, user selected options: None (default) or adjustable in 1-minute intervals)
- System self-test diagnostic
- User selectable Alarm latch
- User Selectable Protect Mode disable
- User selectable buzzer timer

Specific Protect PLUS indicators and programming features shall include:

- Ready LED to indicate AC power to the station is satisfactory
- Pump Run LED to indicate pump is operating
- Trouble LED indicator and predictive Visual Alarm notification ("blinking" alarm lamp; clears on Normal cycle)
- High Level Alarm LED indicator
- Manual Run switch to manually activate pump
- Menu-driven programmable controller with navigation overlay-type buttons (Enter, Scroll, Up, Down)
- Normal Operation LED and Mode button for Mode status
- Pump Performance menu LED with LCD Display of the following pump performance statistics:
 - Real-time Voltage
 - Real-time Amperage
 - Real-time Wattage
 - Minimum/Maximum/Average Voltage
 - Minimum/Maximum/Average Amperage
 - Minimum/Maximum/Average Wattage
 - Minimum/Maximum Run-time
 - Average Run-time
 - Last Run-time
 - Cycle/Event Counter
 - Run Time Counter (Hour Meter)

- Diagnostics Menu LED
- Initialize System Menu LED
- Run Limit Menu LED
- Alarm Delay Menu LED
- Power Delay Menu LED

DUPLEX STATIONS

MOD T260 DUPLEX:

Each grinder pump station shall include a NEMA 4X, UL-listed alarm panel suitable for wall or pole mounting. The NEMA 4X enclosure shall be manufactured of thermoplastic to ensure corrosion resistance. The enclosure shall include a hinged, lockable cover with padlock, preventing access to electrical components, and creating a secured safety front to allow access only to authorized personnel. The standard enclosure shall not exceed 12.5" W x 16" H x 7.5" D.

The panel shall contain one 15-amp single pole circuit breaker for the alarm circuit and one 15-amp double pole circuit breaker per core for the power circuit. The panel shall contain a push-to-run feature, an internal run indicator, and a complete alarm circuit. All circuit boards in the alarm panel are to be protected with a conformal coating on both sides and the AC power circuit shall include an auto resetting fuse.

The visual alarm lamp shall be inside a red, oblong lens at least 3.75" L x 2.38" W x 1.5" H. Visual alarm shall be mounted to the top of the enclosure in such a manner as to maintain NEMA 4X rating. The audible alarm shall be externally mounted on the bottom of the enclosure, capable of 93 dB @ 2 feet. The audible alarm shall be capable of being deactivated by depressing a push-type switch that is encapsulated in a weatherproof silicone boot and mounted on the bottom of the enclosure (push-to-silence button).

The high-level alarm system shall operate as follows:

1. The panel will go into alarm mode if either pump's alarm switch closes. During the initial alarm mode both pumps will run and the alarm light and buzzer will be delayed for a period of time based on user settings (default is 3-1/2 minutes). If the station is still in high-level alarm after the delay, the light and buzzer will be activated.
2. The audible alarm may be silenced by means of the externally mounted push-to-silence button.
3. The visual alarm remains illuminated until the sewage level in the wet well drops below the "off" setting of the alarm switch for both pumps.

The entire alarm panel, as manufactured and including any of the following options shall be listed by Underwriters Laboratories, Inc.

DUPLEX PROTECT PLUS:

Each grinder pump station shall include a NEMA 4X, UL-listed alarm panel suitable for wall or pole mounting. The NEMA 4X enclosure shall be manufactured of thermoplastic to ensure corrosion resistance. The enclosure shall include a hinged, lockable cover with padlock, preventing access to electrical components, and creating a secured safety front to allow access only to authorized personnel. The standard enclosure shall not exceed 12.5" W x 16" H x 7.5" D.

The panel shall contain one 15-amp single pole circuit breaker for the alarm circuit and one 15-amp double pole circuit breaker per core for the power circuit. The panel shall contain a push-to-run feature, an internal run indicator, and a complete alarm circuit. All circuit boards in the alarm panel are to be protected with a conformal coating on both sides and the AC power circuit shall include an auto resetting fuse.

The visual alarm lamp shall be inside a red, oblong lens at least 3.75" L x 2.38" W x 1.5" H. Visual alarm shall be mounted to the top of the enclosure in such a manner as to maintain NEMA 4X rating. The audible alarm shall be externally mounted on the bottom of the enclosure, capable of 93 dB @ 2

feet. The audible alarm shall be capable of being deactivated by depressing a push-type switch that is encapsulated in a weatherproof silicone boot and mounted on the bottom of the enclosure (push-to-silence button).

The high-level alarm system shall operate as follows:

1. The panel will go into alarm mode if either pump's alarm switch closes. During the initial alarm mode both pumps will run and the alarm light and buzzer will be delayed for a period of time based on user settings (default is 3-1/2 minutes). If the station is still in high-level alarm after the delay, the light and buzzer will be activated.
2. The audible alarm may be silenced by means of the externally mounted push-to-silence button.
3. The visual alarm remains illuminated until the sewage level in the wet well drops below the "off" setting of the alarm switch for both pumps.

The entire alarm panel, as manufactured and including any of the following options shall be listed by Underwriters Laboratories, Inc.

Contains the following features:

- **Alarm Activated Dry Contacts** – Normally open relay contact closes upon alarm activation.
- **Alarm Activated Contacts for Remote Indoor Alarm Module** – Will work with or without power to the alarm panel and is designed to work with E/One's Remote Sentry.
- **Includes Inner Door Dead Front**
- **Separate LED's for each condition**

Provides protection from the following operating conditions:

- **Low Voltage (Brownout) Protection** – A lockout cycle will prevent the motor from operating and will illuminate the Trouble LED if:
 - the incoming AC Mains voltage drops below a predetermined minimum, typically 12% of nameplate (211 volts for a 240 volt system) for 2 to 3 seconds, regardless of whether the motor is running
 - the lockout cycle will end if the incoming AC Mains voltage returns to a predetermined value, typically 10% of nameplate (216 volts for a 240 volt system).The system continues to retest the voltage every second indefinitely. If the lockout cycle has been initiated and the voltage comes back above the predetermined starting voltage, the system will function normally. The Trouble LED remains illuminated during a Brownout condition and a corresponding Brownout message will be displayed on the LCD screen. The LED will turn off when the Brownout condition ends and the LCD message remains latched until the panel is reset. The audible and visual alarm will not be activated unless there is a high wastewater level in the tank.
- **Run Dry Protection** – A 20-minute lockout cycle will prevent the motor from operating and will illuminate the Trouble LED when the wastewater level in the tank is below the pump inlet shroud. A corresponding Run Dry message will be displayed on the LCD screen. The condition is rechecked every 20 minutes and the LCD message remains latched. If the condition is satisfied, the pump is allowed to cycle normally and the Trouble LED will go out, but the LCD message remains latched. The LCD message will remain latched until the panel is reset. If the condition is not satisfied after 3 consecutive attempts, the visual alarm will be activated until the panel is reset or until there is one cycle of normal operation. If a high level condition is presented at any time, a pump run cycle will be activated.
- **High System Pressure Protection** – A 20-minute lockout cycle will prevent the motor from operating and will illuminate the Trouble LED when the pressure in the discharge line is atypically high (closed valve or abnormal line plug). A corresponding Overpressure message

will be displayed on the LCD screen. The condition is rechecked every 20 minutes. If the condition is satisfied, the pump is allowed to cycle normally and the Trouble LED will turn off, but the LCD message remains latched. The LCD message will remain latched until the panel is reset. If the condition is not satisfied after 3 consecutive attempts, the pump is locked out indefinitely and the audible and visual alarm will be activated. The LCD message and alarms will remain latched until the condition is removed and the panel is reset.

In all of the above cases, if more than one error condition is presented, the LCD message depicting the most recent error condition will be displayed.

- 2.13 SERVICEABILITY:** The grinder pump core, including level sensor assembly, shall have two lifting hooks complete with lift-out harness connected to its top housing to facilitate easy core removal when necessary. The level sensor assembly must be easily removed from the pump assembly for service or replacement. All mechanical and electrical connections must provide easy disconnect capability for core unit removal and installation. Each EQD half must include a water-tight cover to protect the internal electrical pins while the EQD is unplugged. A pump push-to-run feature will be provided for field trouble shooting. The push-to-run feature must operate the pump even if the level sensor assembly has been removed from the pump assembly. All motor control components shall be mounted on a readily replaceable bracket for ease of field service.
- 2.14 OSHA CONFINED SPACE:** All maintenance tasks for the grinder pump station must be possible without entry into the grinder pump station (as per OSHA 1910.146 Permit-required confined spaces). *“Entry means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant’s body breaks the plane of an opening into the space.”*
- 2.15 SAFETY:** The grinder pump shall be free from electrical and fire hazards as required in a residential environment. As evidence of compliance with this requirement, the completely assembled and wired grinder pump station shall be listed by Underwriters Laboratories, Inc., to be safe and appropriate for the intended use. UL listing of components of the station, or third-party testing to UL standard are not acceptable.

The grinder pump shall meet accepted standards for plumbing equipment for use in or near residences, shall be free from noise, odor, or health hazards, and shall have been tested by an independent laboratory to certify its capability to perform as specified in either individual or low pressure sewer system applications. As evidence of compliance with this requirement, the grinder pump shall bear the seal of NSF International. Third-party testing to NSF standard is not acceptable.

3.0 EXECUTION

- 3.01 FACTORY TEST:** Each grinder pump shall be submerged and operated for 1.5 minutes (minimum). Included in this procedure will be the testing of all ancillary components such as, the anti-siphon valve, check valve, discharge assembly and each unit’s dedicated level controls and motor controls. All factory tests shall incorporate each of the above listed items. Actual appurtenances and controls which will be installed in the field shall be particular to the tested pump only. A common set of appurtenances and controls for all pumps is not acceptable. Certified test results shall be available upon request showing the operation of each grinder pump at two different points on its curve. Additional validation tests include: integral level control performance, continuity to ground and acoustic tests of the rotating components.

The **ENGINEER** reserves the right to inspect such testing procedures with representatives of the **OWNER**, at the **GRINDER PUMP MANUFACTURER’S** facility.

All HDPE basins shall be factory leak tested to assure the integrity of all joints, seams and penetrations. All necessary penetrations such as inlets, discharge fittings and cable connectors shall be included in this test along with their respective sealing means (grommets, gaskets etc.).

- 3.02 DELIVERY:** All grinder pump core units, including level controls, will be delivered to the job site 100 percent completely assembled, including testing, ready for installation. Grinder pump cores will be

shipped separately from the tanks. Installing the cores and discharge piping/hose into the tanks is the only assembly step required and allowed due to the workmanship issues associated with other on-site assembly. Grinder pump cores must be boxed for ease of handling.

3.03 INSTALLATION: Earth excavation and backfill are specified under **SITE WORK**, but are also to be done as a part of the work under this section, including any necessary sheeting and bracing.

The **CONTRACTOR** shall be responsible for handling ground water to provide a firm, dry subgrade for the structure, and shall guard against flotation or other damage resulting from general water or flooding.

The grinder pump stations shall not be set into the excavation until the installation procedures and excavation have been approved by the **ENGINEER**.

Remove packing material. User instructions **MUST** be given to the **OWNER**. Hardware supplied with the unit, if required, will be used at installation. The basin will be supplied with a standard 4" inlet grommet (4.50" OD) for connecting the incoming sewer line. Appropriate inlet piping must be used. The basin may not be dropped, rolled or laid on its side for any reason.

Installation shall be accomplished so that 1 inch to 4 inches of accessway, below the bottom of the lid, extends above the finished grade line. The finished grade shall slope away from the unit. The diameter of the excavated hole must be large enough to allow for the concrete anchor.

A 6" inch (minimum) layer of naturally rounded aggregate, clean and free flowing, with particle size of not less than 1/8" or more than 3/4" shall be used as bedding material under each unit.

A concrete anti-flotation collar, as detailed on the drawings, and sized according to the manufacturer's instructions, shall be required and shall be pre-cast to the grinder pump or poured in place. Each grinder pump station with its pre-cast anti-flotation collar shall have a minimum of three lifting eyes for loading and unloading purposes.

If the concrete is poured in place, the unit shall be leveled, and filled with water, to the bottom of the inlet, to help prevent the unit from shifting while the concrete is being poured. The concrete must be manually vibrated to ensure there are no voids. If it is necessary to pour the concrete to a level higher than the inlet piping, an 8" sleeve is required over the inlet prior to the concrete being poured.

The **CONTRACTOR** will provide and install a 4-foot piece of 4-inch SCH 40 PVC pipe with water tight cap, to stub-out the inlet for the property owners' installation contractor, as depicted on the contract drawings.

E/One requires that an E/One Uni-Lateral assembly (E/One part number NB0184PXX or NC0193GXX) or E/One Redundant Check Valve (E/One part number PC0051GXX) be installed in the pipe lateral outside the home between the pump discharge and the street main on all installations.

The electrical enclosure shall be furnished, installed and wired to the grinder pump station by the **CONTRACTOR**. An alarm device is required on every installation, there shall be **NO EXCEPTIONS**. It will be the responsibility of the **CONTRACTOR** and the **ENGINEER** to coordinate with the individual property owner(s) to determine the optimum location for the alarm panel.

The **CONTRACTOR** shall mount the alarm device in a conspicuous location, as per national and local codes. The alarm panel will be connected to the grinder pump station by a length of 6-conductor type TC cable as shown on the contract drawings. The power and alarm circuits must be on separate power circuits. The grinder pump stations will be provided with 32 feet, 25 feet of useable, electrical supply cable to connect the station to the alarm panel. This cable shall be supplied with a **FACTORY INSTALLED** EQD half to connect to the mating EQD half on the core.

3.04 BACKFILL REQUIREMENTS: Proper backfill is essential to the long-term reliability of any underground structure. Several methods of backfill are available to produce favorable results with different native soil conditions. The most highly recommended method of backfilling is to surround the unit to grade using Class I or Class II backfill material as defined in ASTM 2321. Class 1A and Class 1B

are recommended where frost heave is a concern; Class 1B is a better choice when the native soil is sand or if a high, fluctuating water table is expected. Class 1, angular crushed stone, offers an added benefit in that it doesn't need to be compacted.

Class II, naturally rounded stone, may require more compactive effort, or tamping, to achieve the proper density. If the native soil condition consists of clean compactible soil, with less than 12% fines, free of ice, rocks, roots and organic material, it may be an acceptable backfill. Soil must be compacted in lifts not to exceed one foot to reach a final Proctor Density of between 85% and 90%. Heavy, non-compactible clays and silts are not suitable backfill for this or any underground structure such as inlet or discharge lines.

If you are unsure of the consistency of the native soil, it is recommended that a geotechnical evaluation of the material is obtained before specifying backfill.

Another option is the use of a flowable fill (i.e., low slump concrete). This is particularly attractive when installing grinder pump stations in augured holes where tight clearances make it difficult to assure proper backfilling and compaction with dry materials. Flowable fills should not be dropped more than four feet from the discharge to the bottom of the hole to avoid separation of the constituent materials.

Backfill of clean, native earth, free of rocks, roots, and foreign objects, shall be thoroughly compacted in lifts not exceeding 12" to a final Proctor Density of not less than 85%. Improper backfilling may result in damaged accessways. The grinder pump station shall be installed at a minimum depth from grade to the top of the 1 1/4" discharge line, to assure maximum frost protection. The finish grade line shall be 1" to 4" below the bottom of the lid, and final grade shall slope away from the grinder pump station.

All restoration will be the responsibility of the **CONTRACTOR**. Per unit costs for this item shall be included in the **CONTRACTOR'S** bid price for the individual grinder pump station. The properties shall be restored to their original condition in all respects, including, but not limited to, curb and sidewalk replacement, landscaping, loaming and seeding, and restoration of the traveled ways, as directed by the **ENGINEER**.

3.05 START-UP AND FIELD TESTING: The **MANUFACTURER** shall provide the services of qualified factory trained technician(s) who shall inspect the placement and wiring of each station, perform field tests as specified herein, and instruct the **OWNER'S** personnel in the operation and maintenance of the equipment before the stations are accepted by the **OWNER**.

All equipment and materials necessary to perform testing shall be the responsibility of the **INSTALLING CONTRACTOR**. This includes, as a minimum, a portable generator and power cable (if temporary power is required), water in each basin (filled to a depth sufficient to verify the high level alarm is operating), and opening of all valves in the system. These steps shall be completed prior to the qualified factory trained technician(s) arrival on site.

The services of a trained, factory-authorized technician shall be provided at a rate of 40 hours for every 100 grinder pump stations supplied.

Upon completion of the installation, the authorized factory technician(s) will perform the following test on each station:

1. Make certain the discharge shut-off valve in the station is fully open.
2. Turn ON the alarm power circuit and verify the alarm is functioning properly.
3. Turn ON the pump power circuit. Initiate the pump operation to verify automatic "on/off" controls are operative. The pump should immediately turn ON.
4. Consult the Manufacturer's Service Manual for detailed start-up procedures.

Upon completion of the start-up and testing, the **MANUFACTURER** shall submit to the **ENGINEER** the start-up authorization form describing the results of the tests performed for each grinder pump station.

Final acceptance of the system will not occur until authorization forms have been received for each pump station installed and any installation deficiencies corrected.

4.0 OPERATION AND MAINTENANCE

4.01 MANUALS: The **MANUFACTURER** shall supply Operation and Maintenance Manuals to the **OWNER**, and one copy of the same to the **ENGINEER**.

END OF SECTION

FACTORY ASSEMBLED RESIDENTIAL SIMPLEX GRINDER PUMP STATION - MYERS

General

The manufacturer shall furnish and deliver a fully assembled grinder pump station to the contractor or owner. Simplex units, containing one grinder pump and all necessary parts and equipment, shall be installed in fiberglass reinforced polyester tanks for outside installation. All equipment shall be factory installed, except for externally mounted control panel, gravity sewer inlet hubs and pump assembly, which are to be installed in the field.

Each pre-assembled simplex station shall include the basin, basin cover, grinder pump and motor, junction box, start-stop level controls, motor high temperature shutoff, motor seal leak alarm, high water alarm, all internal wiring terminating into the junction box, check valve, shutoff valve and Schedule 80 PVC discharge piping.

1. Basin

The basin shall be 30" diameter x 48" depth. The basin shall be molded of fiberglass reinforced polyester resin manufactured by the lay-up and spray technique to assure that the interior surface is smooth and resin rich.

The basin shall have a minimum wall thickness of ¼ inch. A steel anti-flotation plate shall be molded into the bottom of the basin.

2. Basin Cover

The cover shall be of 3/8" polypropylene. The cover shall be bolted to the basin with stainless steel cap screws. Cadmium plated nuts for the screws shall be embedded in the fiberglass to prevent turning and for corrosion resistance.

3. Shutoff Valve

A PVC true union ball type shutoff valve with Teflon seats shall be furnished and installed in the discharge piping, as shown on the plans. If the discharge depth is more than 2 feet from the surface, a handle extension shall be supplied.

4. Piping

Schedule 80 PVC discharge piping shall connect to the stationary discharge base lift assembly and terminate at a 1 1/4" discharge flange mounted on the basin at the height shown on the drawing. The discharge flange is 1 ½" on the outside of the basin.

5. Check Valve

A PVC ball check valve shall be included in the discharge piping.

6. Inlet Flange

A basin inlet flange for 4" SCH 40 plastic pipe shall be included, but not mounted on the basin. The flange to be mounted in the field at inlet height required by the installation, or as shown on the drawing.

Myers VF20 GRINDER PUMP

1. Operating Conditions

Each grinder pump shall be of the centrifugal design and be capable of delivering a minimum of 20 GPM at 95 feet head and 40 GPM at 80 feet of head.

2. Construction

Each pump shall be of the sealed submersible grinder type, Myers model VF20. The pump volute, motor and seal housing shall be of high quality gray cast iron, ASTM A-48, Class 30. All external mating parts shall be machined and Nitrile O-ring sealed on a beveled edge. Gaskets shall not be acceptable. All fasteners exposed to the pumped liquid shall be 300 series stainless steel.

3. Power Cord

Power cord shall be SOOW water resistant 600V, UL and/or CSA approved. The single cord shall incorporate both power and sensor leads and shall be a minimum of five 12 gauge conductors. The pump shall be protected with compression fitting and epoxy potted area at the power cord entry to the pump. A separation between the junction box area of the pump and the motor, by a stator lead sealing gland or terminal board, shall not be acceptable. The power cable entry into the cord cap assembly shall first be made with a compression fitting. Each individual lead shall be stripped down to bare wire, at staggered intervals, and each strand shall be individually separated. This area of the cord cap shall then be filled with an epoxy compound potting which will prevent water contamination to gain entry even in the event of wicking or capillary attraction. The power cord leads shall be connected to the motor leads with extra heavy connectors having copper inserts with a crimped wire-to-wire connection rather than a terminal board that allows for possible leaks. The cord cap assembly shall be sealed with a Nitrile O-ring on a beveled edge to assure proper sealing.

4. Motor

The stator, rotor and bearings shall be mounted in a sealed submersible type housing. The stator windings shall have Class F insulation (155 degrees C or 311 degrees F) and a dielectric oil-filled motor, Nema L design. Because air-filled motors do not dissipate heat as efficiently as oil filled motors, they shall not be acceptable. The pump and motor shall be specifically designed so that they may be operated partially dry or completely submerged in the liquid being pumped. The pump shall not require cooling water jackets. Supplemental cooling shall not be acceptable.

5. Bearings and Shaft

An upper single row ball radial bearing and a lower double row angular contact bearing shall be provided. Bearings shall be permanently lubricated by the dielectric oil that fills the motor housing. The shaft shall be machined from solid 400 series stainless steel and be designed with large diameters and minimum overhang to reduce shaft deflection and prolong bearing/seal life.

6. Seals and Sensors

The rotor and stator in the motor housing shall be separated and protected from the pumped liquid by an oil-filled seal housing incorporating two Type 21 carbon ceramic mechanical seals

mounted in tandem. The seal housing shall be equipped with a moisture sensing probe installed between the seals, and the sensing of moisture in the seal chamber shall be automatic, continuous and not require the pump to be stopped or removed from the wet well.

7. Impeller

The impeller shall be constructed of 316 stainless steel and be designed for rough duty service. It shall be an eight-vane, semi-open design with two wash out vanes on the rear shroud. The impeller shall be a non-overloading design.

8. Grinder Mechanism

The stationary cutter shall be circular in design and contain evenly spaced cutting slots that extend outwards from the inlet of the pump. The slots are tapered inward toward the inlet to help direct slurry through the cutting slots into the pump. The slots are to be angled, or undercut, to help maintain a sharp axial cutting edge, even as the axial face wears during use. The stationary cutter shall be provided with tapped back-off holes so that screws can be used to remove the cutter from the volute. The rotating cutter shall contact three axial cutting arms extending from the hub, perpendicular to the pump shaft, that are sharpened to aid in the rejection of suspended debris that has not been sufficiently reduced in size by the axial cutting action. The curved leading edge of the cutting arms shall create a scissor action with the cutting slots of the stationary cutter plate to minimize the required torque. This will allow the cutter to macerate tough objects and prolong cutter life. Serrations on the hub of the cutter add additional cuts that prevent debris from becoming entangled within the rotating cutter. The rotating cutter shall thread onto the end of the pump shaft and be secured by a 300 series stainless steel washer in conjunction with a 300 series stainless steel flat head cap screw threaded into the end of the shaft. Both stationary and rotating cutters shall be made of 440C stainless steel, hardened to Rockwell 57-60C and ground close to tolerance. The grinder shall be capable of grinding normal domestic sewage into a fine slurry.

ELECTRICAL

1. Control Panel

A NEMA 4X fiberglass control panel shall be furnished with each pumping unit to be installed as shown on the plans. This panel shall include a two-pole, 30 amp, main disconnect breaker, fuses for control and alarm circuits, seal failure light, pump hand-off auto switch, pump run light, start relay, run capacitor, start capacitor, terminal blocks, contactor, ground bar and all necessary wiring and brackets.

The control panel shall be housed in a fully gasketed NEMA 4X enclosure with a hinged door. Each enclosure shall have a quick-release lockable latch.

The controller shall operate as a three float pump down system. Two floats for pump on and off and a third float for high level alarm.

The back panel shall be painted 14 gauge steel held in place by four (4) #10 screws mated to four (4) threaded standoffs which are welded to the back of the enclosure.

The control enclosure shall be fitted with a red lexan (polycarbonate) alarm light. The lights shall be approximately 3" high by 3 1/2" in diameter. The globe shall be mounted on top of the enclosure with a neoprene gasket. The lens cannot be removed from the exterior of the enclosure. The lens may be removed by entering the interior of the enclosure and removing four (4) #8 screws. The bulbs shall be 25 watt, high-intensity, medium-base type. The bulbs shall be easily replaced by removing a thumb screw from the support bracket on the interior of the panel. The alarms shall have bright glow and flash when activated. The red alarm light will go out when the water level drops.

The control panel shall include a pilot light for pump seal fail. Upon a seal failure, the main alarm will turn on, as well as the pilot light indicating a seal fail.

Each panel shall include an HOA switch for the pump and a Alarm Test-Off-Auto switch for the alarm circuitry.

All internal wiring shall be neat and color-coded (each wire a different color or strip, except for ground). All incoming wires shall terminate into a box clamp type terminal block, except incoming power.

A schematic diagram (showing wire numbering) shall be permanently fastened to the inside of the enclosure.

2. Junction Box

The junction box shall be constructed of structural plastic for corrosion resistance, stability and mechanical strength. The enclosure shall be of adequate thickness and properly reinforced to provide good mechanical strength. The junction box shall have a fully gasketed cover that is held in place by four (4) captive stainless steel screws that cannot be removed from the cover, with heads totally encapsulated so that no metal parts are exposed. The screw heads shall be of adequate size so that they may easily be installed and removed without the use of special tools. The cover shall be fastened to the main body of the junction box by means of totally corrosion resistant tether to prevent dropping the cover into the basin during service.

An adequate number of sealing-type cord grips shall be supplied for incoming pump and switch cords. The cord grips shall be made of non-corrosive material, such as PVC or nylon, and shall make an effective seal around the wire jacket. The cord grip shall also seal to the junction box wall with an "O" ring, gasket, or other effective means.

The junction box shall have a PVC solvent weld socket type conduit hub mounted in the bottom of the enclosure. The hub shall be of a corrosion resistant material and shall be of adequate size to accommodate the number of wires required to operate the pump.

A method for sealing the incoming wires shall be supplied so that condensation from the conduit or ground water will not enter the enclosure. The sealing method shall be offered as a kit containing all necessary mixing, measuring, stirring and potting material required for an effective

infield seal. The interior of the enclosure shall be of adequate size to accommodate the wires and connections required to operate the pump.

The wires running between the control panel and the junction box shall be color-coded and fastened to the pump and switch controls by means of adequately sized and insulated twist lock or crimp connectors.

The junction box shall be designed to NEMA 6 standards for occasional submergence.

WARRANTY

The complete simplex station shall be free from defects in materials and workmanship for a period of 12 months from the date of installation or 18 months from the date of manufacture, whichever occurs first.

ADDENDUM NO. 2
San. Sewer System Collection System Ext. – Phase One – Contract 39
McCreary County Water District
Morehead, Kentucky

TO: All Planholders

PROJECT: Sanitary Sewer Collection System Extension – Phase One – Contract 39
McCreary County Water District
456 North Hwy 27
Whitley City, Kentucky 42653
Bid Date: December 9, 2020 at 2:00pm local time

DATE: December 7, 2020

SUBJECT: Revisions to Contract Documents

All Bidders shall incorporate the following alterations and/or additions into the Contract Documents for the referenced project:

SPECIFICATION REVISIONS:

1. SECTION 00300 – BID FORM

- Contractor shall provide with the BID the attached Unit Price Schedule. These prices will not affect the Base Bid or Award but may be used for future work by the Owner if necessary.

DRAWING REVISIONS:

1. DRAWING 94 – STANDARD DETAILS

- All fittings (Tees, 90s, 45s, etc.) similar to that shown of this sheet may be PVC fittings such as Harco, or equal in lieu of ductile iron.
- Air Release Valve Detail – ARV's shall be 2-inch, therefore replace 1-inch ball valve as noted with 2-inch.

END OF ADDENDUM NO. 2

In addition to the prices previously provided, the BIDDER is required to provide the unit prices listed in Table 1 – Schedule of Unit Prices. The unit prices as established may be used to determine the equitable adjustment of the Contract price in connection with changes, deletions, or extra work performed under this Contract. Unit prices shall include furnishing all labor, materials, services, suppliers, profit, overhead, and all incidentals necessary to perform the specific work items. Unit prices will be evaluated during the Bid Award process, and unreasonable unit prices may be cause for rejection of a Bid.

TABLE NO. 1
SCHEDULE OF UNIT PRICES

| Item | Specification No. | Description of Work | Unit Price | Units |
|-------------|--------------------------|---|-------------------|--------------|
| 1. | 02732 | 1.5-inch HDPE DR 11 CTS Force Main (green-stripe) Directional Drill | \$ | LF |
| 2. | 02732 | 2-inch HDPE DR 11 IPS Force Main (green) Directional Drill | \$ | LF |
| 3. | 02732 | 3-inch HDPE DR 11 IPS Force Main (green) Directional Drill | \$ | LF |

By submission of this Bid, the BIDDER certifies, and in the case of a joint Bid, each party thereto certifies as to its own organization, communication or agreement as to any matter relating to this Bid, with any other bidder or with any competitor.

EXHIBIT 10

Preliminary Engineering Report

Sanitary Sewer Collection System Expansion Phase 1 – Contract No. 39

prepared for:

**McCreary County Water District
456 North Highway 27
Whitley City, Kentucky 42653**

prepared by:

**Eclipse Engineers, PLLC
113 West Mt. Vernon Street
Somerset, Kentucky 42501
(606) 451-0959**

April 30, 2020



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Chapter I - General

Applicant Name: McCreary County Water District

The McCreary County Water District (MCWD) is the sole entity that provides water and wastewater services to McCreary County. Due to the county being primarily forest, the majority of its land is owned by the federal government. Approximately 43% is owned and managed by the Daniel Boone National Forest Service, and an additional 18% of the county is owned and managed by the National Park Service, also known as the Big South Fork National River and Recreation Area, totaling 61% percent of the county. McCreary County was the final county to be formed in the state of Kentucky, and currently is the only county that does not have a single incorporated city. Due to this, the county government is the sole local government agency for the entire county, making it much more difficult to urbanize populated areas due to the lack of a separate city entity. McCreary County is divided east and west by US 27, and divided north and south by KY 92. These two major highways run concurrently with one another making the county readily accessible from other surrounding counties and the state of Tennessee. In addition to easy transportation accessibility, the county is also served by Norfolk Southern Railway, which includes several industrial sidings in the area, including a major railway traffic interchange with the Kentucky and Tennessee Railway in Stearns, Kentucky.

To expand their sewer system and gain new customers, McCreary County Water District desires to construct new sewer lines, and pump stations to serve new customers between the Stearns and Smithtown area of McCreary County. The project will increase the number of residential sewer customers by approximately 300 customers. The new Sanitary Sewer Collection System Expansion Project is anticipated to be funded primarily by the Kentucky Infrastructure Authority and the USDA Rural Development.

Chapter II – Project Planning Area

A. Location

A location map showing the project site is included in Appendix A.

B. Environmental Resources

Appendix B contains a copy of the FEMA maps for McCreary County influenced by the project area. There will be no stream or creek crossings required for the construction of this project.

C. Growth Areas and Population Trends

McCreary County experienced minimal population growth from 2000 to 2015. The county’s population only increased five percent during this time. However, until recently, the county experienced considerable growth from the past several decades.

Population projections contained from the Kentucky State Data Center, indicate that the county will continue to experience minimal growth through the year 2020, then will most likely plateau and begin to slightly decline over the next 20 years to the year 2040. This is most likely due to the majority of the county being primarily forest and comprised of rural areas, therefore, very little development is foreseen in the future to the county’s urban areas to help increase and sustain population growth.

Population Data and Projections
McCreary County, Kentucky

| Year | Population |
|-------------------|-------------------|
| 1970 ¹ | 12,548 |
| 1980 ¹ | 15,634 |
| 1990 ¹ | 15,603 |
| 2000 ¹ | 17,078 |
| 2010 ² | 18,306 |
| 2015 ² | 17,878 |
| 2020 ² | 17,840 |
| 2025 ² | 17,630 |
| 2030 ² | 17,320 |
| 2035 ² | 16,929 |
| 2040 ² | 16,486 |

Notes: ¹Source: <http://population.us/>

²Source: Kentucky State Data Center, www.ksdc.org

D. Socio-Economic Conditions

Since 2017, McCreary County employment has been dominated by the private industry sector, followed by trade, transportation, and utilities, as well as, education and health, and leisure and hospitality sectors. The private industry sector accounted for approximately 47 percent of all jobs in 2017, and the trade, transportation, utilities, education and health services, leisure and hospitality, and financial activities sectors accounted for 32 percent of all employment in 2017. All other employment sectors accounted for only 14 percent of all employment in McCreary County in 2017.

The importance of the private industry sector to the economic base of McCreary County has continued to exceed other major industries within the county. In the 1980's and early 1990's natural resources, coal mining, timber, and manufacturing played a vital role in the county's stability and growth, but by the late 1990's and early 2000's, these once economical influences quickly dissipated and dried up. This in turn caused the county to quickly adjust its approach in continuing to bring economic stability to the county, therefore allowing the private sectors to grow and develop rapidly.

Agriculture has never played an important role in the county's economy due to extreme topography and primarily forest inhabiting the county. In the early 2000's approximately only five percent of the county was farmland, and continues to remain generally the same today. These low numbers are because the county has never been able to sustain any substantial agricultural industries, which is primarily due to the majority of the county being owned by the federal government. McCreary County is currently ranked 111 out of 120 counties in overall agricultural production.

McCreary County Employment by Major Industry and Wages by Category, 2017¹

| Category | Employment (McCreary Co.) | Average Weekly Wage (McCreary Co.) | Average Weekly Wage (Kentucky) |
|--------------------------------------|---------------------------|------------------------------------|--------------------------------|
| Natural Resources and Mining | 2 | \$279 | \$1,049 |
| Construction | 20 | \$534 | \$1,011 |
| Manufacturing | 185 | \$545 | \$1,108 |
| Trade, Transportation, and Utilities | 467 | \$567 | \$789 |
| Information | 19 | \$1,116 | \$1,044 |
| Financial Activities | 131 | \$582 | \$1,236 |
| Professional and Business Services | 53 | \$440 | \$931 |
| Education and Health Services | 278 | \$418 | \$906 |
| Leisure and Hospitality | 242 | \$231 | \$327 |
| Other Services and Unclassified | 34 | \$345 | \$626 |
| Total Private Industries | 1,432 | \$482 | \$865 |
| Total (All Industries) | 3,074 | \$645 | \$845 |

¹Source: U.S Department of Labor, Bureau of Labor Statistics.

Major Manufacturing Firms and Employment in McCreary County – 2019¹

| Firm | Employment | Year Established |
|--------------------------------|------------|------------------|
| McCreary County Hardwood, Inc. | 33 | 1988 |
| Pine Knot Lumber, Inc. | 47 | 1978 |
| Outdoor Venture Corporation | 160 | 1972 |

Note: ¹Source: Kentucky Cabinet for Economic Development, 2019

Chapter III - Existing Facilities

A. Location Map

The Sanitary Sewer Collection System Expansion Project will begin at the intersection of KY 92 (Wilburn K. Ross Hwy) and Wagon Ridge Road located in south central McCreary County. The project will travel along KY 92 including all side roads to gain as many new sewer customers within the project corridor as possible. The project will end in Stearns, KY at the intersection of KY 92 and Kinne Street.

An additional section of the project corridor will include extending service south from Stearns along KY 1651 to Revelo on the west side of the railroad tracks. Along the east side of the

railroad tracks, the project will extend south along Shirt Factory Road to the intersection of KY 1651. No railroad crossings are anticipated in this project.

B. History

McCreary County Water District (MCWD) has a record of providing excellent water and sewer services to industries and private businesses that continue to come to McCreary County. MCWD has been proactive in providing enough capacity in their water and wastewater treatment plants to provide for ample growth in the economy as the county continues to grow in population and economic development.

C. Condition of Facilities

MCWD owns and operates the public water and wastewater systems in McCreary County. The water system serves approximately 6,200 total customers throughout the entire county and the wastewater system serves approximately 1,100 total customers primarily in the areas around and including Whitley City. Drinking water is also sold via wholesale agreement to Whitley County Water District. MCWD operates two water treatment plants (WTP) and one wastewater treatment plant (WWTP).

Chapter IV- Need for Project

A. Health and Safety

This area of McCreary County is known for having wet, marshy soil conditions that do not favor water percolating into the soil leading to soil erosion and ground movement. These conditions can lead to deteriorated sewer residential septic lines, increasing the potential of septic system failure allowing for sewer to leach into the ground and nearby water table. The installation of new force mains and grinder pump stations with proper bedding and backfill will reduce the risk to public health of unwanted contaminants leaching into the soil and the water table.

B. System Operation & Maintenance

This project will provide a much more reliable, sustainable sewer system for the southern industrial and residential section of the county beginning in Smithtown and extending eastward to Stearns and then southward to Revelo.

C. Growth

McCreary County has been and is projected to remain constant in economic development and population similar to that of other rural counties in the state of Kentucky. Providing exceptional sewer services will be a key component to increasing growth and development within the county. Therefore, installing force mains and grinder pump stations to add new sewer customers within the county will be vital to encouraging development throughout this unserved area of the county.

Chapter V – Alternatives Considered

A. Description

Alternatives to provide sewer to new commercial and residential customers along KY 92 from Stearns to Smithtown, and along KY 1651 from Stearns to Revelo include the following:

- Alternative No. 1 - Extend a conventional gravity sewer system from the existing gravity system in Stearns with numerous conventional duplex pump stations. This alternative would be the least expensive to maintain once constructed but would cost much more to initially install. The MCWD has very little gravity sewer in the system. The majority of their 1,100 customers are served by residential grinder pump stations. The reason for this is that most of the development in McCreary County is along the ridge tops making the deep adjacent terrain difficult to access to construct and install gravity sewers.

- Alternative No. 2 - Install residential grinder pump stations and low pressure force mains. This alternative would serve the additional customers with the lowest capital cost. The MCWD has the staff and training to maintain the grinder pump systems as they have operated this type of sewer system for over 30 years. The MCWD could maximize the amount of new customers with the amount of project funds they seek with this alternative.
- Alternative No. 3 - Do nothing. Continue to serve only the existing customers and not extend the sewer collection system to the proposed areas. Residents in Smithtown, part of Stearns, and Revelo will continue to experience failing septic systems and use straight line pipes to discharge sewer in some areas.

The second alternative is recommended. This alternative will extend lower pressure force mains and serve approximately 300 customers with new, simplex grinder pump stations.

B. Environmental Impacts

Continuing to not serve developed towns and highway corridors of McCreary County with public sanitary sewer could have a negative environmental impact on the diversity of wildlife, or the habitat within the project area as well as human health.

Chapter VI – Proposed Project (Recommended Alternative)

The selected alternative is Alternative No. 2 – Install residential grinder pump stations and low pressure force mains. This alternative will expand the MCWD sanitary sewer collection system by approximately 25 percent by adding new, unserved customers.

A. Project Design

This project will consist of extending thousands of feet of low pressure force main from the “hub” of Stearns, Kentucky. Stearns was one of the first areas of McCreary County to have a

public sewer system and therefore has many areas of its system available to accept new flow from multiple directions. Force mains will convey flow from Smithtown towards the east along KY 92 with approximately ___ linear feet of 2-inch and 4-inch force mains and continue north along KY 701 and discharge into the Country Store Pump Station. This pump station will be rehabilitated with larger pumps and controls to replace the aged equipment as well as accommodate the new flow. The pump station will convey flow into an existing 6-inch force main which travels southeast along KY 1651 to the Stearns gravity sewer system.

The southern section of the project will extend approximately ___ linear feet of 2-inch and 4-inch force mains to the south from Stearns to Revelo, Kentucky. This unsewered corridor along KY 1651 on the west side of the railroad will convey sewage from the south and discharge into the existing Stearns Pump Station No. 3. This pump station was confirmed with a drawdown test to have peak pumping capacity of 150 gallons per minute (GPM). A separate branch of the Revelo extension will convey sewage from the south along Shirt Factory Road and discharge into the existing Stearns Pump Station No. 2. This pump station was confirmed with a drawdown test to have a peak pumping capacity of 100 GPM.

The useful life of the proposed facilities will vary. In general, concrete and fixed structures will have a useful life of 30 to 40 years. Equipment, moving parts, and items exposed to raw wastewater will have a shorter useful life of around 20 years. The proposed grinder pumps, floats, switches, etc. will have a useful life of about 8 years. However, these items with moving parts only constitute about 20 percent of the initial installed cost including the wetwell, etc. Items with a shorter useful life are maintained and replaced annually throughout the system by the MCWD staff through their operating budget. The force main will have a useful life of around 30-40 years.

B. Design Criteria

The proposed project will be designed using the standards established by the Natural Resources and Environmental Protection Cabinet, Kentucky Division of Water, General Design Criteria for

Surface and Ground Water Supplies. In addition, the Great Lakes Upper Mississippi River Board of State Public Health and Environmental Managers, Recommended Standards for Water Works, (Ten State Standards) 1997 will be used to guide the design process.

C. Construction Method

The proposed project will be based on a design / bid / build method using the sealed competitive bid process.

D. Number of Contracts

The proposed project will consists of only one construction contract.

E. Cost Estimates

Detailed cost estimates of the selected alternative are provided in Appendix C.

F. Permits

The proposed project will require very few permits and is anticipated to require no private easements. An encroachment permit from the Kentucky Department of Highways will be required and will take approximately 45 days for approval from the submittal date. The encroachment permit is required due to the newly proposed force main anticipated to be placed in the state highway right-of-way traveling along KY 92 and KY 1651. The second permit will be a construction permit from the Kentucky Division of Water that will take approximately 45 days for approval from the submittal date. Once design is completed for the propose project the necessary permits will be submitted for approval.

G. Estimated Project Schedule

The estimated project schedule will include the following approximate time frames:

- a. design period / 90 days
- b. period of time to obtain required permits / 60 days
- c. solicitation of bids and awarding of contracts / 90 days
- d. construction period / 365 days

H. Title Requirements

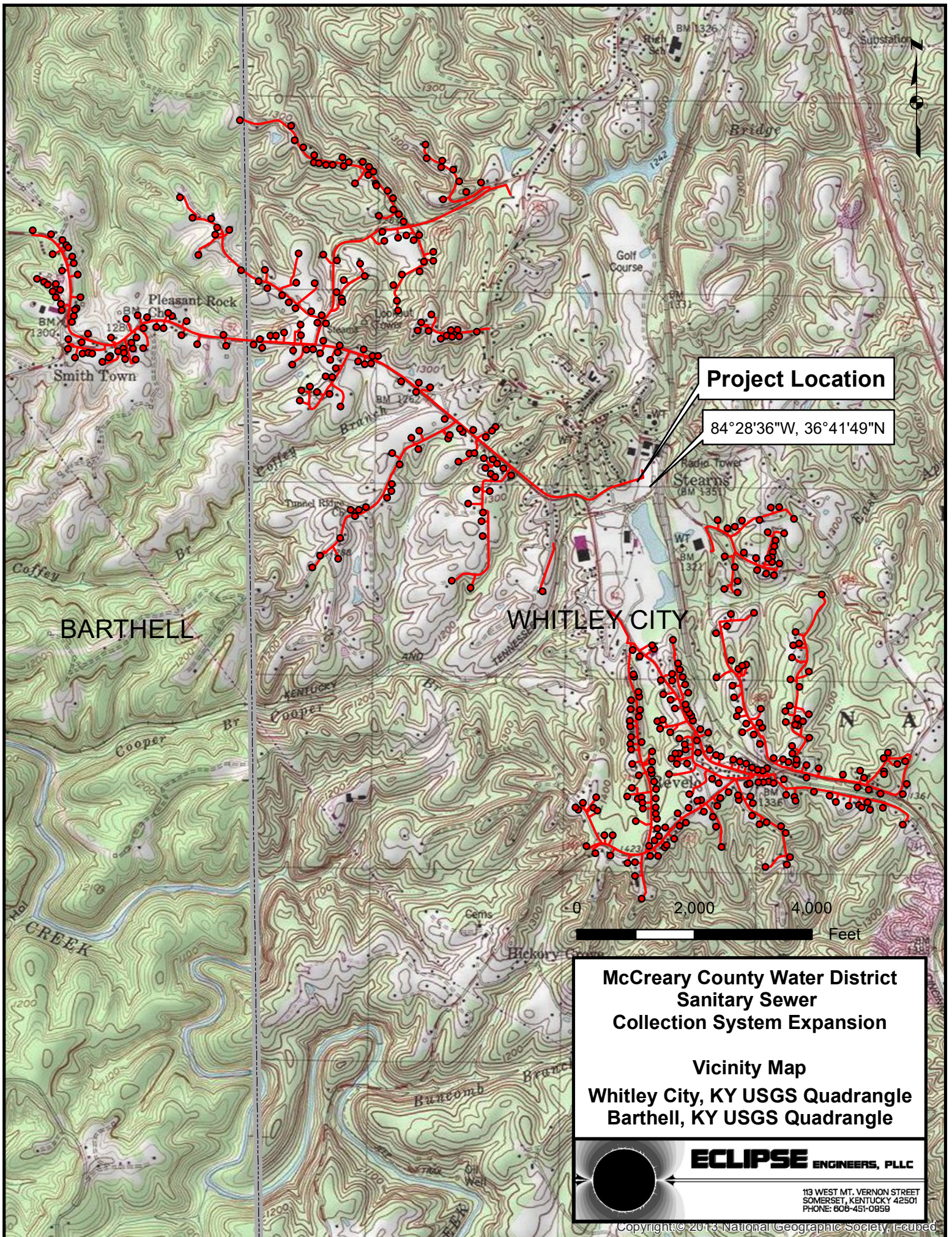
The proposed project will require a Kentucky Department of Highways encroachment permit.

Chapter VII – Conclusions and Recommendations

McCreary County Water District needs to expand its sanitary sewer collection system to increase its customer base. This will allow MCWD to spread operating costs over a large number of customers. This projects also protects the environment by eliminating hundreds of septic tanks and straight line pipes.

Appendix A - Location Map

- Schematic Layout of Proposed Utilities

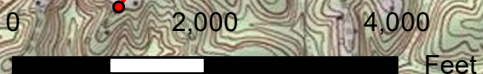


Project Location

84°28'36"W, 36°41'49"N

BARTHELL

WHITLEY CITY

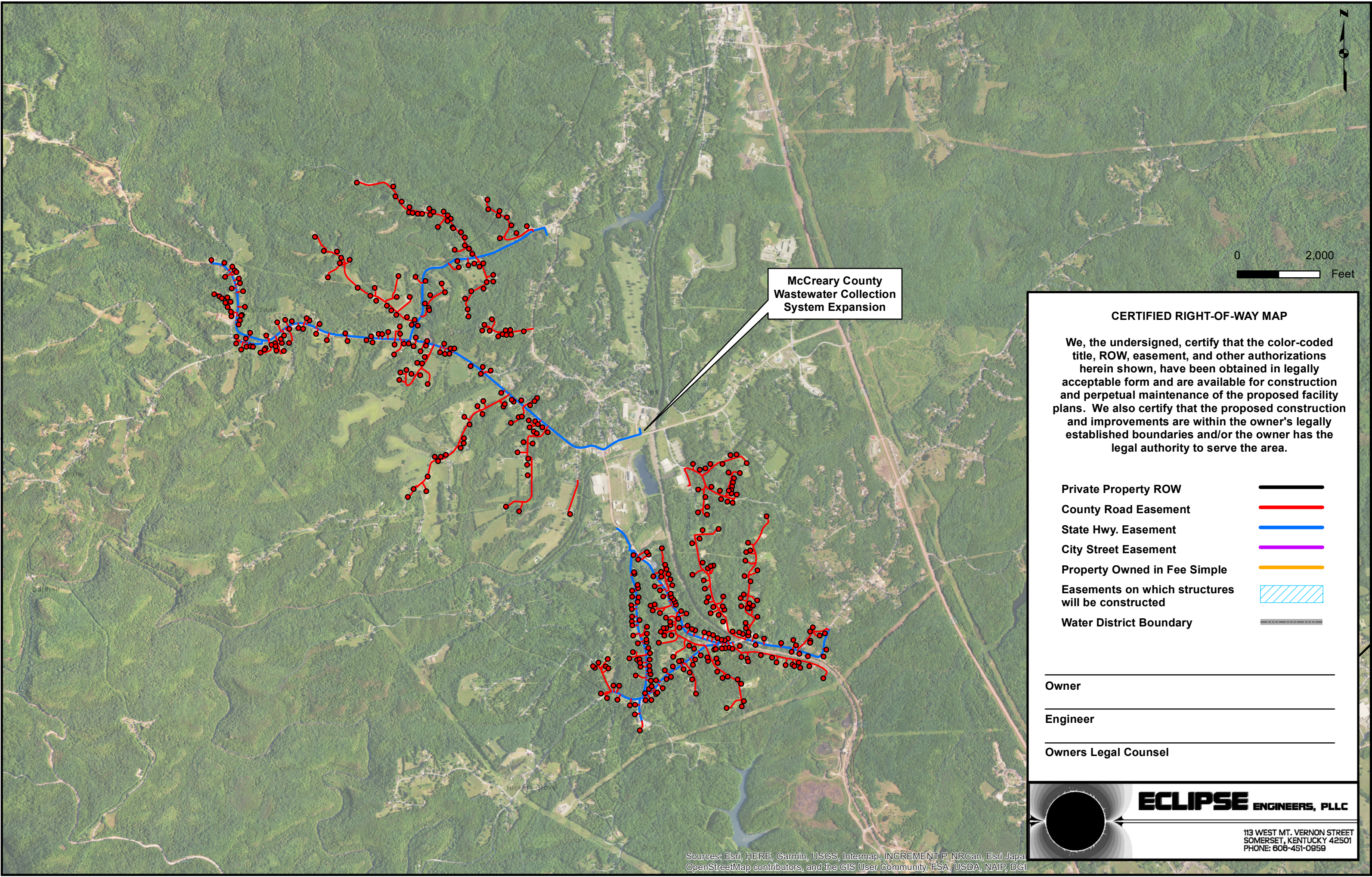


**McCreary County Water District
Sanitary Sewer
Collection System Expansion**

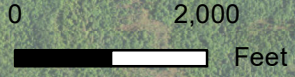
Vicinity Map
Whitley City, KY USGS Quadrangle
Barthell, KY USGS Quadrangle



113 WEST MT. VERNON STREET
SOMERSET, KENTUCKY 42501
PHONE: 606-451-0959










**McCreary County
Wastewater Collection
System Expansion**



CERTIFIED RIGHT-OF-WAY MAP

We, the undersigned, certify that the color-coded title, ROW, easement, and other authorizations herein shown, have been obtained in legally acceptable form and are available for construction and perpetual maintenance of the proposed facility plans. We also certify that the proposed construction and improvements are within the owner's legally established boundaries and/or the owner has the legal authority to serve the area.

| | |
|---|---|
| Private Property ROW |  |
| County Road Easement |  |
| State Hwy. Easement |  |
| City Street Easement |  |
| Property Owned in Fee Simple |  |
| Easements on which structures will be constructed |  |
| Water District Boundary |  |

Owner _____

Engineer _____

Owners Legal Counsel _____



ECLIPSE ENGINEERS, PLLC

113 WEST MT. VERNON STREET
SOMERSET, KENTUCKY 42501
PHONE: 606-451-0959

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, OpenStreetMap contributors, and the GIS User Community, FSA, USDA, NAIP, DGI

Appendix B - FEMA Maps

Appendix C - Opinion of Probable Project Costs

**Preliminary Opinion of Probable Construction Cost
Sanitary Sewer Collection System Expansion - Phase 1 - Contract No. 39**

**McCreary County Water District
Whitley City, Kentucky**

| <i>Item No.</i> | <i>Description</i> | <i>QTY</i> | <i>Unit</i> | <i>Unit Price</i> | <i>Total</i> |
|---|--|------------|-------------|-------------------|--------------------|
| 1 | General Conditions | 1 | LS | \$62,000 | \$62,000 |
| 2 | 1.5-inch HDPE Force Main (Open Cut) | 10,000 | LF | \$9 | \$90,000 |
| 3 | 2-inch HDPE Force Main (Open Cut) | 50,000 | LF | \$10 | \$500,000 |
| 4 | 2-inch HDPE Force Main - Directional Bore (Line M) | 1,000 | LF | \$30 | \$30,000 |
| 5 | 4-inch PVC SDR 17 Force Main | 20,000 | LF | \$16 | \$320,000 |
| 6 | 4-inch PVC SDR 35 Gravity Sewer | 10,000 | LF | \$30 | \$300,000 |
| 7 | 6-inch PVC SDR 17 Force Main | 10,000 | LF | \$26 | \$260,000 |
| 8 | 8-inch PVC SDR 35 Gravity Sewer | 300 | LF | \$45 | \$13,500 |
| 9 | 8-inch Casing Pipe - Bore and Jack | 300 | LF | \$210 | \$63,000 |
| 10 | 12-inch Casing Pipe - Bore and Jack | 200 | LF | \$250 | \$50,000 |
| 11 | 4-foot Diameter Manhole | 2 | EA | \$3,000 | \$6,000 |
| 12 | Duplex Pump Station - Pumps and Controls Replacement | 1 | EA | \$100,000 | \$100,000 |
| 13 | Simplex Grinder Pump Station - Single Stage | 225 | EA | \$3,500 | \$787,500 |
| 14 | 1-inch Combination Air Release Valve Assembly | 5 | EA | \$1,500 | \$7,500 |
| 15 | 2-inch Combination Air Release Valve Assembly | 5 | EA | \$2,000 | \$10,000 |
| 16 | Flushing Connection - Inline | 30 | EA | \$1,500 | \$45,000 |
| 17 | Flushing Connection - Junction | 10 | EA | \$5,000 | \$50,000 |
| 18 | Flushing Connection - Terminal | 5 | EA | \$1,500 | \$7,500 |
| 19 | Grinder Check Valve Assembly | 225 | EA | \$1,500 | \$337,500 |
| 20 | Connect to Existing Force Main (< 4-inch) | 2 | EA | \$1,400 | \$2,800 |
| 21 | Connect to Existing Manhole / Wetwell | 2 | EA | \$2,000 | \$4,000 |
| 22 | 4-inch Sanitary Sewer Cleanout/Lateral Assembly | 100 | EA | \$200 | \$20,000 |
| 23 | Bituminous Drive Replacement | 500 | SY | \$50 | \$25,000 |
| Total Opinion of Probable Project Cost | | | | | \$3,091,300 |

Appendix D - Preliminary Project Costs

Preliminary Project Costs
McCreary County Water District
Sanitary Sewer Collection System Expansion – Phase 1 – Contract No. 39

| PRE-BID BUDGET INFORMATION | | | |
|---|-----------------------|--------------------|-----------------------|
| Cost Classification | Total Cost | Cost Not Allowable | Total Allowable Cost |
| 1. Administrative & Legal | \$80,000.00 | \$0.00 | \$80,000.00 |
| 2. Land, Structures ,Easements, etc. | 10,000.00 | 0.00 | 10,000.00 |
| 3. Relocation | 0.00 | 0.00 | 0.00 |
| 4. Architectural & Engineering (Design, Bidding, Const. Admn.) | 237,379.00 | 0.00 | 237379.00 |
| 5. Other Architect. & Eng. Fees (Mapping and Hydraulic Model) | 0.00 | 0.00 | 0.00 |
| 6. Project Inspection | 125,821.00 | 0.00 | 125,821.00 |
| 7. Site Work | 0.00 | 0.00 | 0.00 |
| 8. Demolition & Removal | 0.00 | 0.00 | 0.00 |
| 9. Construction | 3,091,300.00 | 0.00 | 3,091,300.00 |
| 10. Equipment | 0.00 | 0.00 | 0.00 |
| 11. Misc. | 0.00 | 0.00 | 0.00 |
| 12. SUBTOTAL | 3,544,500.00 | 0.00 | 3,544,500.00 |
| 13. Contingencies | 100,000.00 | 0.00 | 100,000.00 |
| 14. TOTAL PROJECT COSTS | \$3,644,500.00 | \$0.00 | \$3,644,500.00 |

EXHIBIT 11

Final Engineering Report

Sanitary Sewer Collection System Expansion Phase 1 – Contract No. 39

prepared for:

**McCreary County Water District
456 North Highway 27
Whitley City, Kentucky 42653**

prepared by:

**Eclipse Engineers, PLLC
113 West Mt. Vernon Street
Somerset, Kentucky 42501
(606) 451-0959**

December 11, 2020



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Appendix D - Preliminary Project Costs

Chapter I - General

Applicant Name: McCreary County Water District

The McCreary County Water District (MCWD) is the sole entity that provides water and wastewater services to McCreary County. Due to the county being primarily forest, the majority of its land is owned by the federal government. Approximately 43% is owned and managed by the Daniel Boone National Forest Service, and an additional 18% of the county is owned and managed by the National Park Service, also known as the Big South Fork National River and Recreation Area, totaling 61% percent of the county. McCreary County was the final county to be formed in the state of Kentucky, and currently is the only county that does not have a single incorporated city. Due to this, the county government is the sole local government agency for the entire county, making it much more difficult to urbanize populated areas due to the lack of a separate city entity. McCreary County is divided east and west by US 27, and divided north and south by KY 92. These two major highways run concurrently with one another making the county readily accessible from other surrounding counties and the state of Tennessee. In addition to easy transportation accessibility, the county is also served by Norfolk Southern Railway, which includes several industrial sidings in the area, including a major railway traffic interchange with the Kentucky and Tennessee Railway in Stearns, Kentucky.

To expand their sewer system and gain new customers, McCreary County Water District desires to construct new sewer lines, and pump stations to serve new customers between the Stearns and Smithtown area of McCreary County. The project will increase the number of residential sewer customers by approximately 300 customers. The new Sanitary Sewer Collection System Expansion Project is anticipated to be funded primarily by the Kentucky Infrastructure Authority and the USDA Rural Development.

Chapter II – Project Planning Area

A. Location

A location map showing the project site is included in Appendix A.

B. Environmental Resources

Appendix B contains a copy of the FEMA maps for McCreary County influenced by the project area. There will be no stream or creek crossings required for the construction of this project.

C. Growth Areas and Population Trends

McCreary County experienced minimal population growth from 2000 to 2015. The county’s population only increased five percent during this time. However, until recently, the county experienced considerable growth from the past several decades.

Population projections contained from the Kentucky State Data Center, indicate that the county will continue to experience minimal growth through the year 2020, then will most likely plateau and begin to slightly decline over the next 20 years to the year 2040. This is most likely due to the majority of the county being primarily forest and comprised of rural areas, therefore, very little development is foreseen in the future to the county’s urban areas to help increase and sustain population growth.

Population Data and Projections
McCreary County, Kentucky

| Year | Population |
|-------------------|-------------------|
| 1970 ¹ | 12,548 |
| 1980 ¹ | 15,634 |
| 1990 ¹ | 15,603 |
| 2000 ¹ | 17,078 |
| 2010 ² | 18,306 |
| 2015 ² | 17,878 |
| 2020 ² | 17,840 |
| 2025 ² | 17,630 |
| 2030 ² | 17,320 |
| 2035 ² | 16,929 |
| 2040 ² | 16,486 |

Notes: ¹Source: <http://population.us/>
²Source: Kentucky State Data Center, www.ksdc.org

D. Socio-Economic Conditions

Since 2017, McCreary County employment has been dominated by the private industry sector, followed by trade, transportation, and utilities, as well as, education and health, and leisure and hospitality sectors. The private industry sector accounted for approximately 47 percent of all jobs in 2017, and the trade, transportation, utilities, education and health services, leisure and hospitality, and financial activities sectors accounted for 32 percent of all employment in 2017. All other employment sectors accounted for only 14 percent of all employment in McCreary County in 2017.

The importance of the private industry sector to the economic base of McCreary County has continued to exceed other major industries within the county. In the 1980's and early 1990's natural resources, coal mining, timber, and manufacturing played a vital role in the county's stability and growth, but by the late 1990's and early 2000's, these once economical influences quickly dissipated and dried up. This in turn caused the county to quickly adjust its approach in continuing to bring economic stability to the county, therefore allowing the private sectors to grow and develop rapidly.

Agriculture has never played an important role in the county's economy due to extreme topography and primarily forest inhabiting the county. In the early 2000's approximately only five percent of the county was farmland, and continues to remain generally the same today. These low numbers are because the county has never been able to sustain any substantial agricultural industries, which is primarily due to the majority of the county being owned by the federal government. McCreary County is currently ranked 111 out of 120 counties in overall agricultural production.

McCreary County Employment by Major Industry and Wages by Category, 2017¹

| Category | Employment (McCreary Co.) | Average Weekly Wage (McCreary Co.) | Average Weekly Wage (Kentucky) |
|--------------------------------------|---------------------------|------------------------------------|--------------------------------|
| Natural Resources and Mining | 2 | \$279 | \$1,049 |
| Construction | 20 | \$534 | \$1,011 |
| Manufacturing | 185 | \$545 | \$1,108 |
| Trade, Transportation, and Utilities | 467 | \$567 | \$789 |
| Information | 19 | \$1,116 | \$1,044 |
| Financial Activities | 131 | \$582 | \$1,236 |
| Professional and Business Services | 53 | \$440 | \$931 |
| Education and Health Services | 278 | \$418 | \$906 |
| Leisure and Hospitality | 242 | \$231 | \$327 |
| Other Services and Unclassified | 34 | \$345 | \$626 |
| Total Private Industries | 1,432 | \$482 | \$865 |
| Total (All Industries) | 3,074 | \$645 | \$845 |

¹Source: U.S Department of Labor, Bureau of Labor Statistics.

Major Manufacturing Firms and Employment in McCreary County – 2019¹

| Firm | Employment | Year Established |
|--------------------------------|------------|------------------|
| McCreary County Hardwood, Inc. | 33 | 1988 |
| Pine Knot Lumber, Inc. | 47 | 1978 |
| Outdoor Venture Corporation | 160 | 1972 |

Note: ¹Source: Kentucky Cabinet for Economic Development, 2019

Chapter III - Existing Facilities

A. Location Map

The Sanitary Sewer Collection System Expansion Project will begin at the intersection of KY 92 (Wilburn K. Ross Hwy) and Wagon Ridge Road located in south central McCreary County. The project will travel along KY 92 including all side roads to gain as many new sewer customers within the project corridor as possible. The project will end in Stearns, KY at the intersection of KY 92 and Kinne Street.

An additional section of the project corridor will include extending service south from Stearns along KY 1651 to Revelo on the west side of the railroad tracks. Along the east side of the

railroad tracks, the project will extend south along Shirt Factory Road to the intersection of KY 1651. No railroad crossings are anticipated in this project.

B. History

McCreary County Water District (MCWD) has a record of providing excellent water and sewer services to industries and private businesses that continue to come to McCreary County. MCWD has been proactive in providing enough capacity in their water and wastewater treatment plants to provide for ample growth in the economy as the county continues to grow in population and economic development.

C. Condition of Facilities

MCWD owns and operates the public water and wastewater systems in McCreary County. The water system serves approximately 6,200 total customers throughout the entire county and the wastewater system serves approximately 1,100 total customers primarily in the areas around and including Whitley City. Drinking water is also sold via wholesale agreement to Whitley County Water District. MCWD operates two water treatment plants (WTP) and one wastewater treatment plant (WWTP).

Chapter IV- Need for Project

A. Health and Safety

This area of McCreary County is known for having wet, marshy soil conditions that do not favor water percolating into the soil leading to soil erosion and ground movement. These conditions can lead to deteriorated sewer residential septic lines, increasing the potential of septic system failure allowing for sewer to leach into the ground and nearby water table. The installation of new force mains and grinder pump stations with proper bedding and backfill will reduce the risk to public health of unwanted contaminants leaching into the soil and the water table.

B. System Operation & Maintenance

This project will provide a much more reliable, sustainable sewer system for the southern industrial and residential section of the county beginning in Smithtown and extending eastward to Stearns and then southward to Revelo.

C. Growth

McCreary County has been and is projected to remain constant in economic development and population similar to that of other rural counties in the state of Kentucky. Providing exceptional sewer services will be a key component to increasing growth and development within the county. Therefore, installing force mains and grinder pump stations to add new sewer customers within the county will be vital to encouraging development throughout this unserved area of the county.

Chapter V – Alternatives Considered

A. Description

Alternatives to provide sewer to new commercial and residential customers along KY 92 from Stearns to Smithtown, and along KY 1651 from Stearns to Revelo include the following:

- Alternative No. 1 - Extend a conventional gravity sewer system from the existing gravity system in Stearns with numerous conventional duplex pump stations. This alternative would be the least expensive to maintain once constructed but would cost much more to initially install. The MCWD has very little gravity sewer in the system. The majority of their 1,100 customers are served by residential grinder pump stations. The reason for this is that most of the development in McCreary County is along the ridge tops making the deep adjacent terrain difficult to access to construct and install gravity sewers.

A project map illustrating Alternative No. 1 is attached herein. The alternative would include five 50 GPM pump stations which would collect pockets of homes. This flow would be pumped up to higher ground and into either a gravity sewer or a larger force main via 24,000 LF of 2-inch force main. Further downstream, the project would include five 150 GPM pump stations which would collect additional pockets of homes and businesses as well as flow from the smaller pockets. This flow would be pumped through approximately 15,000 LF of 4-inch force main. Ultimately, the sewer would reach an existing segment of gravity sewer in Stearns, KY or reach an existing pump station. The gravity sewer portion with this alternative would consist of approximately 95,000 LF of 8-inch pipe and 300 manholes. This alternative would serve 300-400 homes and businesses and is estimated to have a project cost of \$7,500,000.

- Alternative No. 2 - Install residential grinder pump stations and low pressure force mains. This alternative would serve the additional customers with the lowest capital cost. The MCWD has the staff and training to maintain the grinder pump systems as they have operated this type of sewer system for over 30 years. The MCWD could maximize the amount of new customers with the amount of project funds they seek with this alternative.
- Alternative No. 3 - Do nothing. Continue to serve only the existing customers and not extend the sewer collection system to the proposed areas. Residents in Smithtown, part of Stearns, and Revelo will continue to experience failing septic systems and use straight line pipes to discharge sewer in some areas.

The second alternative is recommended. This alternative will extend lower pressure force mains and serve approximately 300 customers with new, simplex grinder pump stations.

B. Environmental Impacts

Continuing to not serve developed towns and highway corridors of McCreary County with public sanitary sewer could have a negative environmental impact on the diversity of wildlife, or the habitat within the project area as well as human health.

Chapter VI – Proposed Project (Recommended Alternative)

The selected alternative is Alternative No. 2 – Install residential grinder pump stations and low pressure force mains. This alternative will expand the MCWD sanitary sewer collection system by approximately 25 percent by adding new, unserved customers.

A. Project Design

This project will consist of extending thousands of feet of low pressure force main from the “hub” of Stearns, Kentucky. Stearns was one of the first areas of McCreary County to have a public sewer system and therefore has many areas of its system available to accept new flow from multiple directions. Force mains will convey flow from Smithtown towards the east along KY 92 with approximately 30,000 linear feet of 2-inch, 3-inch, and 4-inch force mains and continue north along KY 701 and discharge into the Country Store Pump Station. This pump station could be rehabilitated with larger pumps and controls to replace the aged equipment as well as accommodate the new flow. However, the project will only address this with contingency funds if necessary. The pump station will convey flow into an existing 6-inch force main which travels southeast along KY 1651 to the Stearns gravity sewer system. This pump station was confirmed with a drawdown test to have a peak pumping capacity of 295 GPM.

The southern section of the project will extend approximately 30,000 linear feet of 2-inch, 3-inch, and 4-inch force mains to the south from Stearns to Revelo, Kentucky. This unsewered corridor along KY 1651 on the west side of the railroad will convey sewage from the south and discharge into the existing Stearns Pump Station No. 3. This pump station was confirmed with a drawdown test to have peak pumping capacity of 150 gallons per minute (GPM). A separate branch of the Revelo extension will convey sewage from the south along Shirt Factory Road and

discharge into the existing Stearns Pump Station No. 2. This pump station was confirmed with a drawdown test to have a peak pumping capacity of 100 GPM.

The useful life of the proposed facilities will vary. In general, concrete and fixed structures will have a useful life of 30 to 40 years. Equipment, moving parts, and items exposed to raw wastewater will have a shorter useful life of around 20 years. The proposed grinder pumps, floats, switches, etc. will have a useful life of about 8 years. However, these items with moving parts only constitute about 20 percent of the initial installed cost including the wetwell, etc. Items with a shorter useful life are maintained and replaced annually throughout the system by the MCWD staff through their operating budget. The force main will have a useful life of around 30-40 years.

B. Design Criteria

The proposed project will be designed using the standards established by the Natural Resources and Environmental Protection Cabinet, Kentucky Division of Water, General Design Criteria for Surface and Ground Water Supplies. In addition, the Great Lakes Upper Mississippi River Board of State Public Health and Environmental Managers, Recommended Standards for Water Works, (Ten State Standards) 1997 will be used to guide the design process.

C. Construction Method

The proposed project will be based on a design / bid / build method using the sealed competitive bid process.

D. Number of Contracts

The proposed project will consists of only one construction contract.

E. Cost Estimates

Detailed cost estimates of the selected alternative are provided in Appendix C.

F. Permits

The proposed project will require very few permits and is anticipated to require no private easements. An encroachment permit from the Kentucky Department of Highways will be required and will take approximately 45 days for approval from the submittal date. The encroachment permit is required due to the newly proposed force main anticipated to be placed in the state highway right-of-way traveling along KY 92 and KY 1651. The second permit will be a construction permit from the Kentucky Division of Water that will take approximately 45 days for approval from the submittal date. Once design is completed for the propose project the necessary permits will be submitted for approval.

G. Estimated Project Schedule

The estimated project schedule will include the following approximate time frames:

- a. design period / 90 days
- b. period of time to obtain required permits / 60 days
- c. solicitation of bids and awarding of contracts / 90 days
- d. construction period / 365 days

H. Title Requirements

The proposed project will require a Kentucky Department of Highways encroachment permit.

Chapter VII – Conclusions and Recommendations

McCreary County Water District needs to expand its sanitary sewer collection system to increase its customer base. This will allow MCWD to spread operating costs over a large number of customers. This projects also protects the environment by eliminating hundreds of septic tanks and straight line pipes.

Appendix A - Location Map

- Schematic Layout of Proposed Utilities

Appendix B - FEMA Maps

Appendix C - Opinion of Probable Project Costs

Appendix D - Preliminary Project Costs

As-Bid Project Costs
McCreary County Water District
Sanitary Sewer Collection System Expansion – Phase 1 – Contract No. 39

| AS-BID BUDGET INFORMATION | | | |
|---|-----------------------|--------------------|-----------------------|
| Cost Classification | Total Cost | Cost Not Allowable | Total Allowable Cost |
| 1. Administrative & Legal | \$88,920.00 | \$0.00 | \$88,920.00 |
| 2. Land, Structures ,Easements, etc. | 10,000.00 | 0.00 | 10,000.00 |
| 3. Relocation | 0.00 | 0.00 | 0.00 |
| 4. Architectural & Engineering (Design, Bidding, Const. Admn.) | 228,459.00 | 0.00 | 228,459.00 |
| 5. Other Architect. & Eng. Fees (Mapping and Hydraulic Model) | 0.00 | 0.00 | 0.00 |
| 6. Project Inspection | 125,821.00 | 0.00 | 125,821.00 |
| 7. Site Work | 0.00 | 0.00 | 0.00 |
| 8. Demolition & Removal | 0.00 | 0.00 | 0.00 |
| 9. Construction | 2,623,071.00 | 0.00 | 2,623,071.00 |
| 10. Equipment | 0.00 | 0.00 | 0.00 |
| 11. Misc. | 0.00 | 0.00 | 0.00 |
| 12. SUBTOTAL | 3,076,271.00 | 0.00 | 3,076,271.00 |
| 13. Contingencies | 168,229.00 | 0.00 | 168,229.00 |
| 14. TOTAL PROJECT COSTS | \$3,244,500.00 | \$0.00 | \$3,244,500.00 |

EXHIBIT 12

THE VOICE

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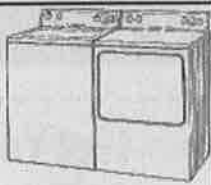
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APPROX 4.75 ACRES,
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 OWNED BY BETTY L.
 HAMMOCK. 111920

ESTATES. OWNED BY
 THEODORE & JUDY
 COFFEY. 111220

APPROX 2.5 ACRES.
 51 & 53 BON L. BYBEE
 WAY, WHITLEY CITY
 KY. OWNED BY DEREK
 R. DOBBS. 111620

APPROX 16 ACRES
 & 2 CABINS AT HEAD
 OF STEEL HOLLOW,
 PARKERS MOUNTAIN
 AREA. OWNED BY
 LEONARD D. & VONDA
 L. NEW. 111220

17 ACRES LOCATED
 IN OSBORNE CREEK
 AT 2640 E HWY 1470,
 ALSO KNOWN AS
 THE NORMAN LOVITT
 ESTATE. 111220

APPROX 1.5 ACRES,
 STEARNS TOWER RD,
 STEARNS KY. OWNED
 BY LEONARD D. &
 VONDA L. NEW. 111220

APPROX 18 ACRES,
 145 WATERS RIDGE
 RD. WHITLEY CITY,
 KY. OWNED BY JOYCE
 CANNADA. 111220

APPROX 38 ACRES,
 987 GRANNY HOLT
 KNOB, STRUNK KY.
 OWNED BY VERLON &
 SHIRLEY LAY. 110520

198 CLEAR PINE
 DRIVE LOT #66 IN
 EAST PINE KNOT

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 IN THE VOICE CALL
 606-376-5500

ADVERTISEMENT FOR SEALED BIDS

THE MCCREARY COUNTY AMBULANCE
 SERVICE WILL BE ACCEPTING SEALED BIDS
 TO REFURBISH ONE OF THERE EXISTING
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 COMPANY THAT MEETS ALL REGULATIONS
 OF THE NATIONAL HIGHWAY TRAFFIC
 ADMINISTRATION. AND ALL BIDS NEED TO
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 DECEMBER 10, 2020 ALL BIDS WILL NEED TO
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 OUTSIDE OF THE ENVELOPE AND MAILED
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 42653, THE BIDS WILL BE OPENED AT THE
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 10, 2020, FOR A COPY OF BID SPECS OR
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 JIMMY BARNETT AT 606-376-5063 OR EMAIL
 MCCREARYEMS@GMAIL.COM WE RESERVE
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JIMMIE W GREENE II
 MCCREARY COUNTY JUDGE EXECUTIVE

NOTICE

FOR PROTECTION OF PUBLIC WATER SUPPLY
 LAUREL CREEK & RESERVOIR EMBANKMENTS
 FISHING PERMITTED FROM BANKS & ON
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 NO GAS MOTORS, NO SWIMMING, NO
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LEGAL

TO WHOM IT MAY CONCERN: YOU ARE HEREBY
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 APPOINTED IN THE FOLLOWING MATTERS:
 BELINDA BOWLING, P.O. BOX 146,
 HELENWOOD, TN 37755, APPOINTED OCTOBER
 14, 2020, AS EXECUTRIX OF THE ESTATE OF:
 JEWELENE H. CALHOUN, DECEASED, P.O. BOX
 178, REVELO, KENTUCKY 42638. ATTORNEY
 FOR EXECUTRIX, AUSTIN PRICE, P.O. BOX
 1340, WHITLEY CITY, KENTUCKY 42653.
 KENNY GILREATH AND DEBBIE GILREATH,
 15 REYBURN ROAD, STRUNK, KENTUCKY
 42649, APPOINTED OCTOBER 19, 2020, AS
 CO-EXECUTORS OF THE ESTATE OF: ARNOLD
 JAMES MARLOW, DECEASED, P.O. BOX 606,
 PINE KNOT, KENTUCKY 42635. ATTORNEY FOR
 CO-EXECUTORS, AUSTIN PRICE, P.O. BOX
 1340, WHITLEY CITY, KENTUCKY 42653.
 CLAIMS OF CREDITORS MUST BE PRESENTED
 WITHIN SIX MONTHS OF HIS OR HER
 APPOINTMENT.
 GIVEN UNDER MY HAND AS CLERK, THIS 16TH
 DAY OF NOVEMBER, 2020.
 OTHEL KING, CLERK OF THE PROBATE COURT,
 MCCREARY COUNTY.

LEGAL

SECTION 00010 - ADVERTISEMENT FOR BIDS

SEALED BIDS FOR "SANITARY SEWER COLLECTION SYSTEM EXPANSION - PHASE 1 - CONTRACT NO. 39" FOR THE MCCREARY COUNTY WATER DISTRICT, WILL BE RECEIVED UNTIL 2:00 P.M. (LOCAL TIME) ON DECEMBER 9, 2020, AT THE MCCREARY COUNTY WATER DISTRICT, 456 NORTH HWY 27, WHITLEY CITY, KENTUCKY 42653, AND THEN PUBLICLY OPENED AND READ ALOUD.

THE PRIMARY SCOPE OF WORK INCLUDES THE INSTALLATION OF APPROXIMATELY 50,250 LF OF 1.5-INCH HDPE FORCE MAIN, 47,610 LF OF 2-INCH PVC FORCE MAIN, 18,901 LF OF 3-INCH PVC FORCE MAIN, 14,099 LF OF 4-INCH PVC FORCE MAIN, 12,000 LF OF 4-INCH PVC GRAVITY SEWER (LATERALS), 1,108 LF OF 6-INCH HDPE CASING PIPE (DIRECTIONAL BORE), 68 LF OF 8-INCH HDPE CASING PIPE (DIRECTIONAL BORE), 53 AIR RELEASE VALVE ASSEMBLIES, 414 GRINDER CHECK VALVE ASSEMBLIES, 414 GRINDER PUMP STATIONS (SINGLE STAGE), AND RELATED APPURTENANCES.

THE INSTRUCTIONS TO BIDDERS, BID FORM, AGREEMENT FORMS, PERFORMANCE AND PAYMENT BONDS, PLANS, SPECIFICATIONS AND OTHER CONTRACT DOCUMENTS MAY BE VIEWED ONLINE AT LYNNIMAGING.COM OR EXAMINED AT THE FOLLOWING LOCATIONS:

MCCREARY CO. WATER DISTRICT
 456 NORTH HWY 27
 WHITLEY CITY, KY 42653
 (606) 784-5538

ECLIPSE ENGINEERS, PLLC
 113 WEST MT. VERNON STREET
 SOMERSET, KY 42501
 (606) 451-0959

COPIES OF PLANS AND SPECIFICATIONS MAY BE OBTAINED FROM LYNN IMAGING, 328 OLD VINE STREET, LEXINGTON, KENTUCKY 40507 (859-255-1021) UPON PAYMENT OF A NON-REFUNDABLE PRICE OF \$500.00 FOR EACH SET (INCLUDING SHIPPING AND HANDLING). NO BID WILL BE ACCEPTED UNLESS THE BIDDER IS A REGISTERED PLAN HOLDER. TO BECOME A REGISTERED PLAN HOLDER, BIDDER MUST PURCHASE AT LEAST ONE SET OF DOCUMENTS FROM LYNN IMAGING AND PROVIDE ACCURATE NAME AND CONTACT INFORMATION. PARTIAL SETS OF DOCUMENTS WILL NOT BE PROVIDED. HALF-SIZED SETS MAY BE PURCHASED FOR THE FULL PRICE. DIGITAL DOWNLOAD SETS MAY BE PURCHASED FOR HALF OF THE FULL PRICE. QUESTIONS SHALL BE ADDRESSED TO ALAN R. ROBINSON, P.E. OF ECLIPSE ENGINEERS, PLLC, 113 WEST MT. VERNON STREET, SOMERSET, KENTUCKY 42501 (606-451-0959) AS STATED IN THE SPECIFICATIONS OR BY EMAIL TO AROBINSON@ECLIPSEENGINEERS.NET.

ALL BIDDERS MUST COMPLY WITH TITLE VI OF THE CIVIL RIGHTS ACT OF 1964, THE ANTI-KICKBACK ACT, AND THE CONTRACT WORK HOURS STANDARD ACT.

ALL BIDDERS MUST COMPLY WITH THE PRESIDENT'S EXECUTIVE ORDER NO. 11,246 (EQUAL EMPLOYMENT OPPORTUNITY) AS AMENDED, WHICH PROHIBIT DISCRIMINATION IN EMPLOYMENT REGARDING RACE, CREED, COLOR, SEX OR NATIONAL ORIGIN.

ALL BIDDERS, CONTRACTORS AND SUBCONTRACTORS MUST COMPLY WITH 41 CFR 60-4, IN REGARD TO AFFIRMATIVE ACTION, TO ENSURE EQUAL OPPORTUNITY TO FEMALES AND MINORITIES AND WILL APPLY THE TIMETABLES AND GOALS SET FORTH IN 41 CFR 60-4 AS APPLICABLE.

ALL BIDDERS, CONTRACTORS AND SUBCONTRACTORS MUST COMPLY WITH ALL AMERICAN IRON AND STEEL REQUIREMENTS.

ALL BIDDERS MUST MAKE POSITIVE EFFORTS TO USE SMALL, MINORITY, WOMEN OWNED, AND DISADVANTAGE BUSINESSES.

METHOD OF AWARD WILL BE MADE TO THE LOWEST, RESPONSIVE, RESPONSIBLE BIDDER. THE OWNER RESERVES THE RIGHT TO WAIVE ANY INFORMALITY OR TO REJECT ANY OR ALL BIDS.

EACH BIDDER MUST DEPOSIT WITH HIS BID, SECURITY IN THE AMOUNT, FORM AND SUBJECT TO THE CONDITIONS PROVIDED IN THE INSTRUCTIONS TO BIDDERS.

NO BIDDER MAY WITHDRAW HIS BID WITHIN NINETY (90) CONSECUTIVE CALENDAR DAYS AFTER THE ACTUAL DATE OF THE OPENING THEREOF.

THIS PROJECT WILL BE SUBJECT TO DOW PROCUREMENT GUIDANCE INCLUDING THE DAVIS-BACON ACT.

THIS PROJECT WILL BE FUNDED WITH AN SRF LOAN.

"EQUAL EMPLOYMENT OPPORTUNITY"

STEPHEN WHITAKER
 SUPERINTENDENT, MCWD

END OF SECTION 00010

EXHIBIT 13

ECLIPSE ENGINEERS, PLLC
 113 West Mt. Vernon Street
 Somerset, Kentucky 42501
 (606) 451-0959

BASE BID TABULATIONS

PROJECT: Sanitary Sewer Collection System Extension - Phase One - Contract 39
 LOCATION: Whitley City, Kentucky
 BID DATE: 12/9/2020
 BID TIME: 2:00 P.M.

| | | |
|--|---|---|
| Frederick and May Const. Co., Inc. 1016 Hwy 172 West Liberty, KY 41472 | Flow-Line Contracting, LLC 189 Sunstar Blvd. Monticello, KY 42633 | Akins Excavating Company, Inc. 182 Busy Lane Corbin, KY 40701 |
|--|---|---|

| ITEM NO. | ITEM DESCRIPTION - BASE BID (SHEETS 3-15, 20-32) | UNIT | QTY | UNIT COST | TOTAL | UNIT COST | TOTAL | UNIT COST | TOTAL |
|----------|--|------|--------|-------------|----------------|-------------|----------------|-------------|----------------|
| 1 | General Conditions | LS | 1 | \$40,000.00 | \$40,000.00 | \$21,927.00 | \$21,927.00 | \$70,000.00 | \$70,000.00 |
| 2 | 1.5-inch HDPE DR11 CTS Force Main (green) | LF | 25,350 | \$9.50 | \$240,825.00 | \$10.30 | \$261,105.00 | \$7.00 | \$177,450.00 |
| 3 | 2-inch PVC SDR 21 Force Main (green) | LF | 26,859 | \$10.00 | \$268,590.00 | \$10.50 | \$282,019.50 | \$8.00 | \$214,872.00 |
| 4 | Flushing Connection (2-inch) | EA | 37 | \$600.00 | \$22,200.00 | \$1,200.00 | \$44,400.00 | \$775.00 | \$28,675.00 |
| 5 | 3-inch PVC SDR 21 Force Main (green) | LF | 5,260 | \$14.00 | \$73,640.00 | \$10.85 | \$57,071.00 | \$8.50 | \$44,710.00 |
| 6 | Flushing Connection (3-inch) | EA | 5 | \$900.00 | \$4,500.00 | \$2,500.00 | \$12,500.00 | \$1,225.00 | \$6,125.00 |
| 7 | 4-inch PVC SDR 21 Force Main (green) | LF | 8,122 | \$15.00 | \$121,830.00 | \$12.00 | \$97,464.00 | \$9.50 | \$77,159.00 |
| 8 | 4-inch PVC SDR 35 Gravity Sewer (Laterals) | LF | 15,150 | \$22.00 | \$333,300.00 | \$12.15 | \$184,072.50 | \$32.00 | \$484,800.00 |
| 9 | 2-inch Combination Air Release Valve Assembly | EA | 28 | \$3,000.00 | \$84,000.00 | \$3,650.00 | \$102,200.00 | \$1,970.00 | \$55,160.00 |
| 10 | Flushing Connection (4-inch) | EA | 8 | \$3,000.00 | \$24,000.00 | \$4,000.00 | \$32,000.00 | \$1,320.00 | \$10,560.00 |
| 11 | 4-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | LF | 504 | \$40.00 | \$20,160.00 | \$30.00 | \$15,120.00 | \$65.00 | \$32,760.00 |
| 12 | 6-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | LF | 126 | \$100.00 | \$12,600.00 | \$75.00 | \$9,450.00 | \$80.00 | \$10,080.00 |
| 13 | 8-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | LF | 34 | \$150.00 | \$5,100.00 | \$80.00 | \$2,720.00 | \$95.00 | \$3,230.00 |
| 14 | Electric Modifications / Breaker | EA | 209 | \$800.00 | \$167,200.00 | \$750.00 | \$156,750.00 | \$515.00 | \$107,635.00 |
| 15 | Sanitary Sewer Cleanout Assembly / Connect Lateral | EA | 219 | \$350.00 | \$76,650.00 | \$750.00 | \$164,250.00 | \$825.00 | \$180,675.00 |
| 16 | Grinder Check Valve Assembly | EA | 209 | \$650.00 | \$135,850.00 | \$450.00 | \$94,050.00 | \$680.00 | \$142,120.00 |
| 17 | Grinder Pump Station – Single Stage | EA | 209 | \$2,900.00 | \$606,100.00 | \$3,600.00 | \$752,400.00 | \$3,800.00 | \$794,200.00 |
| 18 | Bituminous Pavement Replacement | SY | 100 | \$40.00 | \$4,000.00 | \$45.00 | \$4,500.00 | \$85.00 | \$8,500.00 |
| 19 | Concrete Drive Replacement | SY | 100 | \$40.00 | \$4,000.00 | \$60.00 | \$6,000.00 | \$55.00 | \$5,500.00 |
| | | | | | \$2,244,545.00 | | \$2,299,999.00 | | \$2,454,211.00 |
| ITEM NO. | ITEM DESCRIPTION - ADDITIVE ALTERNATE NO. 1 (SHEETS 16-19) | UNIT | QTY | UNIT COST | TOTAL | UNIT COST | TOTAL | UNIT COST | TOTAL |
| 1 | General Conditions | LS | 1 | \$30,000.00 | \$30,000.00 | \$7,015.75 | \$7,015.75 | \$11,500.00 | \$11,500.00 |
| 2 | 1.5-inch HDPE DR 11 CTS Force Main | LF | 3,400 | \$11.00 | \$37,400.00 | \$10.30 | \$35,020.00 | \$7.00 | \$23,800.00 |
| 3 | 2-inch PVC SDR 21 Force Main | LF | 1,427 | \$12.00 | \$17,124.00 | \$10.50 | \$14,983.50 | \$8.00 | \$11,416.00 |
| 4 | Flushing Connection (2-inch) | EA | 2 | \$600.00 | \$1,200.00 | \$1,200.00 | \$2,400.00 | \$775.00 | \$1,550.00 |
| 5 | 3-inch PVC SDR 21 Force Main | LF | 1,925 | \$15.00 | \$28,875.00 | \$10.85 | \$20,886.25 | \$8.50 | \$16,362.50 |
| 6 | Flushing Connection (3-inch) | EA | 2 | \$900.00 | \$1,800.00 | \$2,500.00 | \$5,000.00 | \$1,225.00 | \$2,450.00 |
| 7 | 4-inch PVC SDR 21 Force Main | LF | 2,277 | \$16.00 | \$36,432.00 | \$12.00 | \$27,324.00 | \$9.50 | \$21,631.50 |
| 8 | 4-inch PVC SDR 35 Gravity Sewer (Laterals) | LF | 2,150 | \$25.00 | \$53,750.00 | \$12.15 | \$26,122.50 | \$35.00 | \$75,250.00 |
| 9 | 2-inch Combination Air Release Valve Assembly | EA | 2 | \$3,000.00 | \$6,000.00 | \$3,650.00 | \$7,300.00 | \$1,970.00 | \$3,940.00 |
| 10 | 8-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | LF | 34 | \$160.00 | \$5,440.00 | \$80.00 | \$2,720.00 | \$95.00 | \$3,230.00 |
| 11 | Electric Modifications / Breaker | EA | 31 | \$800.00 | \$24,800.00 | \$750.00 | \$23,250.00 | \$515.00 | \$15,965.00 |
| 12 | Sanitary Sewer Cleanout Assembly / Connect Lateral | EA | 34 | \$350.00 | \$11,900.00 | \$750.00 | \$25,500.00 | \$825.00 | \$28,050.00 |
| 13 | Grinder Check Valve Assembly | EA | 31 | \$650.00 | \$20,150.00 | \$450.00 | \$13,950.00 | \$680.00 | \$21,080.00 |
| 14 | Grinder Pump Station – Single Stage | EA | 31 | \$2,900.00 | \$89,900.00 | \$3,600.00 | \$111,600.00 | \$4,060.00 | \$125,860.00 |
| | | | | | \$364,771.00 | | \$323,072.00 | | \$362,085.00 |
| ITEM NO. | ITEM DESCRIPTION - ADDITIVE ALTERNATE NO. 2 (SHEETS 33-51) | UNIT | QTY | UNIT COST | TOTAL | UNIT COST | TOTAL | UNIT COST | TOTAL |
| 1 | General Conditions | LS | 1 | \$40,000.00 | \$40,000.00 | \$20,700.20 | \$20,700.20 | \$65,000.00 | \$65,000.00 |
| 2 | 1.5-inch HDPE DR 11 CTS Force Main | LF | 21,500 | \$11.00 | \$236,500.00 | \$13.25 | \$284,875.00 | \$7.00 | \$150,500.00 |
| 3 | 2-inch PVC SDR 21 Force Main | LF | 19,324 | \$12.00 | \$231,888.00 | \$15.65 | \$302,420.60 | \$8.00 | \$154,592.00 |
| 4 | Flushing Connection (2-inch) | EA | 22 | \$600.00 | \$13,200.00 | \$1,200.00 | \$26,400.00 | \$775.00 | \$17,050.00 |
| 5 | 3-inch PVC SDR 21 Force Main | LF | 11,716 | \$15.00 | \$175,740.00 | \$16.20 | \$189,799.20 | \$8.50 | \$99,586.00 |
| 6 | Flushing Connection (3-inch) | EA | 9 | \$900.00 | \$8,100.00 | \$2,500.00 | \$22,500.00 | \$1,225.00 | \$11,025.00 |
| 7 | 4-inch PVC SDR 21 Force Main | LF | 3,700 | \$16.00 | \$59,200.00 | \$17.25 | \$63,825.00 | \$9.50 | \$35,150.00 |
| 8 | 4-inch PVC SDR 35 Gravity Sewer (Laterals) | LF | 11,850 | \$25.00 | \$296,250.00 | \$18.00 | \$213,300.00 | \$35.00 | \$414,750.00 |
| 9 | 2-inch Combination Air Release Valve Assembly | EA | 23 | \$3,000.00 | \$69,000.00 | \$3,650.00 | \$83,950.00 | \$1,970.00 | \$45,310.00 |
| 10 | 4-inch HDPE DR 11 Casing Pipe (Directional Bore) | LF | 396 | \$60.00 | \$23,760.00 | \$40.00 | \$15,840.00 | \$65.00 | \$25,740.00 |
| 11 | 6-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | LF | 106 | \$120.00 | \$12,720.00 | \$80.00 | \$8,480.00 | \$80.00 | \$8,480.00 |
| 12 | 8-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | LF | 344 | \$160.00 | \$55,040.00 | \$90.00 | \$30,960.00 | \$95.00 | \$32,680.00 |
| 13 | Electric Modifications / Breaker | EA | 174 | \$800.00 | \$139,200.00 | \$750.00 | \$130,500.00 | \$515.00 | \$89,610.00 |
| 14 | Sanitary Sewer Cleanout Assembly / Connect Lateral | EA | 209 | \$350.00 | \$73,150.00 | \$750.00 | \$156,750.00 | \$825.00 | \$172,425.00 |
| 15 | Grinder Check Valve Assembly | EA | 174 | \$650.00 | \$113,100.00 | \$450.00 | \$78,300.00 | \$680.00 | \$118,320.00 |
| 16 | Grinder Pump Station – Single Stage | EA | 174 | \$2,900.00 | \$504,600.00 | \$3,600.00 | \$626,400.00 | \$4,060.00 | \$706,440.00 |
| | | | | | \$2,051,448.00 | | \$2,255,000.00 | | \$2,146,658.00 |

| | |
|--|--|
| Cumberland Pipeline, LLC 2909 Cane Valley Mill Road Columbia, KY 42728 | B.P. Pipeline, LLC 269 Pebbles Lane Quincy, KY 41166 |
|--|--|

| ITEM NO. | ITEM DESCRIPTION | UNIT | QTY | UNIT COST | TOTAL | UNIT COST | TOTAL |
|----------|--|------|--------|-------------|-----------------------|-------------|-----------------------|
| 1 | General Conditions | LS | 1 | \$79,000.00 | \$79,000.00 | \$50,000.00 | \$50,000.00 |
| 2 | 1.5-inch HDPE DR11 CTS Force Main (green) | LF | 25,350 | \$15.75 | \$399,262.50 | \$13.00 | \$329,550.00 |
| 3 | 2-inch PVC SDR 21 Force Main (green) | LF | 26,859 | \$15.66 | \$420,611.94 | \$13.00 | \$349,167.00 |
| 4 | Flushing Connection (2-inch) | EA | 37 | \$400.00 | \$14,800.00 | \$1,000.00 | \$37,000.00 |
| 5 | 3-inch PVC SDR 21 Force Main (green) | LF | 5,260 | \$17.60 | \$92,576.00 | \$16.00 | \$84,160.00 |
| 6 | Flushing Connection (3-inch) | EA | 5 | \$830.00 | \$4,150.00 | \$600.00 | \$3,000.00 |
| 7 | 4-inch PVC SDR 21 Force Main (green) | LF | 8,122 | \$18.00 | \$146,196.00 | \$18.00 | \$146,196.00 |
| 8 | 4-inch PVC SDR 35 Gravity Sewer (Laterals) | LF | 15,150 | \$4.00 | \$60,600.00 | \$20.00 | \$303,000.00 |
| 9 | 2-inch Combination Air Release Valve Assembly | EA | 28 | \$2,495.00 | \$69,860.00 | \$2,500.00 | \$70,000.00 |
| 10 | Flushing Connection (4-inch) | EA | 8 | \$2,000.00 | \$16,000.00 | \$2,500.00 | \$20,000.00 |
| 11 | 4-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | LF | 504 | \$78.00 | \$39,312.00 | \$45.00 | \$22,680.00 |
| 12 | 6-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | LF | 126 | \$123.00 | \$15,498.00 | \$65.00 | \$8,190.00 |
| 13 | 8-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | LF | 34 | \$138.00 | \$4,692.00 | \$105.00 | \$3,570.00 |
| 14 | Electric Modifications / Breaker | EA | 209 | \$1,210.00 | \$252,890.00 | \$210.00 | \$43,890.00 |
| 15 | Sanitary Sewer Cleanout Assembly / Connect Lateral | EA | 219 | \$740.00 | \$162,060.00 | \$110.00 | \$24,090.00 |
| 16 | Grinder Check Valve Assembly | EA | 209 | \$464.00 | \$96,976.00 | \$600.00 | \$125,400.00 |
| 17 | Grinder Pump Station – Single Stage | EA | 209 | \$3,238.00 | \$676,742.00 | \$4,500.00 | \$940,500.00 |
| 18 | Bituminous Pavement Replacement | SY | 100 | \$93.00 | \$9,300.00 | \$40.00 | \$4,000.00 |
| 19 | Concrete Drive Replacement | SY | 100 | \$93.00 | \$9,300.00 | \$120.00 | \$12,000.00 |
| | | | | | \$2,569,826.44 | | \$2,576,393.00 |

| ITEM NO. | ITEM DESCRIPTION - ADDITIVE ALTERNATE NO. 1 (SHEETS 16-19) | UNIT | QTY | UNIT COST | TOTAL | UNIT COST | TOTAL |
|----------|--|------|-------|-------------|---------------------|-------------|---------------------|
| 1 | General Conditions | LS | 1 | \$13,190.00 | \$13,190.00 | \$50,000.00 | \$50,000.00 |
| 2 | 1.5-inch HDPE DR 11 CTS Force Main | LF | 3,400 | \$15.75 | \$53,550.00 | \$13.00 | \$44,200.00 |
| 3 | 2-inch PVC SDR 21 Force Main | LF | 1,427 | \$15.66 | \$22,346.82 | \$13.00 | \$18,551.00 |
| 4 | Flushing Connection (2-inch) | EA | 2 | \$400.00 | \$800.00 | \$1,000.00 | \$2,000.00 |
| 5 | 3-inch PVC SDR 21 Force Main | LF | 1,925 | \$17.60 | \$33,880.00 | \$16.00 | \$30,800.00 |
| 6 | Flushing Connection (3-inch) | EA | 2 | \$830.00 | \$1,660.00 | \$600.00 | \$1,200.00 |
| 7 | 4-inch PVC SDR 21 Force Main | LF | 2,277 | \$18.00 | \$40,986.00 | \$18.00 | \$40,986.00 |
| 8 | 4-inch PVC SDR 35 Gravity Sewer (Laterals) | LF | 2,150 | \$4.00 | \$8,600.00 | \$20.00 | \$43,000.00 |
| 9 | 2-inch Combination Air Release Valve Assembly | EA | 2 | \$2,495.00 | \$4,990.00 | \$2,500.00 | \$5,000.00 |
| 10 | 8-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | LF | 34 | \$138.00 | \$4,692.00 | \$105.00 | \$3,570.00 |
| 11 | Electric Modifications / Breaker | EA | 31 | \$1,210.00 | \$37,510.00 | \$210.00 | \$6,510.00 |
| 12 | Sanitary Sewer Cleanout Assembly / Connect Lateral | EA | 34 | \$740.00 | \$25,160.00 | \$110.00 | \$3,740.00 |
| 13 | Grinder Check Valve Assembly | EA | 31 | \$464.00 | \$14,384.00 | \$600.00 | \$18,600.00 |
| 14 | Grinder Pump Station – Single Stage | EA | 31 | \$3,238.00 | \$100,378.00 | \$4,500.00 | \$139,500.00 |
| | | | | | \$362,126.82 | | \$407,657.00 |

| ITEM NO. | ITEM DESCRIPTION - ADDITIVE ALTERNATE NO. 2 (SHEETS 33-51) | UNIT | QTY | UNIT COST | TOTAL | UNIT COST | TOTAL |
|----------|--|------|--------|-------------|-----------------------|-------------|-----------------------|
| 1 | General Conditions | LS | 1 | \$54,000.00 | \$54,000.00 | \$50,000.00 | \$50,000.00 |
| 2 | 1.5-inch HDPE DR 11 CTS Force Main | LF | 21,500 | \$15.75 | \$338,625.00 | \$13.00 | \$279,500.00 |
| 3 | 2-inch PVC SDR 21 Force Main | LF | 19,324 | \$15.66 | \$302,613.84 | \$13.00 | \$251,212.00 |
| 4 | Flushing Connection (2-inch) | EA | 22 | \$400.00 | \$8,800.00 | \$1,000.00 | \$22,000.00 |
| 5 | 3-inch PVC SDR 21 Force Main | LF | 11,716 | \$17.60 | \$206,201.60 | \$16.00 | \$187,456.00 |
| 6 | Flushing Connection (3-inch) | EA | 9 | \$830.00 | \$7,470.00 | \$600.00 | \$5,400.00 |
| 7 | 4-inch PVC SDR 21 Force Main | LF | 3,700 | \$18.00 | \$66,600.00 | \$18.00 | \$66,600.00 |
| 8 | 4-inch PVC SDR 35 Gravity Sewer (Laterals) | LF | 11,850 | \$4.00 | \$47,400.00 | \$20.00 | \$237,000.00 |
| 9 | 2-inch Combination Air Release Valve Assembly | EA | 23 | \$2,495.00 | \$57,385.00 | \$2,500.00 | \$57,500.00 |
| 10 | 4-inch HDPE DR 11 Casing Pipe (Directional Bore) | LF | 396 | \$78.00 | \$30,888.00 | \$45.00 | \$17,820.00 |
| 11 | 6-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | LF | 106 | \$123.00 | \$13,038.00 | \$65.00 | \$6,890.00 |
| 12 | 8-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | LF | 344 | \$138.00 | \$47,472.00 | \$105.00 | \$36,120.00 |
| 13 | Electric Modifications / Breaker | EA | 174 | \$1,210.00 | \$210,540.00 | \$210.00 | \$36,540.00 |
| 14 | Sanitary Sewer Cleanout Assembly / Connect Lateral | EA | 209 | \$740.00 | \$154,660.00 | \$110.00 | \$22,990.00 |
| 15 | Grinder Check Valve Assembly | EA | 174 | \$464.00 | \$80,736.00 | \$600.00 | \$104,400.00 |
| 16 | Grinder Pump Station – Single Stage | EA | 174 | \$3,238.00 | \$563,412.00 | \$4,500.00 | \$783,000.00 |
| | | | | | \$2,189,841.44 | | \$2,164,428.00 |

I certify that these bid tabulations are a true and correct tabulation of the bids received by the McCreary Co. Water District on December 9, 2020 at 2:00 p.m.

BY: Alan R. Robinson
ALAN R. ROBINSON, P.E.
Eclipse Engineers, PLLC



EXHIBIT 14

December 11, 2020

Mr. Stephen Whitaker
Superintendent
McCreary Co. Water District
456 North Hwy 27
Whitley City, Kentucky 42653

Re: Recommendation for Award
Sanitary Sewer Collection System Extension – Phase One – Contract 39

Dear Mr. Whitaker:

I have compiled the bid tabulations as received by the McCreary Co. Water District for the project referenced above on December 9, 2020 and have attached the certified original. I have examined the bids and have checked references of the low bidder, Frederick and May Construction Company, Inc.

We have received mixed reviews from referenced Utilities and Engineers for Frederick and May, mostly negative. Kentucky Engineering Group discussed their lack of cleanup effort. Bluegrass Engineering Group discussed their excessive change order requests, and lack of consistent presence on the job site. Kenvirons Engineers stated that they had a lack of consistent presence on the job site and stated it was one of the worst projects they have ever experienced with a contractor. These comments create cause for concern, given the Bidder's distance to the project site and the nature of the project which will impact hundreds of private properties requiring restoration.

I recommend that the McCreary Co. Water District award the Contract to the second low bidder, Flo-Line Contracting, LLC for the Base Bid amount of \$2,299,999.00 plus the Additive Alternate No. 1 amount of \$323,072.00 for an award total of \$2,623,071.00. Flo-Line's reference checks have been superb and they have more direct experience with low pressure grinder pump station projects such as this.

Stephen Whitaker
December 11, 2020
Page 2 of 2

The difference in the recommended award total of Base Bid plus Additive Alternate No. 1 between the two Bidders is \$13,755.00

Please do not hesitate to call if you have any questions.

Sincerely,
Eclipse Engineers, PLLC

A handwritten signature in blue ink, appearing to read "Alan R. Robinson".

Alan R. Robinson, P.E.
President

EXHIBIT 15

RESOLUTION NO. _____

**A RESOLUTION OF THE BOARD OF COMMISSIONERS OF
MCCREARY COUNTY WATER DISTRICT AWARDING SANITARY
SEWER COLLECTION SYSTEM EXPANSION
PHASE 1 - CONTRACT NO. 39**

WHEREAS, McCreary County Water District caused to be published in the November 19, 2020 edition of *The McCreary County Voice* an advertisement for bids for “Sanitary Sewer Collection System Expansion Phase 1 – Contract No. 39” (“Contract”) in accordance with the provisions of KRS Chapter 424;

WHEREAS, the Contract as advertised consisted of a base bid and two additive alternates;

WHEREAS, the scope of the work for the base bid included the installation of approximately 25,350 linear foot (“lf”) of 1.5-inch high-density polyethylene (“HDPE”) force main, 26,859 lf of 2-inch polyvinyl chloride (“PVC”) force main, 5,260 lf of 3-inch PVC force main, 8,122 lf of 4-inch PVC force main, 15,150 lf of 4-inch PVC gravity sewer (laterals), 126 lf of 6-inch HDPE casing pipe (directional bore), 34 lf of 8-inch HDPE casing pipe (directional bore), 28 air release valve assemblies, 209 grinder check valve assemblies, 209 grinder pump stations (single stage), and related appurtenances;

WHEREAS, the scope of the work for Additive Alternate No. 1 included the installation of approximately 3,400 lf of 1.5-inch HDPE force main, 1,427 lf of 2-inch PVC force main, 1,925 lf of 3-inch PVC force main, 2,277 lf of 4-inch PVC force main, 2,150 lf of 4-inch PVC gravity sewer (laterals), 34 lf of 8-inch HDPE casing pipe (directional bore), 2 air release valve assemblies, 31 grinder check valve assemblies, 31 grinder pump stations (single stage), and related appurtenances;

WHEREAS, the scope of the work for Additive Alternate No. 2 included the installation of approximately 21,500 lf of 1.5-inch HDPE force main, 19,324 lf of 2-inch PVC force main, 11,716 lf of 3-inch PVC force main, 3,700 lf of 4-inch PVC force main, 11,850 lf of 4-inch PVC gravity sewer (laterals), 106 lf of 6-inch HDPE casing pipe (directional bore), 344 lf of 8-inch HDPE casing pipe (directional bore), 28 air release valve assemblies, 174 grinder check valve assemblies, 174 grinder pump stations (single stage), and related appurtenances;

WHEREAS, six firms submitted a bid on the Contract and each bid was in accordance with the terms of the advertisement;

WHEREAS, all combined bids for the base bid and Additive Alternatives No. 1 and No. 2 exceeded McCreary County Water District’s available funding for the Sanitary Sewer Collection System Expansion Phase 1 Project;

WHEREAS, the lowest combined bid for the base bid and Additive Alternate No. 1 was \$2,609,316 from Frederick and May Construction Co, Inc. of West Liberty, Kentucky;

WHEREAS, the next lowest combined bid for the base bid and Additive Alternate No. 1 was \$2,623,071 from Flo-Line Contracting LLC of Monticello, Kentucky;

WHEREAS, Eclipse Engineering PLLC, the Project Engineer, has investigated the qualifications of the two firms submitting the lowest bids, including contacting the references that each firm has provided;

WHEREAS, based upon its investigation, Eclipse Engineering PLLC has determined that Frederick and May Construction Co, Inc. is not properly qualified to perform the obligations of the Contract and has recommend that the bid of Frederick and May Construction Co, Inc. be rejected, and that McCreary County Water District award the Contract to perform the work in the base bid and Additive Alternate No. 1 to Flo-Line Contracting LLC;

WHEREAS, McCreary County Water District proposes to finance the work performed under the Contract through a loan not to exceed \$3,244,500 from the Kentucky Infrastructure Authority payable over a 30-year period and evidenced by an Assistance Agreement;

WHEREAS, KRS 278.020(1) requires McCreary County Water District to obtain a certificate of public convenience and necessity from the Kentucky Public Service Commission prior to commencing Sanitary Sewer Collection System Expansion – Phase 1 Project; and

WHEREAS, KRS 278.300 requires McCreary County Water District to obtain authorization from the Kentucky Public Service Commission prior to executing its proposed Assistance Agreement with the Kentucky Infrastructure Authority; and

WHEREAS, McCreary County Water District intends to seek authorization from the Kentucky Public Service Commission to execute the proposed assistance agreement and to obtain from the Kentucky Public Service Commission a certificate of public convenience and necessity for the Sanitary Sewer Collection System Expansion Phase 1 Project;

NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE BOARD OF COMMISSIONERS OF MCCREARY COUNTY WATER DISTRICT AS FOLLOWS:

Section 1. The facts, recitals, and statements contained in the foregoing preamble of this Resolution are true and correct and are hereby affirmed and incorporated as a part of this Resolution.

Section 2. The Board of Commissioners acknowledges the information provided by Eclipse Engineering.

Section 3. Based upon the information provided by Eclipse Engineering, the Board of Commissioners finds

1. The bid of Flo-Line Contracting LLC in the amount of \$2,623,071 is the best evaluated bid for base bid and Additive Alternate No. 1; and

2. It is in the best interest of McCreary County Water District to award the Contract to Flo-Line Contracting LLC.

Section 4. Flo-Line Contracting LLC is awarded Sanitary Sewer Collection System Expansion Phase 1 – Contract No. 39, consisting of the work described in the base bid and Additive Alternate No. 1 of the bid advertisement, contingent upon McCreary County Water District obtaining from the Kentucky Public Service Commission (1) a certificate of public convenience and necessity for such work and (2) authorization to obtain a loan not to exceed \$3,244,500 from the Kentucky Infrastructure Authority payable over a 30-year period to finance the cost of such work.

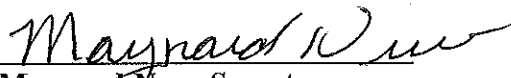
Section 5. The Chair of the Board of Commissioner is authorized and directed to take any and all actions reasonably necessary to implement the award of the Contract to Flo-Line Contracting LLC, to include the execution of any and all documents for such purpose, upon receiving notice of the Kentucky Public Service Commission’s entry of an Order granting to McCreary County Water District (1) a certificate of public convenience and necessity for such work and (2) authorization to obtain a loan not to exceed \$3,244,500 from the Kentucky Infrastructure Authority payable over a 30-year period to finance the cost of such work.

ADOPTED BY THE BOARD OF COMMISSIONERS OF MCCREARY COUNTY WATER DISTRICT at a meeting held on December 29, 2020 signed by the Chairman and attested by the Secretary.



Randy Kidd, Chairman

ATTEST:



Maynard New, Secretary

CERTIFICATION

The undersigned Secretary of McCreary County Water District (the "District") hereby certifies that the foregoing is a true copy of a Resolution duly adopted by the District's Board of Commissioners at a meeting properly held on December 29, 2020, signed by the Chairman of the Board of Commissioners, attested by the Secretary of the Board of Commissioners, and is now in full force and effect.

WITNESS my hand this 29th day of December 2020.



Maynard New, Secretary

EXHIBIT 16

**STATEMENT OF ANNUAL COST OF OPERATION
OF THE PROPOSED FACILITIES**

The proposed project will place an additional 240 grinder pump stations into service. McCreary District's current average annual cost to operate one grinder pump station is \$40. Using this cost as the average cost to operate each additional grinder pump station, McCreary District estimates that the annual cost to operate the proposed facilities will be approximately \$9,600 (\$40 per year x 240 grinder pump stations).

EXHIBIT 17

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

| | | |
|---|---|----------------------------|
| ELECTRONIC APPLICATION OF |) | |
| MCCREARY COUNTY WATER DISTRICT |) | |
| FOR AUTHORIZATION TO EXECUTE AN |) | |
| ASSISTANCE AGREEMENT WITH THE |) | |
| KENTUCKY INFRASTRUCTURE |) | CASE NO. 2020-00399 |
| AUTHORITY AND FOR A CERTIFICATE OF |) | |
| PUBLIC CONVENIENCE AND NECESSITY |) | |
| TO CONSTRUCT THE SANITARY SEWER |) | |
| COLLECTION SYSTEM EXPANSION |) | |
| PHASE 1 PROJECT |) | |

DIRECT TESTIMONY OF
STEPHEN WHITAKER
SUPERINTENDENT, MCCREARY COUNTY WATER DISTRICT

Filed: January 15, 2021

1 **Q. Please state your name, position, and business address.**

2 A. My name is Stephen Whitaker. I am Superintendent of McCreary County Water
3 District (“McCreary District”). My business address is 456 North Highway 27,
4 Whitley City, Kentucky 42653.

5 **Q. How long have you been employed by McCreary District?**

6 A. Twenty years.

7 **Q. In what positions McCreary District have you served?**

8 A. From 2002 until 2006, I was employed as supervisor of McCreary District’s water
9 treatment plant. I was promoted to Assistant Superintendent in 2006. I have served as
10 Superintendent since September 1, 2017.

11 **Q. What are your duties as Superintendent?**

12 A. I am McCreary District’s chief executive officer. I am responsible for McCreary
13 District’s day-to-day operations and manage McCreary District’s operational and
14 financial functions. I oversee the implementation of the policy decisions of McCreary
15 District’s Board of Commissioners.

16 **Q. Briefly describe your educational background.**

17 A. I have a Bachelor of Arts in Criminal Justice from Eastern Kentucky University.

18 **Q. Describe your professional certifications.**

19 A. I am currently certified by the Certification and Licensing Branch of the Kentucky
20 Division of Compliance Assistance as a Class IV Water Treatment Plant Operator,
21 Class IV Water Distribution System Operator, a Class III Wastewater Treatment Plant
22 Operator, and a Class II Wastewater Collection Operator, and a Landfarming Operator.

1 **Q. Have you previously testified before the Kentucky Public Service Commission?**

2 A. I filed written testimony in PSC Case No. 2018-00038¹ but have not testified in person
3 before the Public Service Commission.

4 **Q. What is the purpose of your testimony?**

5 A. The purpose of my testimony is to describe the Sanitary Sewer Collection System
6 Expansion Phase I Project (“Project”), explain why the Project is needed, and describe
7 how McCreary District will finance the Project.

8 **Q. Briefly describe McCreary District.**

9 A. McCreary District is a water district organized under KRS Chapter 74. It was created
10 by McCreary County Court on November 16, 1962. It provides water service to
11 approximately 6,148 retail customers in McCreary County, Kentucky, including the
12 U.S. Penitentiary McCreary at Pine Knot, Kentucky. It also has contracts to provide
13 wholesale water service to Whitley County Water District and the City of Oneida,
14 Tennessee. McCreary District currently serves over 95 percent of McCreary County.
15 It has over 361 miles of water mains which range up to 18 inches. It operates twelve
16 water storage tanks throughout McCreary County and possesses a total system storage
17 capacity of 2.75 million gallons. It operates two water treatment facilities with a
18 combined daily capacity of 4.5 million gallons. It currently employs 20 full-time
19 employees and four part-time employees for its water operations.

20 McCreary District provides sewer service to approximately 1,142 customers,
21 including the United States Penitentiary McCreary. It owns and operates a sewage
22 treatment facility that has a total daily treatment capacity of 900,000 gallons, over 294

¹ *Electronic Application of McCreary County Water District For Authorization To Execute Lease-Purchase Agreement and Related Relief*, Case No. 2018-00038 (Ky. PSC June 28, 2018).

1 miles of sewer lines and 20 lift stations. It employs five full-time employees for its
2 sewer operations.

3 **Q. Describe the Sanitary Sewer Collection System Expansion Phase I Project.**

4 A. The Project involves the extension of low-pressure sewer force main from Stearns,
5 Kentucky northwest along Kentucky Route 92 to the Smithtown area of McCreary
6 County and northeast along Kentucky Route 701 from the juncture of Kentucky Route
7 701 and Kentucky Route 92, as well as the side roads along these routes. The Project
8 will result in the construction or installation of 28,750 linear feet of 1.5-inch high
9 density polyethylene force main; 28,286 linear feet of 2-inch polyvinyl chloride
10 (“PVC”) force main; 7,185 linear feet of 3-inch PVC force main; 10,399 linear feet of
11 4-inch PVC force main; 17,300 linear feet of 4-inch PVC gravity sewer main; and 240
12 grinder pump stations. Maps of the proposed route of the proposed facilities are found
13 at Tab 7 of McCreary District’s Application.² The Kentucky Water Resource
14 Information System has assigned the identifier “SX21147109” to the Proposed
15 Facilities.

16 **Q. Why is McCreary District proposing to construct the Project?**

17 A. McCreary District is the sole provider of wastewater services in McCreary County,
18 Kentucky. Continued expansion of its existing sewer collection system is necessary to
19 address potential environmental and public health problems due to the lack of
20 wastewater services, as well as promote economic development in McCreary County.

² These maps reflect the Sanitary Sewer Collection System Expansion Project – Phase I as originally proposed. As a result of the bids received on this project, the proposed facilities that are east and south of Whitley City are those that were included in Additive Alternative No. 2 and will not be constructed at this time due to funding limitation. McCreary District is not requesting a certificate of public convenience and necessity for those facilities. Detailed maps of the proposed facilities can be found at Tab 8, Sheets 3 through 32.

1 According to the U.S. Census Bureau, there are approximately 6,052 households in
2 McCreary County. Only about one-fifth of these households are connected to
3 McCreary District's sewer collection system. The remaining households use septic
4 systems. The existing soil conditions in McCreary County do not favor septic lines or
5 septic systems. Septic system failures are occurring that result in contaminants
6 leaching into the soil and the water table and creating public health and environmental
7 problems. The proposed expansion will lessen these problems by permitting residences
8 and structures that presently rely on a septic system to connect to a public wastewater
9 treatment facility. The greater availability of public sewers is expected to lead to an
10 increase in the construction of new buildings and to make McCreary County more
11 attractive to commercial and industrial investment and development.

12 **Q. Has McCreary District obtained all necessary permits and approvals to construct
13 and operate the Project's facilities?**

14 A. With the exception of a Certificate of Public Convenience and Necessity, McCreary
15 District has obtained all necessary permits. The Kentucky Division of Water has
16 approved the plans and specifications for the proposed facilities with respect to their
17 sanitary features of design. A copy of this approval and the construction permit is
18 attached to McCreary District's Application as Exhibit 3. The Kentucky Department
19 of Highways has issued encroachment permits for McCreary District to perform
20 excavations in the rights-of-way of state highways. A copy of these permits is attached
21 to McCreary District's Application as Exhibit 4. McCreary County Fiscal Court has
22 authorized McCreary District to place its water and sewer facilities within county road

1 rights-of-way. Evidence of this authorization is attached as Exhibit 5 to McCreary
2 District's Application.

3 **Q. Have all easements necessary for the Project been obtained?**

4 A. McCreary District does not require any easements to construct force and gravity sewer
5 mains on state and county roads. Grinder pump stations and appurtenances necessary
6 to connect the pump stations to mains on public rights-of-way will be located on the
7 property of persons applying for service and will require an easement from the property
8 owner. An easement from the property owner will be required as a condition of service
9 and will be requested when an applicant submits an application for service.

10 **Q. Has McCreary District requested bids on the contract for the Proposed Facilities?**

11 A. Yes. McCreary District caused to be published in the November 19, 2020 edition of
12 *The McCreary County Voice* an advertisement for bids for "Sanitary Sewer Collection
13 System Expansion Phase 1 – Contract No. 39" ("Contract"). A copy of this
14 advertisement is attached as Exhibit 12 to McCreary District's Application. The
15 Contract as advertised consisted of a base bid and two additive alternates. Six firms
16 submitted bids in response to this notice. All combined bids for the base bid and
17 Additive Alternatives No. 1 and No. 2 exceeded McCreary District's available funding.
18 A copy of the certified bid tabulations is attached as Exhibit 13 to McCreary District's
19 Application. Under the terms of the request for bids, these bids may be withdrawn after
20 March 9, 2021.

21 **Q. To whom did McCreary District award the Contract?**

22 A. On December 29, 2020, McCreary District's Board of Commissioners awarded the
23 Contract to perform the work in the base bid and Additive Alternate No. 1 to Flo-Line

1 Contracting LLC, of Monticello, Kentucky, subject to the issuance of a certificate of
2 public convenience for the Project and Public Service Commission authorization for
3 McCreary District to execute an assistance agreement with the Kentucky Infrastructure
4 Authority (“KIA”). A copy of the resolution of awarding the Contract to Flo-Line
5 Contracting LLC is attached as Exhibit 15 to McCreary District’s Application.

6 Flo-Line Contracting LLC submitted a combined bid for the base bid and
7 Additive Alternate No. 1 of \$2,623,071. It was not the lowest bid. Frederick and May
8 Construction Co, Inc. of West Liberty, Kentucky submitted a combined bid for the base
9 bid and Additive Alternate No. 1 of \$2,609,316. However, Eclipse Engineers, PLLC,
10 the project engineer, determined that Frederick and May Construction Co, Inc. was not
11 properly qualified to perform the work, recommend that its bid be rejected, and the
12 contract be awarded to Flo-Line Contracting LLC. A copy of the project engineer’s
13 recommendation to the Board of Commissioners is attached as Exhibit 14 to McCreary
14 District’s Application.

15 **Q. Did McCreary District prepare a detailed estimate of the property that it will**
16 **acquire as a result of the Project?**

17 A. Yes. This estimate, arranged according to the Uniform System of Accounts for Sewer
18 Utilities, is attached to McCreary District’s Application as Exhibit 22.

19 **Q. Did McCreary District determine the cost of operating the Project’s proposed**
20 **facilities upon their completion?**

21 A. Yes. McCreary District records indicate the average annual to operate a grinder pump
22 is \$40. Assuming 240 grinder pumps are installed and placed into operation, McCreary
23 District estimates that the annual cost to operate the Proposed Facilities will be \$9,600.

1 **Q. Will the Project’s proposed facilities compete with the facilities of any other public**
2 **utility?**

3 A. McCreary District is the sole provider of sewer service in McCreary County. The
4 Proposed Facilities will not compete with the facilities of any other public utility.

5 **Q. Has McCreary District notified the State Local Debt Officer of its intent to enter**
6 **the proposed Assistance Agreement with KIA?**

7 A. Yes. A completed Form SLDO-1, “Notification of Intent to Finance and Application
8 for Debt Approval,” was submitted to the State Local Debt Officer on or about
9 January 15, 2021. A copy of this completed form is attached as Exhibit 21 of McCreary
10 District’s Application.

11 **Q. To how many additional customers will the Project enable McCreary District to**
12 **provide sewer service?**

13 A. McCreary Districts estimates that 305 customers will be added as a result of the Project.

14 **Q. What is the expected effect on the revenues of McCreary District’s sewer**
15 **operations as a result of the project?**

16 A. Assuming that each customer uses 4,000 gallons of water monthly, the addition of 305
17 customers at McCreary District’s current rates will produce additional annual revenues
18 of \$150,316.

19 **Q. What is the Project’s estimated total cost?**

20 A. The total estimated cost is \$3,244,500.

21 **Q. How does McCreary District intend to finance the cost of the Project?**

22 A. McCreary District proposes to enter an assistance agreement with KIA to borrow an
23 amount not to exceed \$3,244,500. The proposed loan will bear interest at a rate of 0.5

1 percent per annum and must be repaid over a period not to exceed 30 years from the
2 date on which the Project's facilities begin operation. Interest on the proposed loan
3 will accrue from the time that McCreary District begins drawing funds from KIA. A
4 loan servicing fee of 0.20 percent of the outstanding loan balance will also be assessed
5 semi-annually. The proposed loan will be secured by a pledge of McCreary District's
6 revenues. KIA has agreed to forgive approximately \$450,000 of the principal amount
7 upon release of liens on all contracts for construction of the Proposed Facilities and
8 disbursement of the final draw request on assistance funds.

9 **Q. Will McCreary District require an adjustment of its rates for sewer service as a**
10 **result of the Project?**

11 A. Not immediately. The Assistance Agreement with KIA requires only interest payments
12 on borrowed amounts while the Project is under construction. Full principal payments
13 will not begin until the proposed facilities are placed in service. A rate adjustment may
14 be required after the proposed facilities are placed into operation.

15 **Q. Does McCreary District have a time frame for applying for a rate adjustment?**

16 A. McCreary District is currently under an order from the Public Service Commission to
17 apply for an adjustment of rates pursuant to 807 KAR 5:076 no later than June 25,
18 2021.³ McCreary District intends to comply with the Public Service Commission's
19 order and to apply for rate adjustment on or before June 25, 2021.

20 **Q. What is your recommendation concerning the Project?**

21 A. The Project is necessary to protect the health of McCreary County residents and the

³ *Electronic Application of the McCreary County Water District To Issue Securities in the Approximate Principal Amount of \$1,702,000 for the Purpose of Refunding Certain Outstanding Obligations of the District and Refinancing of a Short Term Obligation Pursuant to the Provisions of KRS 278.300 and 807 KAR 5:001, Case No. 2020-00151 (Ky. PSC June 26, 2020).*

1 local environment and promote the economic development of McCreary County. It
2 will strengthen McCreary District's sewer operations by increasing the number of
3 customers served and laying the foundation for further system expansions that will lead
4 to greater economies of scale. I recommend that the Public Service Commission grant
5 McCreary District a certificate of public convenience and necessity to construct the
6 Project and authorize McCreary District to enter into the proposed Assistance
7 Agreement with KIA to borrow \$3,244,500. I request that the Public Service
8 Commission issue its decision on McCreary District's Application no later than
9 March 5, 2021.

10 **Q. Does this conclude your testimony?**

11 A. Yes.

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF MCCREARY)

The undersigned, **Stephen Whitaker**, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing testimony and that the answers contained therein are true and correct to the best of his information, knowledge and belief.


STEPHEN WHITAKER

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 15 day of January, 2021.


Notary Public

Notary ID: 603026

My Commission Expires: 7/13/2022

EXHIBIT 18

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

| | | |
|---|---|----------------------------|
| ELECTRONIC APPLICATION OF |) | |
| MCCREARY COUNTY WATER DISTRICT |) | |
| FOR AUTHORIZATION TO EXECUTE AN |) | |
| ASSISTANCE AGREEMENT WITH THE |) | |
| KENTUCKY INFRASTRUCTURE |) | CASE NO. 2020-00399 |
| AUTHORITY AND FOR A CERTIFICATE OF |) | |
| PUBLIC CONVENIENCE AND NECESSITY |) | |
| TO CONSTRUCT THE SANITARY SEWER |) | |
| COLLECTION SYSTEM EXPANSION |) | |
| PHASE 1 PROJECT |) | |

DIRECT TESTIMONY OF
ALAN R. ROBINSON, P.E.
PRESIDENT, ECLIPSE ENGINEERS, PLLC

Filed: January 15, 2021

1 **Q. Please state your name, position, and business address.**

2 A. My name is Alan R. Robinson. I am President of Eclipse Engineers, PLLC, a
3 consulting engineering firm. My business address is 113 West Mt. Vernon Street,
4 Somerset, Kentucky 42501.

5 **Q. Briefly describe your educational and professional background.**

6 A. I hold a Bachelor of Science degree in Civil Engineering from the University of
7 Kentucky. I am licensed as a professional engineer in the state of Kentucky (License
8 No. 23414). I am a member of the American Water Works Association and the Water
9 Environment Federation.

10 **Q. Have you ever testified before the Kentucky Public Service Commission?**

11 A. No.

12 **Q. What is the purpose of your testimony?**

13 A. The purpose of my testimony is to describe McCreary County Water District's existing
14 sewage treatment and collection facilities, describe the facilities that McCreary District
15 proposes to construct as part of its Sanitary Sewer Collection System Expansion Phase
16 I Project ("Project"), and explain how the process by which Flo-Line Contracting LLC
17 was selected to construct the Project.

18 **Q. Is Eclipse Engineers, PLLC currently engaged by McCreary County Water
19 District ("McCreary District") to provide consulting engineering services?**

20 A. Yes.

21 **Q. Please describe McCreary District's current sewage treatment and collection
22 facilities.**

23 A. McCreary District provides sewer service to approximately 1,142 customers, including

1 the United States Penitentiary McCreary. It owns and operates a sewage treatment
2 facility that has a total daily treatment capacity of 900,000 gallons, over 294 miles of
3 sewer lines and 20 lift stations. It employs five full-time employees for its sewer
4 operations.

5 **Q. Please describe the proposed Project.**

6 A. The Project involves the extension of low-pressure sewer force main from Stearns,
7 Kentucky northwest along Kentucky Route 92 to the Smithtown area of McCreary
8 County and northeast along Kentucky Route 701 from the intersection of Kentucky
9 Route 701 and Kentucky Route 92, as well as the side roads along these routes. The
10 Project will result in the construction or installation of 28,750 linear feet of 1.5-inch
11 high density polyethylene force main; 28,286 linear feet of 2-inch polyvinyl chloride
12 (“PVC”) force main; 7,185 linear feet of 3-inch PVC force main; 10,399 linear feet of
13 4-inch PVC force main; 17,300 linear feet of 4-inch PVC gravity sewer main; and 240
14 grinder pump stations. Maps of the proposed route of the proposed facilities are found
15 at Tab 7 of McCreary District’s Application.¹ The Kentucky Water Resource
16 Information System has assigned the identifier “SX21147109” to the Proposed
17 Facilities.

18 **Q. Did you prepare an engineering report outlining the reasons for the project and**
19 **the possible alternatives?**

20 A. Yes. A copy of the preliminary engineering report is attached as Exhibit 10 to

¹ These maps reflect the Sanitary Sewer Collection System Expansion Project – Phase I as originally proposed. As a result of the bids received on this project, the proposed facilities that are east and south of Whitley City are those that were included in Additive Alternative No. 2 and will not be constructed at this time due to funding limitation. McCreary District is not requesting a certificate of public convenience and necessity for those facilities. Detailed maps of the proposed facilities can be found at Tab 8, Sheets 3 through 32.

1 McCreary District's Application. The final engineering report is attached as
2 Exhibit 11.

3 **Q. Why is the Project needed?**

4 **A.** According to the U.S. Census Bureau, there are approximately 6,052 households in
5 McCreary County. Only about one-fifth of these households are connected to
6 McCreary District's sewer collection system. The remaining households use septic
7 systems or have straight pipes. The existing soil conditions in McCreary County do
8 not favor septic lines or septic systems. The wet, marsh soil prevents water from
9 percolating into the soil, resulting in soil erosion and ground movement. These
10 conditions typically cause the deterioration of residential sewer septic lines and lead to
11 septic system failures. These failures result in contaminants leaching into the soil and
12 the water table and creating public health and environmental problems.

13 Some of the areas that the Project will serve have significantly rocky soil that
14 make the installation of septic systems difficult. Some of the residences currently in
15 these areas do not have septic systems but have straight pipes that discharge wastewater
16 directly into the land. These straight pipes increase the risk of significant health and
17 environmental problems, as well as threatening the local water supply.

18 The proposed expansion will lessen these problems by permitting residences
19 and structures that presently rely on a septic systems or straight pies to connect to a
20 public wastewater treatment facility.

21 The greater availability of public sewers is expected to assist the local economy.
22 It should encourage the construction of additional residential housing and commercial

1 buildings. It will also better enable McCreary County to attract commercial and
2 industrial investment and spur economic development.

3 **Q. What alternatives to the Project were considered?**

4 **A.** McCreary District considered the extending a conventional gravity sewer system for
5 its existing gravity sewers in Sterns but found such an alternative cost prohibitive. Only
6 a small portion of McCreary District’s sewer collection system consists of gravity fed
7 sewers. The majority of its customers are served by residential grinder pump stations
8 and forced sewer mains. The use of gravity sewers is problematic because most
9 development in McCreary County currently occurs along ridgetops. The deep terrain
10 adjacent to these ridgetops is difficult and costly to access and construct gravity sewers.
11 The alternative to the Project required the construction of five 50 gallon per minute
12 (“GPM”) pump stations, five 150 GPM pump stations, 15,000 linear feet of 4-inch
13 force main, 95,000 linear feet of 8-inch main and 300 manholes. The estimated total
14 cost of this alternative was \$7.5 million.

15 **Q. What is the useful service life of the Project’s proposed facilities?**

16 **A.** The useful life of the proposed facilities will vary. In general, concrete and fixed
17 structures will have a useful life of 30 to 40 years. Equipment, moving parts, and items
18 exposed to raw wastewater will have a shorter useful life of around 20 years. The
19 proposed grinder pumps, floats, switches, etc. will have a useful life of about 8 years.
20 However, these items with moving parts only constitute about 20 percent of the initial
21 installed cost. Items with a shorter useful life are maintained and replaced annually
22 throughout the system by McCreary District’s staff through McCreary District’s
23 operating budget. The force mains will have a useful life between thirty and forty years.

1 **Q. Did you prepared or supervise the preparation of the plans and specifications for**
2 **the Project?**

3 A. Yes, I did. A copy of the Project’s plans is attached to McCreary District’s Application
4 as Exhibit 8. The Project’s specifications are attached to the Application as Exhibit 9.

5 **Q. Has the Kentucky Division of Water (“KDOW”) approved the plans for the**
6 **Project?**

7 A. Yes. The KDOW has reviewed the plans and specifications for the Project’s proposed
8 facilities and has approved them with respect to sanitary features of design. A copy of
9 the letter in which the KDOW stated its approval is attached to McCreary District’s
10 Application as Exhibit 3.

11 **Q. Has McCreary District received all of the required permits from the Kentucky**
12 **Department of Highways to proceed with the construction of the proposed**
13 **facilities?**

14 A. Yes. The Kentucky Department of Highways has issued encroachment permits for
15 McCreary District to perform excavations in the right-of-way of state highways and
16 roads. A copy of these permits is attached to McCreary District’s Application as
17 Exhibit 4. Additionally, McCreary County Fiscal Court has granted McCreary District
18 authority to locate its facilities on McCreary County roads. Evidence of this authority
19 is attached as Exhibit 5 to McCreary District’s Application.

20 **Q. Has McCreary District requested bids on the contract to construct the Project?**

21 A. Yes. McCreary District caused to be published in the November 19, 2020 edition of
22 *The McCreary County Voice* an advertisement for bids for “Sanitary Sewer Collection
23 System Expansion Phase 1 – Contract No. 39” (“Contract”). A copy of this

1 advertisement is attached as Exhibit 12 to McCreary District's Application. The
2 Contract as advertised consisted of a base bid and two additive alternates.

3 **Q. What was the result of the advertisement for bids?**

4 **A.** Six firms submitted bids in response to the advertisement. All combined bids for the
5 base bid and Additive Alternatives No. 1 and No. 2 exceeded McCreary District's
6 available funding. A copy of the certified bid tabulations is attached as Exhibit 13 to
7 McCreary District's Application. 20. The lowest combined bids for the base bid and
8 Additive Alternate No. 1 were a bid of \$2,609,316 from Frederick and May
9 Construction Co, Inc. of West Liberty, Kentucky and a bid of \$2,623,071 from Flo-
10 Line Contracting LLC of Monticello, Kentucky.

11 **Q. Was Frederick and May Construction Co, Inc. ("Frederick") awarded the**
12 **Contract as the lowest bidder?**

13 **A.** No. After tabulating the bids, I made inquiries to the references that Frederick supplied
14 with its bid. Neither McCreary District nor I had previously used Frederick's services.
15 These references provided negative reviews of Frederick's prior work performances.
16 Among the problems cited were an excessive number of change order request, the lack
17 of a consistent presence of the job site and the failure to complete site restoration in
18 timely or proper manner. Given the distance of Frederick's offices from the Project's
19 job site and that site restoration is a critical element of the Project, I concluded that
20 Frederick has not qualified to perform its obligations under the Contract and
21 recommended to McCreary District's Board of Commissioners that its bid be rejected.
22 I further recommended that Flo-Line Contracting LLC be awarded the Contract. A
23 copy of my recommendation to McCreary District's Board of Commissioners is

1 attached to McCreary District's Application as Exhibit 14. It should be noted that the
2 difference between Frederick's bid and that of Flo-Line Contracting LLC is \$13,755,
3 or about 0.5 percent of the awarded contract amount.

4 After considering my recommendation, the Board of Commissioners on
5 December 29, 2020 awarded the Contract to Flo-Line Contracting LLC. A copy of the
6 Board of Commissioner's resolution is attached to McCreary District's Application as
7 Exhibit 15.

8 **Q. What is the total estimated cost of the Project?**

9 A. \$3,244,500. A breakdown of this estimated is found on the last page of the Final
10 Engineering Report.

11 **Q. When will construction on the Project begin?**

12 A. McCreary District anticipates that construction on the Project will begin as soon as the
13 Public Service Commission issues a certificate of public convenience and necessity for
14 the proposed project and authorizes McCreary District to enter its proposed assistance
15 agreement with the Kentucky Infrastructure Authority.

16 **Q. How long is the estimated construction period for the Project?**

17 A. 365 days.

18 **Q. What is the useful service life of the Project's proposed facilities?**

19 A. The useful life of the proposed facilities will vary. In general, concrete and fixed
20 structures will have a useful life of 30 to 40 years. Equipment, moving parts, and items
21 exposed to raw wastewater will have a shorter useful life of around 20 years. The
22 proposed grinder pumps, floats, switches, etc. will have a useful life of about 8 years.
23 However, these items with moving parts only constitute about 20 percent of the initial

1 installed cost. Items with a shorter useful life are maintained and replaced annually
2 throughout the system by McCreary District's staff through McCreary District's
3 operating budget. The force mains will have a useful life between thirty and forty years.

4 **Q. Did McCreary District prepare a detailed estimate of the property that it will**
5 **acquire as a result of the proposed project?**

6 A. Yes. This estimate, arranged according to the Uniform System of Accounts for Sewer
7 Utilities, is attached to McCreary District's Application as Exhibit 22.

8 **Q. Did McCreary District determine the cost of operating the proposed facilities**
9 **upon their completion?**

10 A. Yes. According to McCreary District's historical records, the average annual cost for
11 McCreary District to operate a grinder pump is \$40. Assuming 240 grinder pumps are
12 installed and placed into operation, McCreary District estimates that the annual cost to
13 operate the Proposed Facilities will be \$9,600.

14 **Q. What is your recommendation concerning the Project?**

15 A. The Project will enable McCreary District to expand its sewer collection system to
16 increase its customer base and thus spread its operating costs over a larger number of
17 customers. More importantly, it will improve the public health and local environment
18 by eliminating a large number of septic tanks and straight pipes and will protect
19 McCreary District's water supply. Finally, it is likely to spur economic development
20 in McCreary County. I recommend that the Commission grant McCreary District a
21 certificate of public convenience and necessity to construct the Project.

22 **Q. Does this conclude your testimony?**

23 A. Yes.

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF PULASKI)

The undersigned, **Alan R. Robinson**, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing testimony and that the answers contained therein are true and correct to the best of his information, knowledge and belief.

Alan R. Robinson

ALAN R. ROBINSON

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 15th day of January, 2021.

And B. White

Notary Public

Notary ID: 579303

My Commission Expires: May 12, 2021

EXHIBIT 19

KENTUCKY INFRASTRUCTURE AUTHORITY
Minutes of the Full Board

Meeting Date/Location: June 4 2020 – 1:00 p.m.
Kentucky Infrastructure Authority
Via Video Conference

Members present:

Mr. Dennis Keene, Commissioner, Department for Local Government
Mr. Winston Miller, proxy for. Holly M. Johnson, Secretary, Finance and Administration Cabinet
Mr. Paul Miller, proxy for Rebecca Goodman, Secretary, Energy and Environment Cabinet
Mr. Claude Christensen, representing Kentucky League of Cities
Mr. Ron Lovan, Representing the Kentucky Section of the American Water Works Association
Mr. Kent Chandler, Executive Director, Public Service Commission
Mr. Bobby Aldridge, proxy for Interim Secretary Larry Hayes, Cabinet for Economic Development
Mr. Russell Rose, representing Kentucky Rural Water Association
Mr. David A. Voegele, representing Kentucky Association of Counties
Mr. Robert A. Amato, representing Kentucky Municipal Utilities Association
Mr. Kurt Stafford, representing the For-Profit Water Companies

DLG Staff:

Mr. Eddie Jacobs, Chief of Staff
Mr. Matthew Stephens, General Counsel
Ms. Kim Wooldridge, Executive Assistant

KIA Staff:

Ms. Edith Halbleib, Executive Director
Ms. Linda Bridwell, Deputy Executive Director
Mr. Jeff Abshire, Fiscal Officer and KIA Treasurer
Ms. Julie Bickers, Regional Compliance Coordinator
Mr. Bryan Bunch, Systems Engineer IT
Mr. Kelly Cunnagin, Executive Staff Assistant
Mr. Dustin Horn, WRIS Geoprocessing Specialist
Ms. Debbie Landrum, Regional Compliance Coordinator
Ms. Meg Link, Administrative Specialist III and KIA Secretary
Mr. James Nelson, Accountant/Grants
Mr. Don Schierer, WRIS Resource Management Analyst
Ms. Sarah Parsley, Regional Compliance Coordinator
Mr. Tom Schubert, GIS Specialist
Ms. Meili Sun, Financial Analyst

Guests:

Mr. Jory Becker, Division of Water
Mr. Kenny Cornett, Morehead Utility Plant Board
Ms. Bethany Couch, Office of Financial Management
Mr. Kyle Cunningham, Pennyryle Area Development District
Mr. Matt Curtis, Bluegrass Engineering
Mr. Gary Damron, City of Salem
Ms. Jocelyn Gross, Gateway Area Development District
Mr. Jeremy Lewis, Morehead Utility Plant Board

Mr. Jim McCarty, Cave Run Water Commission
Ms. Holly McGrath-Rosas, Morehead Utility Plant Board
Mr. Alan Robinson, Eclipse Engineers, PLLC
Mr. Larry Tackett, Morehead Utility Plant Board
Mr. Stephen Whitaker, McCreary County Water District
Ms. Sandy Williams, Office of Financial Management
Mr. Larry Workman, Cave Run Water Commission

PROCEEDINGS

Commissioner Dennis Keene, called the meeting of the Kentucky Infrastructure Authority (KIA) Board to order. He noted that the press notification distribution had been done appropriately and confirmed a quorum was present. Meg Link, KIA Secretary was asked to call the Roll. Commissioner Keene asked for those wishing to be recorded as an attendee in the Minutes to please send a chat message with their information.

I. BUSINESS (Board Action Required)

1. APPROVAL OF MINUTES

For: KIA Regular Board Meeting of May 7, 2020

Mr. Kent Chandler noted he abstained from voting on the Northern Kentucky Water District, (F20-044), project and asked for it to be included as a revision. Mr. Kent Chandler moved to approve the minutes of the May 7, 2020, regular board meeting, with the noted revision. Mr. Kurt Stafford seconded, and the motion carried unanimously.

B. NEW PROJECTS/ACTION ITEMS

1. A RESOLUTION AND ORDER OF THE BOARD OF DIRECTORS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING ISSUANCE OF A CONDITIONAL COMMITMENT FOR A FEDERALLY ASSISTED CLEAN WATER REVOLVING FUND A LOAN (A20-020) FOR AN AMOUNT UP TO \$1,363,200 TO THE CITY OF MOREHEAD, ROWAN COUNTY, KENTUCKY

Mr. Jory Becker, DOW, Ms. Linda Bridwell, and Ms. Holly McGrath-Rosas, representing the City of Morehead, discussed the City's request for a Fund A Loan, (A20-020) for an amount up to \$1,353,200 for the Derrickson Lift Station Upgrade project. They are co-funding the loan with the Kentucky Transportation Cabinet. The project will improve and promote public health and environmental safety by eliminating SSO events. This project will involve replacing the existing Derrickson Lift Station and corresponding force main to address sanitary sewer overflow (SSO) events by constructing a new lift station on the adjacent site. The new lift station (approximately 700 GPM) will be designed with higher flow pumps and a larger wet well, designed to current regulations. Due to the expansion and growth in customer base in the northern part of Rowan County, approximately 14,000 LF of 10-inch force main would be installed to replace the existing 6-inch force main to increase capacity within this section of the collection system. A segment of the force main, approximately 9,800 linear feet, will be realigned from the existing location beginning at the intersection of KY-32 and Litton Road. The realignment is needed for better operations and efficiency.

The Morehead Utility Plant Board currently serves 5,581 sewer customers, 3,453 water customers, and also provides natural gas to customers in Rowan County.

Mr. Kent Chandler asked Ms. Bridwell about the financials. He asked if KIA staff takes into consideration the non-cash expenses to ensure the appropriate depreciation is included in the financial statement and the cash snapshot. Ms. Bridwell said staff does review it and it is included in consideration. Staff simplifies the form for presentation purposes. Morehead has a strong financial position.

Mr. Claude Christensen moved to approve the Fund A Loan increase, (A20-020), for an amount up to \$1,363,200 with the standard conditions. Mr. Winston Miller seconded and the motion was unanimously approved.

2. A RESOLUTION AND ORDER OF THE BOARD OF DIRECTORS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING ISSUANCE OF A CONDITIONAL COMMITMENT FOR A FEDERALLY ASSISTED CLEAN WATER REVOLVING FUND LOAN (A20-047) FOR AN AMOUNT UP TO \$3,244,500 TO THE MCCREARY COUNTY WATER DISTRICT, MCCREARY COUNTY, KENTUCKY

Mr. Jory Becker, DOW, and Ms. Meili Sun, KIA, discussed the District's request for a Fund A Loan for an amount up to \$3,244,500 for the Sanitary Sewer Collection System Expansion – Phase 1 project. This project will expand the sanitary sewer collection system to serve 305 new customers in the Stearns and Smithtown areas. Many of these underserved customers either have failing septic systems or discharge directly into the environment.

The collection system expansion will consist of approximately 66,500 linear feet of PVC sewer line extension of various sizes, 15 manholes, 275 grinder pump stations, and other appurtenances such as air release valves and flushing connections. The purpose of this project is to expand the sanitary sewer collection system to spread the cost of services across more customers while protecting the environment from failing septic tanks and straight pipes.

The District currently serves approximately 1,100 retail customers in McCreary County and provide wholesale water to the Whitley County Water District and the City of Oneida in Tennessee. Both McCreary and Whitley County Water Districts are under the Public Service Commission jurisdiction ("PSC") and subject to PSC rate regulations. The District had not sold any water to Oneida in the past 3 years due to the need basis agreement but may resume sales in 2020 and 2021 to supply water for Oneida's source water project.

Mr. Kent Chandler asked if someone from the McCreary County Water District could answer a couple of questions. Mr. Alan Robinson, Eclipse Engineering and Mr. Stephen Whitaker with the District, said they would be happy to answer any questions. Mr. Chandler asked if the 2019 financials been completed. Mr. Whitaker noted they have not been finalized and they have been in contact with the auditors, who expect it to be completed soon. Mr. Chandler asked about the \$3.6 million and anticipated 300 additional customers expected with this project, was there for possibly additional customers. Mr. Robinson noted the lines are sized for future customers and potentially could extend the service to 350 or 400 customers should there be remaining funds. This also allows for meeting the Division of Water's hydraulic requirements to not oversize the lines.

Mr. Kent Chandler abstained from voting. Mr. Ron Lovan moved to approve the Fund A Loan (A20-047) for an amount up to \$3,244,500 with the standard conditions and the

following special conditions as required by the PSC: 1) The District shall apply to the Public Service Commission (PSC), pursuant to KRS 278.300, for debt authorization for KIA loan A20-047. This debt authorization application should include a forecast meeting debt service projected through 2025; and 2) Prior to the assistance agreement being executed, the District must receive a Certificate of Public Convenience and Necessity, pursuant to KRS 278.020, from the PSC for any portion of the project that may require it, or provide an opinion from legal counsel or the staff of the PSC, or a declaratory order from the PSC, that a CPCN is not required for any portion of the assets to be constructed as part of the loan agreement.. Mr. Russ Rose seconded and the motion was unanimously approved.

3. A RESOLUTION AND ORDER OF THE BOARD OF DIRECTORS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING AN AMENDMENT TO THE CONDITIONAL COMMITMENT FOR A FEDERALLY ASSISTED DRINKING WATER REVOLVING FUND F LOAN (F17-007) INCREASE FOR AN AMOUNT UP TO \$1,005,344 TO THE CITY OF OLIVE HILL, CARTER COUNTY, KENTUCKY

Mr. Jory Becker, DOW, and Ms. Linda Bridwell, KIA, discussed the City of Olive Hill's request for a Fund F Loan increase, (F17-007) that was originally approved in October 2016 for \$883,00, the requested increase amount is \$122,344 for a total loan up to \$1,005,344 for the Olive Hill Downtown Area Waterline Replacement Project. The increase will fund various unanticipated connection issues that were identified during construction. The project replaced approximately 5,900 linear feet of failing cast iron water lines in the downtown area of Olive Hill with new PVC lines. The area covered in this project was determined by water loss studies to have an estimated 50% loss and is also the oldest part of the system. In addition to the line replacement, the project replaced several hydrants as well as facilitated the inspection, rehabilitation, and recommission of the Tick Ridge standpipe water tank. The recommission of the tank will add 250,000 gallons to the current storage capacity of the City's water system and stabilized the available volume and pressure for the downtown area.

The City provides approximately 2,200 water customers and 900 sewer customers. Additionally, they provide electricity, natural gas and sanitation services.

Mr. Kurt Stafford asked Ms. Bridwell about the debt coverage ratio and asked how often staff reviews that information and how does staff stay up-to-date. Ms. Bridwell stated that one of the conditions of their loan agreement is yearly audits must be submitted within 180 days. Staff reviews these audits to ensure they are meeting their debt coverage ratio. If not, we contact the borrower. Mr. Kent Chandler asked if not submitting their audits within the 180 timeframe a violation of their loan agreement. Ms. Bridwell noted that it was a violation and that KIA staff is working with Rubin & Hays, KIA's legal counsel to determine a course of action. Currently, staff continues to reach out to borrowers about any non-compliance issues. Borrowers are told no additional funding will be available through KIA unless their current loans are in good standing with us.

Mr. Claude Christensen moved to approve the Fund F Loan increase (F17-007) of \$122,344 for a total loan amount up to \$1,005,344 to the City of Olive Hill with the standard conditions. Judge David Voegele seconded and the motion was unanimously approved.

4. A RESOLUTION AND ORDER OF THE BOARD OF DIRECTORS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING ISSUANCE OF A CONDITIONAL COMMITMENT FOR A FEDERALLY ASSISTED DRINKING WATER REVOLVING FUND LOAN (F20-017) FOR AN AMOUNT UP TO \$585,000 TO THE CITY OF SALEM, LIVINGSTON COUNTY, KENTUCKY

Mr. Jory Becker, DOW, and Ms. Meili Sun, KIA discussed the City's request for a Fund F Loan for an amount up to \$585,000 for the for the first phase of the Water Main Replacement Project. This phase will concentrate on the western supply route connecting Salem Municipal Water System to the Crittenden-Livingston County Water District. The City has been experiencing water line failures in the area due to corrosion of aging cast iron pipes, which cause service outages and water losses in the area. The scope of work involves replacement of 5,500 linear feet of existing lines with 6" PVC lines and addition of 8 valves and 3 hydrants to the distribution system.

The City purchases 100% of its water supply from the Crittenden-Livingston County Water District to serve approximately 450 retail customers in the City. The City's water purchase rates are regulated by the Public Service Commission.

Mr. Kent Chandler abstained from voting. Mr. Russ Rose moved to approve the Fund F Loan (F20-017) in an amount up to \$585,000 to the City of Salem with the standard conditions. Mr. Ron Lovan seconded and the motion was unanimously approved.

5. A RESOLUTION AND ORDER OF THE BOARD OF DIRECTORS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING ISSUANCE OF A CONDITIONAL COMMITMENT FOR A FEDERALLY ASSISTED DRINKING WATER REVOLVING FUND LOAN (F20-021) FOR AN AMOUNT UP TO \$1,171,350 TO THE CAVE RUN WATER COMMISSION, MENIFEE COUNTY, KENTUCKY

Mr. Jory Becker, DOW, and Ms. Linda Bridwell, KIA discussed the Commission's request for a Fund F Loan (F20-021) for an amount up to \$1,171,350 for the Elevated Water Storage Tank Construction project. This project will construct a new water tank in order to provide purchase source water protection and water supply redundancy that is currently lacking in the system. A new 300,000 gallon elevated storage tank will be constructed on the Menifee and Morgan County Line to service the City of Frenchburg, City of Jeffersonville, and the Morgan County Water district. SCADA will be installed at the tank to enable remote reading and level control from the Water Treatment Plant along with a security fence and approximately 800 LF of 12" PVC waterline to connect the new tank to the existing transmission line.

With Cave Run Water Commission's current system configuration and operations, Morgan County Water District's Ezel Water Tank (150,000 gallons) empties in 10-12 hours when Cave Run stops producing water at the water treatment plant. The Ezel Water Tank has been emptied two times in the past year because it cannot be filled when the plant isn't producing water by constructing a new water tank, Cave Run Water Commission will be able to provide additional storage for the service area and allow the Ezel Water Tank to be filled when the water treatment plant is shutdown between production. Cave Run Water Commission provides approximately 40-50% of Morgan County Water District's water; 95-99% of the City of Frenchburg's water; and 95-99% of the City of Jeffersonville's water. In total,

Cave Run Water Commission indirectly services a population of 18,900 from the Cave Run Tank and sells an average of 1 million gallons of water to wholesale customers each day.

Mr. Claude Christensen moved to approve the Fund F Loan (F20-021) for an amount up to \$1,171,350 to the Cave Run Water Commission with the standard conditions. Judge David Voegele seconded and the motion was unanimously approved.

6. RESOLUTION OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING AND APPROVING THE ISSUANCE OF OBLIGATIONS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY TO REIMBURSE CAPITAL EXPENDITURES MADE BY GOVERNMENTAL AGENCIES PURSUANT TO LOANS MADE BY THE KENTUCKY INFRASTRUCTURE AUTHORITY TO SUCH GOVERNMENTAL AGENCIES

This is a routine resolution allowing KIA to reimburse expenses that are paid out of the Authority’s funds with bond proceeds. The projects listed below are covered under this resolution:

| <u>BORROWER</u> | <u>FUND</u> | <u>AMOUNT UP TO</u> |
|--------------------------------|--------------------|----------------------------|
| City of Morehead | A20-020 | \$1,363,200 |
| McCreary County Water District | A20-047 | \$3,244,500 |
| City of Olive Hill (Increase) | F17-007 | \$ 122,344 |
| City of Salem | F20-017 | \$ 585,000 |
| Cave Run Water Commission | F20-021 | \$1,171,350 |

Mr. Russ Rose moved to approve the reimbursement resolution. Mr. Kent Chandler seconded and the motion carried unanimously.

7. RESOLUTION AND ORDER OF THE BOARD OF DIRECTORS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING APPROVAL FOR THE FILING OF AN APPLICATION WITH THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY FOR THE FEDERAL FISCAL YEAR 2020 CAPITALIZATION GRANT FOR THE DRINKING WATER REVOLVING FUND

Mr. Bob Amato moved to approve the filing of the 2020 Capitalization Grant for the Drinking Water Revolving Fund. Judge David Voegele seconded and the motion carried unanimously.

8. RESOLUTION AND ORDER OF THE BOARD OF DIRECTORS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING APPROVAL FOR THE FILING OF AN APPLICATION WITH THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY FOR THE FEDERAL FISCAL YEAR 2020 CAPITALIZATION GRANT FOR THE WASTEWATER REVOLVING FUND

Mr. Russ Rose moved to approve the filing of the 2020 Capitalization Grant for the Wastewater Revolving Fund. Mr. Bob Amato seconded and the motion carried unanimously.

EXECUTIVE DIRECTOR'S REPORT

Executive Director Edith Halbleib discussed the Intended Use Plans – The IUP for the Clean Water State Revolving Fund and the Drinking Water State Revolving Fund are in the final edit stages. A public meeting is provisionally scheduled for 2:30 p.m., on June 18, 2020 to be conducted as an interactive virtual Zoom meeting, with a link posted on the website. The project lists and proposed principal forgiveness for FY 2021 are ready and the invitations are loaded into the system, to be emailed at the publishing of the IUPs.

The KIA recommendation in the IUPs reflects the project priorities established last summer. The plan lowers the interest rates on the lowest tier, those borrowers whose MHI is below 80% of the state average. The middle tier and the standard tier remain the same. The recommendation reflects a balance between reasonable rates and adverse long term impacts lower rates to the Fund.

The decision to adjust rates is a function of current market rates, balanced against the long term effects to the program, in reducing rates. Per the recommendation of the Treasurer, program demand, the differences in borrowing capacity for smaller and/or lower income communities were considerations behind the recommendation. The KIA addressed the smaller and lower income communities by reducing the lower tier by 0.25 points, as well as general market conditions for construction demand.

KIA has eight projects to take to the CPBOC this month. With the approval of the ones today, KIA will also have 5 more to present to the CPBOC. CPBOC has moved its meeting back this month, which allows the KIA to present to CPBOC in the same month as the Board approves the projects. After projects are approved at CPBOC, they still require an assistance agreement.

It was also noted, that Jeff Abshire, KIA Treasurer, has given his notice and will be leaving this month. He has been with the agency for 9 years. There are two other positions available for financial analysts. If anyone is aware of someone that might be interested the positions are posted on the Personnel website or let her know.

Mr. Russ Rose noted the presentations and asked if there was any way to note the non-compliant borrowers and what issues need to be addressed. Mr. Kent Chandler concurred and noted it would be helpful information to be included in the future. Ms. Halbleib said that should not be a problem and staff will do so moving forward.

ANNOUNCEMENTS/NOTIFICATIONS

- Next scheduled KIA board meeting:
Thursday, July 9, 2020, 1:00 p.m.

There being no further business, Judge David Voegle moved to adjourn. Mr. Kent Chandler seconded and the motion carried unanimously. The June 4, 2020 meeting of the Board of the Kentucky Infrastructure Authority was adjourned.

Submitted by:


Margaret F. Link, Secretary
Kentucky Infrastructure Authority

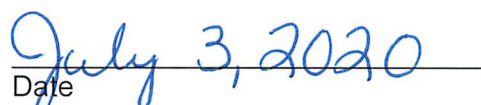

Date

EXHIBIT 20



KENTUCKY INFRASTRUCTURE AUTHORITY

Andy Beshear
Governor

100 Airport Road
Frankfort, Kentucky 40601
(502) 573-0260
(502) 696-0676 (fax)
kia.ky.gov

Edith Halbleib
Executive Director

June 25, 2020

The Honorable Randy Kidd, Chairman
McCreary County Water District
PO Box 488
Whitley City, KY 42653

KENTUCKY INFRASTRUCTURE AUTHORITY FEDERALLY ASSISTED WASTEWATER REVOLVING LOAN FUND CONDITIONAL COMMITMENT LETTER (A20-047)

Dear Chairman Kidd:

The Kentucky Infrastructure Authority ("the Authority") commends your efforts to improve public service facilities in your community. On June 4, 2020, the Authority approved your loan for the Sanitary Sewer Collection System Expansion - Phase 1 project subject to the conditions stated in Attachment A to this letter. The total cost of the project shall not exceed \$3,644,500, without prior authorization of the Authority, of which the Authority loan shall provide \$3,244,500 of the funding. Other anticipated funding for the project is reflected in Attachment B. The final loan amount will be equal to the Authority's portion of estimated project cost applied to the actual project cost. Attachment B incorporated herein by reference fully describes the project.

An Assistance Agreement will be executed between the Authority and the McCreary County Water District upon satisfactory performance of the conditions set forth in Attachment A. You must meet the conditions set forth in Attachment A and enter into an Assistance Agreement by June 25, 2021 (twelve months from the date of this letter). 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.

Chairman Kidd
June 25, 2020
Page 2

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,



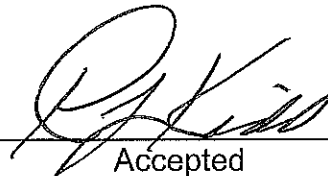
Linda Bridwell, PE
Deputy Executive Director
Kentucky Infrastructure Authority

Attachments

cc: Judy Hachey, LCADD
Eclipse Engineers, PLLC, Alan Ray Robinson

Please sign and return a copy of this letter indicating your acceptance of this commitment and its terms along with the completed "Transparency Act Reporting Information Form". Complete the attached "Authorization for Electronic Deposit of Vendor Payment Form" and the "ACH Debit Authorization Form" **and return to the US Bank address at the bottom of each form**. Also included are the "Legal Counsel Certification Letter" sample and the "Statement of Approval of Projections of Revenue and Expenses" for you to complete at the appropriate time.

We have attached an SRF loan checklist to use as a guide.



Accepted

7/9/20

Date

*Sent to Judy
She sent to KIFA*

The Assistance Agreement and this commitment shall be subject, but not limited to, the following terms:

1. The Authority project loan shall not exceed \$3,244,500 without prior authorization.
2. Principal forgiveness of 50% of the assistance amount, not to exceed \$450,000 will be credited to the loan balance upon release of liens on all contracts and disbursement of the final draw request by KIA to the borrower.
3. The loan shall bear interest at the rate of 0.50% per annum commencing with the first draw of funds.
4. Interest shall be payable on the unforgiven 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. KIA requires the use of Automated Clearing House (ACH) debits for payment of all balances due on the loan. This will ensure that payments are credited timely to your account without the risk of incurring late payment fees. If the due date falls on a weekend or holiday your account will be debited on the next business day. Please complete and return the attached authorization to U.S. Bank for processing.
5. 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.
6. The loan shall be repaid over a period not to exceed 30 years from the date of initiation of operation for the project.
7. A loan servicing fee of 0.20% of the outstanding loan balance shall be payable to the Authority as a part of each interest payment.
8. Loan funds will only 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 "A" loan funds may be considered to be federal funds. If more than \$750,000 of federal funds is disbursed during any one (borrower) fiscal year, the borrower is required to have a single or program-specific audit conducted for that year in accordance with 2 CFR 200 Uniform

Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards.

11. The Authority requires that an annual financial audit be provided for the life of the loan.
12. The final Assistance Agreement must be approved by ordinance or resolution, as applicable, of the city council or appropriate governing board.
13. The borrower must maintain a 1.1 debt coverage ratio throughout the life of the KIA loan. All borrowers are subject to at least an annual financial review for compliance.

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. Any special conditions listed in Attachment B must be satisfied before the project is presented before the Committee.
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 forward the attached "Authorization for Electronic Deposit of Vendor Payment" form to US Bank.
7. The Borrower must provide documentation of Eclearinghouse Endorsement and Eclearinghouse Comments.

8. Prior to the project bid, an environmental review shall be conducted by the Division of Water for all construction projects receiving State Revolving Fund ("SRF") money.
9. Technical plans and specifications and a complete SRF specifications checklist shall be approved by the Division of Water prior to project bid.
10. 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.
11. Project changes or additions deviating from the original scope of work described in the Project Profile may require a new or amended environmental review and change order review before they can be included in the SRF loan project.
12. Borrower 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.
13. Implement the Kentucky Uniform System of Accounting (KUSoA), or an alternative approved by the Authority and assure that rates and charges for services are based upon the cost of providing such service.
14. 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 for all work relating to the subject Project.
15. 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.
16. This project does not qualify for Green Project Reserve (GPR) funding.
17. Based on the final "as-bid" project budget, the Borrower must provide satisfactory proof, based on then existing conditions, that the revenue projections in the attached descriptions are still obtainable and that the projections of operating expenses have not materially changed. The "as bid" project budget shall be reviewed and approved by the consulting engineer.

18. 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.
19. Pursuant to the Water Resources Reform and Development Act (WRRDA) of 2014, all CWSRF loan recipients must certify that they have a Fiscal Sustainability Plan for projects that involve the repair, replacement, or expansion of treatment works. Additionally, borrowers must also certify that they have studied and evaluated the cost and effectiveness of the processes, materials, techniques, and technologies for the funded project and that they have selected, to the maximum extent practicable, a project that maximizes the potential for efficient water and energy conservation, taking into consideration capital cost, operation and maintenance, and replacement cost.

Any special conditions stated in Attachment B must be resolved.

SRF LOAN CONDITIONS CHECKLIST

Congratulations on receiving a conditional commitment of funding from the State Revolving Fund (SRF) Program. Borrowers will now be assigned a Compliance Analyst to help guide them through the rest of the loan process based on which Area Development District (ADD) they are located. Please submit all documents to one of the following contacts:

- Julie Bickers (Julie.Bickers@ky.gov, 502-892-3455): Purchase, Pennyrite, Green River, Barren River, Lake Cumberland.
- Debbie Landrum (Debbie.Landrum@ky.gov, 502-892-3454): Lincoln Trail, KIPDA, Northern KY, Bluegrass.
- Sarah Parsley (Sarah.Parsley@ky.gov, 502-892-3177): Buffalo Trace, Gateway, FIVCO, Big Sandy, KY River, Cumberland Valley

After all of the conditions of the Conditional Commitment Letter have been fulfilled, KIA will initiate the Assistance Agreement with the borrower. The Assistance Agreement must be fully executed before any funds may be disbursed. The following is a list of items needed to process your loan (forms can be found here <https://kia.ky.gov/FinancialAssistance/Pages/Forms.aspx>):

Before bid opening, submit the following items to the designated Compliance Analyst/DOW Contact:

| Submit To: | |
|------------|---|
| KIA | <input type="checkbox"/> Conditional Commitment Letter (this letter is sent to the borrower via email shortly following KIA board approval and is to be signed by the authorizing official); |
| USBANK | <input type="checkbox"/> Authorization for Electronic Deposit/Debit of Borrower Disbursements/ Payment (these forms are attached to the loan commitment letter sent after KIA board approval and are to be signed by the authorizing official and forwarded directly to US Bank) |
| KIA | <input type="checkbox"/> Transparency Form (this form is attached to the loan commitment letter sent after KIA board approval) |
| DOW | <input type="checkbox"/> Fiscal Sustainability Plan Certification and Cost and Effectiveness Certification (required for "A" loans only, prior to plans approval) |
| DOW | <input type="checkbox"/> Environmental review (Kentucky Division of Water will review and is required prior to plans approval. KIA will need copy of approval letter) |
| DOW | <input type="checkbox"/> Plans and specifications (Kentucky Division of Water will review and KIA will need copy of approval letter) |
| KIA | <input type="checkbox"/> Proof of compliance with any special condition identified in the Conditional Commitment Letter (e.g. adopted ordinance) |

After the project has opened bids, please submit the following items to the designated Compliance Analyst/DOW Contact. It is imperative that the remaining standard conditions are fulfilled by the deadlines set forth in the Conditional Commitment Letter.

| Submit To: | |
|------------|---|
| DOW | <input type="checkbox"/> Authority to Award (ATA) Package , the Kentucky Division of Water will review and forward approval to KIA. |
| DOW | <input type="checkbox"/> Davis-Bacon prevailing wage rates , the Kentucky Division of Water will review and forward approval to KIA. |
| KIA | <input type="checkbox"/> Procurement and Wage Certification (KIA sends to borrower after bid opening.) |
| KIA | <input type="checkbox"/> Certification of obtainable revenue projections (KIA sends to borrower after bid opening.) |
| DOW | <input type="checkbox"/> Certification of clear site (DOW will forward to KIA.) |
| | <input type="checkbox"/> Plans and specifications approval from the Kentucky Division of Water (DOW will send approval to KIA.) |
| KIA | <input type="checkbox"/> Public Service Commission (PSC) approval , (CPCN and Authorization to Incur Debt) if applicable. |

**AUTHORIZATION FOR ELECTRONIC DEPOSIT
OF BORROWER PAYMENT
KENTUCKY INFRASTRUCTURE AUTHORITY
LOAN NUMBER: A20-047**

Borrower Information:

Name: _____

Address: _____

City: _____ State: KY Zip: _____

Federal I.D. #: _____ Telephone: _____

Contact Name: _____

Email: _____

Financial Institution Information:

Bank Name: _____

Branch: _____ Telephone: _____

City: _____ State: KY Zip: _____

Transit / ABA No: _____

Account Name: _____

Account Number: _____

I, the undersigned, authorize payments directly to the account indicated above and to correct any errors which may occur from the transactions. I also authorize the Financial Institution to post these transactions to that account.

Signature: _____ Date: _____

Name Printed: _____ Job Title: _____

**Send to: U.S. Bank
Attention: Corporate Trust Administration
One Financial Square
Mail Code: CN-KY-0850
Louisville, KY 40202**

KIA Loan # A20-047

ACH DEBIT AUTHORIZATION FORM

**AUTHORIZATION AGREEMENT FOR PRE-ARRANGED PAYMENTS
(DEBITS)**

The undersigned hereby authorizes U.S. Bank National Association Corporate Trust Department ("U.S. Bank") to initiate debit entries to the Checking Savings (specify type) account indicated below at the bank named below:

BANK NAME _____ BRANCH _____
CITY _____ STATE _____ ZIP CODE _____
BANK TRANSIT/ABA NO. _____ ACCOUNT NO. _____

This authority is to remain in full force and effect until U.S. Bank has received written notification from the undersigned of its termination in such time and in such manner as to afford U.S. Bank a reasonable opportunity to act. The undersigned has the right to stop payment of a debit entry by reasonable prior written notification to U.S. Bank. After the above account has been charged, the undersigned has the right to have the amount of any erroneous debit immediately credited to its account by U.S. Bank up to 30 days following issuance of a statement.

NAME OF ENTITY: _____
ADDRESS _____
TAX IDENTIFICATION NUMBER: _____

By _____ Dated _____
Authorized Signer

Send to: U.S. Bank
Attention: Corporate Trust Administration
One Financial Square
Mail Code: CN-KY-0850
Louisville, KY 40202

TRANSPARENCY ACT REPORTING INFORMATION FORM
CLEAN WATER STATE REVOLVING FUND
AND
DRINKING WATER STATE REVOLVING FUND

This form is required for projects funded in whole or in part from the Clean Water State Revolving Fund or the Drinking Water State Revolving Fund. This form is to be completed and returned with the signed Conditional Commitment Letter from the Kentucky Infrastructure Authority.

Borrower Information:

| | |
|--|--|
| Name: | |
| Data Universal Numbering system (DUNS) No.*: | |
| KIA Loan Number: | |
| Street Address | |
| City, State and Zip (Zip must include 4 digit extension) | |
| Federal Congressional District(s) of Borrower Utility Service Area: | |

*If the DUNS No. provided above is registered under a different name than the recipient of funding, please provide the registration name below:

| | |
|-----------|--|
| DUNS Name | |
|-----------|--|

*If the recipient has not yet obtained a DUNS Number, please do so no later than 30 days after the KIA Board approval date of your loan request and provide notification to KIA of the number once issued. For instructions on DUNS registration, please contact jeff.abshire@ky.gov.

Physical Location of Project (Primary Place of Performance)

| | |
|---|--|
| Street Address | |
| City, State and Zip (Zip must include 4 digit extension) | |
| Federal Congressional District(s) of Project Location | |

Reliance upon Federal Assistance (please answer the below questions Yes or No):

| | |
|--|--|
| Did recipient receive 80% or more of its annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards) during the last fiscal year? | |
| Did recipient receive \$25 million or more in annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards) during the last fiscal year? | |
| Does the public have access to compensation of senior executives of the recipient through periodic reports filed under Section 13A or 15D of the Securities Exchange Act of 1934 or Section 6104 of the Internal Revenue Code of 1986? | |

DUNS Registration Information: <http://fedgov.dnb.com/webform> OR 1-866-705-5711

Registration can be completed over the phone or via the web. Phone registration requests take approximately 10 minutes and are free. Internet requests are fulfilled within 24 hours.

SAMPLE LETTER

[Letterhead of Counsel for Water Utility]

[Date]

Kentucky Infrastructure Authority
100 Airport Road
Frankfort, Kentucky 40601

RE: SRF Loan#
City of xxxxx

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 XXXXXXXXXXXXX, hereinafter referred to as the "Water Utility ". I am familiar with the organization and existence of the Water Utility and the laws of the Commonwealth applicable thereto. Additionally I am familiar with the water project (the "Project") with respect to which the funding commitment by and between the Kentucky Infrastructure Authority ("Authority") and the Water Utility.

I have reviewed the commitment letter by and between the Authority and the Water Utility and the documentation regarding wage rates and procurement with respect to the Project.

Based upon my review I am of the opinion that:

The Water Utility has prepared construction specifications in accordance with all applicable 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 all applicable federal, state and local procurement laws.

Respectfully,

COMPLETE AFTER BID OPENING

**STATEMENT OF APPROVAL
OF PROJECTIONS OF REVENUE AND EXPENSES**

Borrower Name: _____

Loan No.: _____

I hereby certify that the revenue projections in the attached descriptions are still obtainable and that projections of operating expenses have not materially changed based on the "as-bid" budget submitted for the Project.

Signed: _____

Borrower

Date

ATTACHMENT B

**McCreary County Water District
A20-047**

| | | | | |
|---|--|-------------------------|------------------------------|------------------------|
| EXECUTIVE SUMMARY | | Reviewer | Meili Sun | |
| KENTUCKY INFRASTRUCTURE AUTHORITY | | Date | June 4, 2020 | |
| FUND A, FEDERALLY ASSISTED WASTEWATER | | KIA Loan Number | A20-047 | |
| REVOLVING LOAN FUND | | WRIS Number | SX21147019 | |
| BORROWER | MCCREARY COUNTY WATER DISTRICT MCCREARY COUNTY | | | |
| BRIEF DESCRIPTION | | | | |
| This project will expand the sanitary sewer collection system to serve 305 new customers in the Stearns and Smithtown areas. Many of these new customers either have failing septic systems or discharge directly into the environment. | | | | |
| The collection system expansion will consist of approximately 66,500 linear feet of PVC sewer line extension of various sizes, 15 manholes, 275 grinder pump stations, and other appurtenances such as air release valves and flushing connections. | | | | |
| PROJECT FINANCING | | PROJECT BUDGET | | |
| Fund A Loan | \$3,244,500 | RD Fee % | Actual % | |
| RD Loan | 400,000 | Administrative Expenses | | \$80,000 |
| | | Legal Expenses | | 8,920 |
| | | Land, Easements | | 10,000 |
| | | Eng - Design / Const | 7.2% | 7.2% |
| | | Eng - Insp | 3.9% | 3.9% |
| | | Construction | | 3,091,300 |
| | | Contingency | | 100,000 |
| TOTAL | \$3,644,500 | TOTAL | | \$3,644,500 |
| REPAYMENT | Rate | 0.50% | Est. Annual Payment | \$106,016 |
| | Term | 30 Years | 1st Payment | 6 Mo. after first draw |
| PROFESSIONAL SERVICES | Engineer | Eclipse Engineers, PLLC | | |
| | Bond Counsel | Rubin & Hays | | |
| PROJECT SCHEDULE | Bid Opening | Sep-20 | | |
| | Construction Start | Oct-20 | | |
| | Construction Stop | Jun-21 | | |
| DEBT PER CUSTOMER | Existing | \$10,267 | | |
| | Proposed | \$10,362 | | |
| OTHER DEBT | See Attached | | | |
| RESIDENTIAL RATES | | <u>Users</u> | <u>Avg. Bill</u> | |
| | Current | 1,082 | \$41.07 | (for 4,000 gallons) |
| | Additional | 305 | \$41.07 | (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 2016 | 756,597 | 707,190 | 49,407 | 1.1 |
| Audited 2017 | 666,173 | 687,789 | (21,616) | 1.0 |
| Audited 2018 | 517,704 | 689,414 | (171,710) | 0.8 |
| Projected 2019 | 524,842 | 786,986 | (262,144) | 0.7 |
| Projected 2020 | 792,363 | 1,288,987 | (496,624) | 0.6 |
| Projected 2021 | 1,091,049 | 858,303 | 232,746 | 1.3 |
| Projected 2022 | 1,151,845 | 933,957 | 217,888 | 1.2 |
| Projected 2023 | 1,069,817 | 966,472 | 103,345 | 1.1 |

Reviewer: Meili Sun
Date: June 4, 2020
Loan Number: A20-047

**KENTUCKY INFRASTRUCTURE AUTHORITY
WASTEWATER REVOLVING LOAN FUND (FUND A)
MCCREARY COUNTY WATER DISTRICT, MCCREARY COUNTY
PROJECT REVIEW
SX21147019**

I. PROJECT DESCRIPTION

The McCreary County Water District ("District") is requesting a Fund A loan in the amount of \$3,244,500 for the Sanitary Sewer Collection System Expansion – Phase 1 project. This project will expand the sanitary sewer collection system to serve 305 new customers in the Stearns and Smithtown areas. Many of these underserved customers either have failing septic systems or discharge directly into the environment.

The collection system expansion will consist of approximately 66,500 linear feet of PVC sewer line extension of various sizes, 15 manholes, 275 grinder pump stations, and other appurtenances such as air release valves and flushing connections. The purpose of this project is to expand the sanitary sewer collection system to spread the cost of services across more customers while protecting the environment from failing septic tanks and straight pipes.

The District currently serves approximately 1,100 retail customers in McCreary County and provide wholesale water to the Whitley County Water District and the City of Onieda in Tennessee. Both McCreary and Whitley County Water Districts are under the Public Service Commission jurisdiction ("PSC") and subject to PSC rate regulations. The District had not sold any water to Onieda in the past 3 years due to the need basis agreement but may resume sales in 2020 and 2021 to supply water for Onieda's source water project.

II. PROJECT BUDGET

| | Total |
|--|---------------------|
| Administrative Expenses | \$ 80,000 |
| Legal Expenses | 8,920 |
| Land Easements | 10,000 |
| Engineering Fees – Design & Construction | 228,459 |
| Engineering Fees – Inspection | 125,821 |
| Construction | 3,091,300 |
| Contingency | 100,000 |
| Total | \$ 3,644,500 |

III. PROJECT FUNDING

| | Amount | % |
|-----------------|------------------|-------------|
| KIA Fund A Loan | 3,244,500 | 89% |
| RD Loan | 400,000 | 11% |
| Total | 3,644,500 | 100% |

IV. KIA DEBT SERVICE

| | |
|--|-------------------|
| KIA Loan | \$ 3,244,500 |
| Principal Forgiveness | 450,000 |
| Amortized Loan Amount | \$ 2,794,500 |
| Interest Rate | 0.50% |
| Loan Term (Year) | 30 |
| Estimated Annual Debt Service | \$ 100,427 |
| Administrative Fee (0.20%) | 5,589 |
| Total Estimated Annual Debt Service | \$ 106,016 |

V. PROJECT SCHEDULE

| | |
|--------------------|----------------|
| Bid Opening | September 2020 |
| Construction Start | October 2020 |
| Construction Stop | June 2021 |

VI. CUSTOMER COMPOSITION AND RATE STRUCTURE

A) Customers

| Customers | Current | Proposed | Total |
|--------------------------|---------|----------|-------|
| Residential | 862 | 305 | 1,167 |
| Commercial | 156 | | 156 |
| Industrial/Institutional | 64 | | 64 |
| Total | 1,082 | 305 | 1,387 |

B) Rates

| | Sewer | |
|--------------------------------|--------------|----------|
| | Current | Prior |
| Date of Last Rate Increase | 08/29/19 | 03/06/15 |
| Minimum 2,000 Gallons | \$24.19 | \$19.35 |
| Next 18,000 Gallons | 8.44 | 6.75 |
| Over 20,000 Gallons | 7.50 | 6.00 |
| Cost for 4,000 gallons | \$41.07 | \$32.85 |
| Increase % | 25.0% | |
| Affordability Index (Rate/MHI) | 2.8% | 2.3% |

| | Water | | |
|--------------------------------|--------------|----------|----------|
| | Proposed | Current | Prior |
| Date of Last Rate Increase | 01/01/21 | 08/02/19 | 03/06/15 |
| Minimum 2,000 Gallons | \$22.50 | \$21.98 | \$20.35 |
| Over 2,000 Gallons | 9.25 | 7.29 | 6.75 |
| Cost for 4,000 gallons | \$41.00 | \$36.56 | \$33.85 |
| Increase % | 12.1% | 8.0% | |
| Affordability Index (Rate/MHI) | 2.8% | 2.5% | 2.3% |

VII. DEMOGRAPHICS

Based on current Census data from the American Community Survey 5-Year Estimate 2013-2017, the Utility's service area population was 5,274 with a Median Household Income (MHI) of \$17,506. The median household income for the Commonwealth is \$46,535. The project will qualify for a 30-year term at 0.50% interest rate and \$450,000 principal forgiveness.

| Year | Population | | County Unemployment | |
|--------------|------------|----------|---------------------|------|
| | County | % Change | Date | Rate |
| 1980 | 15,634 | | June 2005 | 6.9% |
| 1990 | 15,603 | -0.2% | June 2010 | 9.9% |
| 2000 | 17,080 | 9.5% | June 2015 | 5.0% |
| 2010 | 18,306 | 7.2% | June 2019 | 4.5% |
| Current | 17,748 | -3.0% | | |
| Cumulative % | | 13.5% | | |

VIII. 2019 CAPITALIZATION GRANT EQUIVALENCIES

Additional Subsidization – This project qualifies for additional subsidization. Principal forgiveness of 50% of the assistance amount, not to exceed \$450,000 will be credited to the loan balance upon release of liens on all contracts and disbursement of the final draw request by KIA to the borrower.

IX. FINANCIAL ANALYSIS

Financial information was obtained from the audited financial statements for the years ended December 31, 2016 through December 31, 2018. The non-cash impacts of GASB 68 – Accounting and Financial Reporting for Pensions and GASB 75 – Other Postemployment Benefit have been removed from the operating expenses. Percentage references in the History section below are based on whole dollar amounts and not the rounded amounts presented.

HISTORY

Combined water and sewer revenues decreased 0.5% from \$4.19 million in 2016 to \$4.16 million in 2018 while operating expenses increased 7.9% from \$3.48 million to \$3.75 million during the same period due to higher repair and maintenance costs. The debt coverage ratios were 1.1, 1.0, and 0.8 in 2016, 2017, 2018 respectively.

The balance sheet reflects a current ratio of 1.5, a debt to equity ratio of 0.6, 31.5 days of sales in accounts receivable, and 1.3 months of operating expenses in unrestricted cash.

PROJECTIONS

Projections are based on the following assumptions:

- 1) Water revenues will increase 8% in 2020 and 12.1% in 2021.
- 2) Sewer revenues will increase 25% in 2020.
- 3) This project will add 305 new customers to the District's sewer services.
- 4) The District will receive RD commitment of a \$400,000 funding to subsidize this project.
- 5) Expenses will increase 2% each year for inflation.
- 6) Debt service coverage is 1.2 in 2022 when full principal and interest repayments begin.

Based on the pro forma assumptions, the utility shows adequate cash flow to repay the KIA Fund A loan.

REPLACEMENT RESERVE

The replacement reserve will be 5% (\$162,000 total) of the final amount borrowed prior to principal forgiveness to be funded annually (\$8,100 yearly) each December 1 for 20 years and maintained for the life of the loan.

X. DEBT OBLIGATIONS

| | <u>Outstanding</u> | <u>Maturity</u> |
|---|----------------------|-----------------|
| United Cumberland Loan | \$ 495,000 | 2020 |
| BB&T Loan | 797,355 | 2028 |
| RD Series 2013D | 955,000 | 2052 |
| RD Series 2013A | 590,000 | 2030 |
| RD Series 2005A | 630,000 | 2045 |
| RD Series 2008A | 285,800 | 2048 |
| RD Series 2008A | 131,900 | 2048 |
| RD Series 2012D | 2,700,000 | 2040 |
| RD Series 2012D1 | 1,213,000 | 2052 |
| RD Series 2015 | 1,142,000 | 2055 |
| KIA Loan F04-03 | 580,057 | 2026 |
| RD Series 2005A – Sewer | 243,000 | 2045 |
| RD Series 2012D – Sewer | 1,345,000 | 2040 |
| RD Loan i.a.o. \$400,000 for this project | | TBD |
| RD Loan i.a.o. \$722,000 for Marsh Creek project | | TBD |
| RD Loan i.a.o. \$819,750 for Parkers Lake project | | TBD |
| Total | \$ 11,108,612 | |

XI. CONTACTS

| Legal Applicant | |
|------------------------|--------------------------------------|
| Name | McCreary County Water District |
| Address | PO Box 488 Whitley City, KY 42653 |
| County | McCreary |
| Authorized Official | Randy Kidd, Chairman |
| Phone | (606) 376-2540 |
| Email | stepwhitaker@gmail.com |

Project Contact - Applicant

| | |
|--------------|--|
| Name | Stephen Whitaker, Superintendent |
| Organization | McCreary County Water District |
| Address | 456 N Hwy 27 Whitley City, KY 42653 |
| Phone | (606) 376-2445 |
| Email | stepwhitaker@gmail.com |

Project Administrator

| | |
|--------------|--|
| Name | Judy Hachey, Community Development Specialist |
| Organization | LCADD |
| Address | 2384 Lakeway Drive, PO Box 1570 Russell Springs, KY 42642 |
| Phone | (270) 866-4200 |
| Email | judyh@lcadd.org |

Consulting Engineer

| | |
|---------|---|
| Name | Alan Ray Robinson |
| Firm | Eclipse Engineers, PLLC |
| Address | 113 W Mount Vernon Street Somerset, KY 42501 |
| Phone | (859) 433-9585 |
| Email | arobinson@eclipseengineers.net |

XII. RECOMMENDATIONS

KIA staff recommends approval of the loan with the standard conditions and the following special conditions as required by the PSC:

- 1) The District shall apply to the Public Service Commission (PSC), pursuant to KRS 278.300, for debt authorization for KIA loan A20-047. This debt authorization application should include a forecast meeting debt service projected through 2025.
- 2) Prior to the assistance agreement being executed, the District must receive a Certificate of Public Convenience and Necessity, pursuant to KRS 278.020, from the PSC for any portion of the project that may require it, or provide an opinion from legal counsel or the staff of the PSC, or a declaratory order from the PSC, that a CPCN is not required for any portion of the assets to be constructed as part of the loan agreement.

MCCREARY COUNTY WATER DISTRICT
 FINANCIAL SUMMARY (DECEMBER YEAR END)

| | Audited 2016 | Audited 2017 | Audited 2018 | Projected 2019 | Projected 2020 | Projected 2021 | Projected 2022 | Projected 2023 |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Balance Sheet | | | | | | | | |
| Assets | | | | | | | | |
| Current Assets | 1,397,296 | 1,369,825 | 1,189,079 | 939,679 | 472,755 | 742,001 | 972,889 | 1,076,234 |
| Other Assets | 41,255,179 | 40,348,720 | 40,044,396 | 38,469,317 | 36,894,238 | 41,113,206 | 39,423,214 | 37,733,222 |
| Total | 42,652,475 | 41,718,545 | 41,233,475 | 39,408,996 | 37,366,993 | 41,855,207 | 40,396,103 | 38,809,456 |
| Liabilities & Equity | | | | | | | | |
| Current Liabilities | 708,044 | 690,140 | 796,881 | 1,311,504 | 830,520 | 956,564 | 1,006,514 | 998,533 |
| Long Term Liabilities | 12,532,400 | 13,535,185 | 14,618,282 | 13,645,399 | 13,156,700 | 17,732,218 | 17,074,125 | 16,427,414 |
| Total Liabilities | 13,240,444 | 14,225,325 | 15,415,163 | 14,956,903 | 13,987,220 | 18,688,781 | 18,080,639 | 17,425,946 |
| Net Assets | 29,412,031 | 27,493,220 | 25,818,312 | 24,452,093 | 23,379,773 | 23,166,426 | 22,315,465 | 21,383,510 |
| Cash Flow | | | | | | | | |
| Revenues | 4,186,432 | 4,179,599 | 4,164,004 | 4,311,454 | 4,655,503 | 5,077,909 | 5,228,225 | 5,228,225 |
| Operating Expenses | 3,476,694 | 3,922,787 | 3,751,384 | 3,826,412 | 3,902,940 | 4,026,660 | 4,116,180 | 4,198,208 |
| Other Income | 46,859 | 409,361 | 105,084 | 39,800 | 39,800 | 39,800 | 39,800 | 39,800 |
| Cash Flow Before Debt Service | 756,597 | 666,173 | 517,704 | 524,842 | 792,363 | 1,091,049 | 1,151,845 | 1,069,817 |
| Debt Service | | | | | | | | |
| Existing Debt Service | 707,190 | 687,789 | 689,414 | 786,986 | 1,288,987 | 858,303 | 827,941 | 860,456 |
| Proposed KIA Loan | 0 | 0 | 0 | 0 | 0 | 0 | 106,016 | 106,016 |
| Total Debt Service | 707,190 | 687,789 | 689,414 | 786,986 | 1,288,987 | 858,303 | 933,957 | 966,472 |
| Cash Flow After Debt Service | 49,407 | (21,616) | (171,710) | (262,144) | (496,624) | 232,746 | 217,888 | 103,345 |
| Ratios | | | | | | | | |
| Current Ratio | 2.0 | 2.0 | 1.5 | 0.7 | 0.6 | 0.8 | 1.0 | 1.1 |
| Debt to Equity | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 |
| Days Sales in Accounts Receivable | 29.8 | 31.4 | 31.5 | 31.5 | 31.5 | 31.5 | 31.5 | 31.5 |
| Months Operating Expenses in Unrestricted Cash | 1.8 | 1.7 | 1.3 | 0.4 | (1.1) | (0.4) | 0.3 | 0.6 |
| Debt Coverage Ratio | 1.1 | 1.0 | 0.8 | 0.7 | 0.6 | 1.3 | 1.2 | 1.1 |

EXHIBIT 21

Page 1

NOTIFICATION OF INTENT TO FINANCE AND APPLICATION FOR DEBT APPROVAL

Form # SLDO-1
Revised 1/1/2011

For DLG staff use only:

File # _____
Received _____

Completion and delivery of this form to the address below shall satisfy the requirements of KRS 65.117, which prohibits any city, county, urban-county, consolidated local government, charter county, special district, or taxing district from entering into any financing obligation of any nature, except leases under \$200,000, without first notifying the state local debt officer in writing. This form shall also serve as application for approval of debt issuance when applicable. An electronic version of the form is available at www.dlg.ky.gov.

✓ **Type of debt to be issued (must check one):** **SLDO Approval Required** **Complete Sections**

| | | |
|--|---------------------|------------|
| <input type="checkbox"/> Short Term Borrowing - KRS 65.7701 et seq. | No | A, B, C |
| <input type="checkbox"/> Lease from \$200,000 - \$500,000 - KRS 65.940 et seq. | No | A, B, D |
| <input type="checkbox"/> Lease exceeding \$500,000 - KRS 65.940 et seq. | Yes (Counties only) | A, B, D |
| <input type="checkbox"/> General Obligation Bond - KRS Chapter 66 | Yes (Counties only) | A, B, E |
| <input type="checkbox"/> Public Project Rev. Bond - KRS Chapter 58 | No | A, B, E |
| <input type="checkbox"/> Public Project Rev. Bond w/Lease - KRS 66.310(2) | Yes (Counties only) | A, B, D, E |
| <input type="checkbox"/> Industrial Revenue Bond - KRS Chapter 103 | Yes (All Borrowers) | A, B, F |
| <input type="checkbox"/> Other Bonds (True Revenue, Utility Assessment, TIF) | No | A, B, E |

X Kentucky Infrastructure Authority Assistance Agreement (Loan)

Section A - Borrower Information

| | | | |
|---------------------|---|------|--------------|
| Agency Name | McCreary County Water District | | |
| Governing Body | McCreary County Water District Board of Commissioners | | |
| Street Address | 456 North US HWY 27 | | |
| P.O. Box # | 488 | City | Whitley City |
| County | McCreary | Zip | 42653 |
| Authorized Official | Randy Kidd, Chairman, Board of Commissioners | | |

Section B - Terms of Financial Obligation

Please provide all relevant information. Fields in **bold** are mandatory.

| | | | |
|---------------------------|--|---|------------|
| Principle Amount: | 3,244,500 | Date of Issue: | 03/31/2021 |
| Maturity Date(s): | 03/31/2051 | Payment Schedule: (must attach schedule) | |
| Term: | 30 Years | Number of Renewal Periods: | 0 |
| Interest Rate(s): | 0.50 | Type of Interest (fixed or variable): | Fixed |
| Retirement Method: | Annual Principal Payment & Semi-Annual Interest Payments | | |
| Lender's Name: | Kentucky Infrastructure Authority | | |
| Lender's Address: | 100 Airport Road, Frankfort, Kentucky 40601 | | |
| Right of Termination: | None | | |
| Termination Penalties: | None | | |
| Prepayment Provisions: | District may prepay without penalty | | |
| Trustee or Paying Agent: | | | |
| AOC Funded Percentage: | 0.00 | | |

Page 2

**NOTIFICATION OF INTENT TO FINANCE
AND APPLICATION FOR DEBT APPROVAL**

Form # SLDO-1
Revised 1/1/2011

Section C - Note (Loan) Information/Documentation

Purpose - Briefly explain the documented need that necessitates this note (loan) and the public purpose it is intended to address. (Attach additional information if necessary):

Loan will finance the extension of sanitary sewer system to serve approximately 240 households in McCreary County, Kentucky

Pledge of Taxes/Description:

None

Pledge of Revenue/Description:

Revenues from water and sewer operations pledged as security; rates will produce 1.2X debt service plus O&M expenses.

Pledge of Project Revenues (Attach documentation which substantiates the revenue projections):

Have bids been sought by the local governments to determine the financial and programmatic competitiveness of the note (loan) proposal? Yes No

If No, explain what steps were taken to ensure adequate competition.

Loan was secured from Kentucky Infrastructure Authority through the Kentucky State Revolving Fund. KIA is an entity of the Commonwealth of Kentucky. Its rates are below market rates. Agreement provides for loan forgiveness.

Required Attachments

1. Certification from local government attesting to the ability to meet additional financial commitments necessitated by the note and statement as to taxes and revenues to be collected during the term of the note.

Section D - Lease Information/Documentation

Describe the real or personal property to be acquired or constructed:

Not applicable. No lease will be executed.

Type of Lease : General Obligation Revenue

Is Lease Annually Renewable? Yes No

Does Agency seek approval without a hearing? Yes No Justification: Revenue Refunding

If yes, must attach certification from counsel regarding county obligation.

Does this lease refund a prior lease? Yes No

If yes, please state the name, date and principal amount of original issue(s) being refunded:

Required Attachments (If lease requires SLDO approval)

1. Minutes from the local public hearing
2. Affidavit of publication of SLDO hearing (if hearing is required) and newspaper advertisement tear sheet
3. Copy of lease
4. Executed copy of ordinance/resolution of fiscal court authorizing the lease
5. Certification from local government attesting to the ability to meet additional financial commitments necessitated by the lease and statement as to taxes and revenues to be collected during the term of the lease.

Page 3

NOTIFICATION OF INTENT TO FINANCE AND APPLICATION FOR DEBT APPROVAL

Form # SLDO-1
Revised 1/1/2011

Section E - Bond Information/Documentation

Please provide all relevant information. Fields in bold are mandatory

Describe the purpose of the bond:

Not applicable. No bonds will be issued.

Bond Counsel:

Counsel Address:

Financial Advisor:

Advisor Address:

Bond Series:

Call Date:

Does this bond refund a prior bond? Yes No

If yes, please state the name, date and principal amount of original issue(s) being refunded:


Required Attachments (If SLDO Approval is Required)

1. Minutes from the local public hearing
2. Affidavit of publication of SLDO hearing and newspaper advertisement tear sheet
3. Executed copy of ordinance/resolution of fiscal court authorizing financial plan for the issuance of the bonds
4. Proposed plan of financing
5. Preliminary official statement (if applicable)
6. Sources and uses table

Additional Required Attachments for KRS Chapter 103 Bonds

1. Documentation in an appropriate form substantiating the project's eligibility under KRS 103.2101(1)(a)-(e).
2. If the project requires approval of the reduction in property taxes, attach any documentation provided to agency responsible for approval.

By signing below, the Authorized Official certifies that the foregoing is true and accurate to the best of his or her knowledge.

| | |
|--------------------------------------|---|
| Name (please print) Stephen Whitaker | Date: 01/15/2021 |
| Title: Superintendent | Signature:  |

Mail to:
Department for Local Government
Attn: State Local Debt Officer
1024 Capital Center Drive, Suite 340
Frankfort, KY 40601

Fax to: 502-573-3712

AGENDA

KENTUCKY INFRASTRUCTURE AUTHORITY BOARD MEETING Via Video Conference

ZOOM: <https://us02web.zoom.us/j/88985782418?pwd=MUR6WFZHMV3dms0UWFtbnHNicG1QQT09&status=success>

YouTube Live Stream: <https://youtu.be/9uNvj-ipcU>

www.kia.ky.gov

June 4, 2020, 1:00 P.M.

Call to Order:

Chair Dennis Keene

- Confirmation of Press Notice
- Confirmation of Quorum
- Recognition of Members/Guests

I. BUSINESS (Board Action Required)

A. Minutes

- | | | |
|---|--------------------|---|
| 1. Consideration of Approval of the Minutes of May 7, 2020 <i>(Attachment I.A.1.)</i> | Chair Dennis Keene | 7 |
|---|--------------------|---|

B. New Projects / Action Items

- | | | |
|---|---|----|
| 1. Resolution and Order of the Board of Directors for Approval of a Fund A loan (A20-020) for an amount up to \$1,363,200 to the City of Morehead, Rowan County, Kentucky (SX21205042) <i>(Attachment I.B.1.)</i> | Mr. Jory Becker, DOW Ms. Linda Bridwell, KIA | 19 |
| 2. Resolution and Order of the Board of Directors for Approval of a Fund A loan (A20-047) for an amount up to \$3,244,500 to the McCreary County Water District, McCreary County, Kentucky (SX21147019) <i>(Attachment I.B.2.)</i> | Mr. Jory Becker, DOW Ms. Meili Sun, KIA | 33 |
| 3. Resolution and Order of the Board of Directors Authorizing an Amendment to a Fund F loan (F17-007) increasing the amount by \$122,344 , for a total amount up to \$1,005,344 to the City of Olive Hill, Carter County, Kentucky (WX21043041) <i>(Attachment I.B.3.)</i> | Mr. Jory Becker, DOW Ms. Linda Bridwell, KIA | 47 |
| 4. Resolution and Order of the Board of Directors for Approval of a Fund F loan (F20-017) for an amount up to \$585,000 to the City of Salem, Livingston County, Kentucky (WX21139027) <i>(Attachment I.B.4.)</i> | Mr. Jory Becker, DOW Ms. Meili Sun, KIA | 59 |
| 5. Resolution and Order of the Board of Directors for Approval of a Fund F loan (F20-021) for an amount up to \$1,171,350 to the Cave Run Water Commission, Menifee County, Kentucky (WX21165025) <i>(Attachment I.B.5.)</i> | Mr. Jory Becker, DOW Ms. Linda Bridwell, KIA | 71 |
| 6. Resolution and Order of the Board of Directors Authorizing and Approving the Issuance of Obligations of the Kentucky Infrastructure Authority to Reimburse Capital Expenditures made by Governmental Agencies Pursuant to Loans made by the Kentucky Infrastructure Authority to such Governmental Agencies <i>(Attachment I.B.6.)</i> | Ms. Linda Bridwell, KIA | 85 |

- | | | | |
|----|---|-------------------------|----|
| 7. | Resolution and Order of the Board of Directors Authorizing Approval for the Filing of an Application with the United States Environmental Protection Agency for the Federal Fiscal Year 2020 Capitalization Grant for the Drinking Water Revolving Fund <i>(Attachment I.B.7.)</i> | Ms. Linda Bridwell, KIA | 91 |
| 8. | Resolution and Order of the Board of Directors Authorizing Approval for the Filing of an Application with the United States Environmental Protection Agency for the Federal Fiscal Year 2020 Capitalization Grant for the Wastewater Revolving Fund <i>(Attachment I.B.8.)</i> | Ms. Linda Bridwell, KIA | 95 |

II. EXECUTIVE DIRECTOR’S REPORT

Executive Director
Edith Halbleib

III. ANNOUNCEMENTS/NOTIFICATIONS

Chair Dennis Keene

Next KIA Board Meeting:
Tentatively: Thursday, July 9, 1:00 p.m.

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I.B.2.

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A RESOLUTION AND ORDER OF THE BOARD OF DIRECTORS OF THE KENTUCKY INFRASTRUCTURE AUTHORITY AUTHORIZING ISSUANCE OF A CONDITIONAL COMMITMENT FOR A FEDERALLY ASSISTED CLEAN WATER REVOLVING FUND LOAN (A20-047) FOR AN AMOUNT UP TO \$3,244,500 TO THE MCCREARY COUNTY WATER DISTRICT, MCCREARY COUNTY, KENTUCKY

WHEREAS, the Kentucky Infrastructure Authority (the "Authority") has been duly created as a body corporate and politic constituting a public corporation and a governmental agency of the Commonwealth of Kentucky pursuant to Chapter 224A of the Kentucky Revised Statutes (the "Act"); and

WHEREAS, pursuant to the Act, the Authority is duly and legally authorized to make loans to Governmental Agencies for the purpose of providing funds for the construction and acquisition of sanitary sewer facilities, water facilities or other types of infrastructure, and in that regard, to enter into Assistance Agreements with such Governmental Agencies governing the provisions in respect of which such loans are to be made, the amounts thereof and the repayment provisions in respect thereto; and

WHEREAS, the Authority anticipates entering into an Assistance Agreement for a loan from the Authority's Federally Assisted Clean Water Revolving Loan Program (Fund A) with the McCreary County Water District, subject to final determination of amount when the factors involving such financing have been determined; and

WHEREAS, the Authority will, in the near future, authorize and issue a series of Infrastructure Authority Revenue Bonds for the purpose of funding loans to various governmental agencies, such series of Bonds to be known as Kentucky Infrastructure Authority Revenue Bonds with the appropriate Series designation; and

WHEREAS, the Authority wishes to establish terms and conditions on said Fund A loans prior to the issuance of Authority Revenue Bonds and recognizes that additional planning and design of the financed projects are required.

NOW, THEREFORE, THE KENTUCKY INFRASTRUCTURE AUTHORITY, ACTING BY AND THROUGH ITS BOARD OF DIRECTORS AS ITS DULY AUTHORIZED AND EMPOWERED GOVERNING BODY, DOES HEREBY RESOLVE AND ORDER, AS FOLLOWS:

Section 1. All statements of fact set forth in the preambles to this Resolution and Order are incorporated herein by reference, the same as if set forth verbatim. All such statements of fact are hereby declared to be true and accurate in all material respects.

Section 2. The Authority hereby authorizes the issuance of a conditional Federally Assisted Clean Water Revolving Fund loan for an amount up to \$3,244,500 of project expense including capitalized interest for the construction period, to the McCreary County Water District for the Sanitary Sewer Collection System Expansion – Phase 1 project.

Such amounts are subject to adjustment by further action of the Authority or may be adjusted by action of the Executive Director at the time of the issuance of bonds based on adjustment in project costs of not more than (10%) ten percent of the loan amount authorized by this resolution. Upon satisfaction of all conditions of the commitment, execution of an assistance agreement for this loan is authorized.

Section 3. Principal forgiveness 50% of the assistance amount, not to exceed \$450,000 will be credited to the loan balance upon release of liens on all contracts and disbursement of the final draw request by KIA to the borrower. The unforgiven principal balance of \$2,794,500 shall be repaid.

Section 4. The unforgiven principal shall be repayable over 30 years at an interest rate of 0.5%. In addition to debt service, a 0.2% annual administration fee on the unpaid, unforgiven principal balance will be charged. From annual revenues, \$8,100 must be set aside in a borrower held replacement reserve each December 1 until the balance reaches \$162,000 and maintained for the life of the loan. These terms are subject to adjustment upon execution of the loan agreement, upon changes in the project conditions or determination that the project will require authority financing to be done on a taxable basis.

Section 5. This Resolution and Order shall be in full force and effect from and after its adoption at a properly held meeting of the Kentucky Infrastructure Authority this 4th day of June, 2020.

DENNIS KEENE, CHAIR
KENTUCKY INFRASTRUCTURE AUTHORITY

ATTEST:

MARGARET F. LINK, SECRETARY
KENTUCKY INFRASTRUCTURE AUTHORITY

REVIEWED BY:

MATTHEW STEPHENS, GENERAL COUNSEL
DEPARTMENT FOR LOCAL GOVERNMENT



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 27, 2020

Edith Halbleib, Executive Director
Kentucky Infrastructure Authority
100 Airport Road, 3rd Floor
Frankfort, Kentucky 40601

Re: A20-047 – McCreary County Water District
McCreary Co WWTP--3089
Activity ID: FGL20200007

Dear Mrs. Halbleib:

The Division of Water (DOW) hereby certifies that the McCreary County Water District is eligible to receive \$3,244,500 from the Clean Water State Revolving Fund. The DOW certifies that the project scope is consistent with the scope that was used to rank the project on the FY 2020 Intended Use Plan-Project Priority List.

The McCreary County Water District’s status relative to the Clean Water State Revolving Fund General Conditions is provided below:

1. Project specific environmental information is expected to be submitted to DOW in August 2020.
2. Plans and specifications are expected to be submitted to DOW in August 2020.
3. Construction bids are expected to be opened in October 2020.

Upon compliance with the general conditions, the DOW will issue a final project certification prior to authorizing the loan agreement. A preconstruction and project management conference with the DOW must be held prior to commencement of construction. If you have any questions concerning this letter, please contact Bill Averell, Project Manager, at (502) 782-6882.

Sincerely,

E-Signed by Jory Becker
 VERIFY authenticity with eSign Desktop

For:
Paul Miller, P.E.
Director, Division of Water

PM/BG: ba

c: McCreary County Water District (Stephen Whitaker)
Lake Cumberland ADD (Judy Hachey)
Eclipse Engineers, Inc. (Alan Robinson, P. E.)



| | | | | |
|---|--|-------------------------|------------------------------|------------------------|
| EXECUTIVE SUMMARY | | Reviewer | Meili Sun | |
| KENTUCKY INFRASTRUCTURE AUTHORITY | | Date | June 4, 2020 | |
| FUND A, FEDERALLY ASSISTED WASTEWATER | | KIA Loan Number | A20-047 | |
| REVOLVING LOAN FUND | | WRIS Number | SX21147019 | |
| BORROWER | MCCREARY COUNTY WATER DISTRICT MCCREARY COUNTY | | | |
| BRIEF DESCRIPTION | | | | |
| This project will expand the sanitary sewer collection system to serve 305 new customers in the Stearns and Smithtown areas. Many of these new customers either have failing septic systems or discharge directly into the environment. | | | | |
| The collection system expansion will consist of approximately 66,500 linear feet of PVC sewer line extension of various sizes, 15 manholes, 275 grinder pump stations, and other appurtenances such as air release valves and flushing connections. | | | | |
| PROJECT FINANCING | | PROJECT BUDGET | | |
| Fund A Loan | \$3,244,500 | RD Fee % | Actual % | |
| RD Loan | 400,000 | Administrative Expenses | | \$80,000 |
| | | Legal Expenses | | 8,920 |
| | | Land, Easements | | 10,000 |
| | | Eng - Design / Const | 7.2% | 7.2% |
| | | Eng - Insp | 3.9% | 3.9% |
| | | Construction | | 3,091,300 |
| | | Contingency | | 100,000 |
| TOTAL | \$3,644,500 | TOTAL | | \$3,644,500 |
| REPAYMENT | Rate | 0.50% | Est. Annual Payment | \$106,016 |
| | Term | 30 Years | 1st Payment | 6 Mo. after first draw |
| PROFESSIONAL SERVICES | Engineer | Eclipse Engineers, PLLC | | |
| | Bond Counsel | Rubin & Hays | | |
| PROJECT SCHEDULE | Bid Opening | Sep-20 | | |
| | Construction Start | Oct-20 | | |
| | Construction Stop | Jun-21 | | |
| DEBT PER CUSTOMER | Existing | \$10,267 | | |
| | Proposed | \$10,362 | | |
| OTHER DEBT | See Attached | | | |
| RESIDENTIAL RATES | | <u>Users</u> | <u>Avg. Bill</u> | |
| | Current | 1,082 | \$41.07 | (for 4,000 gallons) |
| | Additional | 305 | \$41.07 | (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 2016 | 756,597 | 707,190 | 49,407 | 1.1 |
| Audited 2017 | 666,173 | 687,789 | (21,616) | 1.0 |
| Audited 2018 | 517,704 | 689,414 | (171,710) | 0.8 |
| Projected 2019 | 524,842 | 786,986 | (262,144) | 0.7 |
| Projected 2020 | 792,363 | 1,288,987 | (496,624) | 0.6 |
| Projected 2021 | 1,091,049 | 858,303 | 232,746 | 1.3 |
| Projected 2022 | 1,151,845 | 933,957 | 217,888 | 1.2 |
| Projected 2023 | 1,069,817 | 966,472 | 103,345 | 1.1 |

Reviewer: Meili Sun
Date: June 4, 2020
Loan Number: A20-047

**KENTUCKY INFRASTRUCTURE AUTHORITY
WASTEWATER REVOLVING LOAN FUND (FUND A)
MCCREARY COUNTY WATER DISTRICT, MCCREARY COUNTY
PROJECT REVIEW
SX21147019**

I. PROJECT DESCRIPTION

The McCreary County Water District (“District”) is requesting a Fund A loan in the amount of \$3,244,500 for the Sanitary Sewer Collection System Expansion – Phase 1 project. This project will expand the sanitary sewer collection system to serve 305 new customers in the Stearns and Smithtown areas. Many of these underserved customers either have failing septic systems or discharge directly into the environment.

The collection system expansion will consist of approximately 66,500 linear feet of PVC sewer line extension of various sizes, 15 manholes, 275 grinder pump stations, and other appurtenances such as air release valves and flushing connections. The purpose of this project is to expand the sanitary sewer collection system to spread the cost of services across more customers while protecting the environment from failing septic tanks and straight pipes.

The District currently serves approximately 1,100 retail customers in McCreary County and provide wholesale water to the Whitley County Water District and the City of Onieda in Tennessee. Both McCreary and Whitley County Water Districts are under the Public Service Commission jurisdiction (“PSC”) and subject to PSC rate regulations. The District had not sold any water to Onieda in the past 3 years due to the need basis agreement but may resume sales in 2020 and 2021 to supply water for Onieda’s source water project.

II. PROJECT BUDGET

| | <u>Total</u> |
|--|---------------------|
| Administrative Expenses | \$ 80,000 |
| Legal Expenses | 8,920 |
| Land Easements | 10,000 |
| Engineering Fees – Design & Construction | 228,459 |
| Engineering Fees – Inspection | 125,821 |
| Construction | 3,091,300 |
| Contingency | 100,000 |
| Total | \$ 3,644,500 |

III. PROJECT FUNDING

| | Amount | % |
|-----------------|------------------|-------------|
| KIA Fund A Loan | 3,244,500 | 89% |
| RD Loan | 400,000 | 11% |
| Total | 3,644,500 | 100% |

IV. KIA DEBT SERVICE

| | |
|--|-------------------|
| KIA Loan | \$ 3,244,500 |
| Principal Forgiveness | 450,000 |
| Amortized Loan Amount | \$ 2,794,500 |
| Interest Rate | 0.50% |
| Loan Term (Year) | 30 |
| Estimated Annual Debt Service | \$ 100,427 |
| Administrative Fee (0.20%) | 5,589 |
| Total Estimated Annual Debt Service | \$ 106,016 |

V. PROJECT SCHEDULE

| | |
|--------------------|----------------|
| Bid Opening | September 2020 |
| Construction Start | October 2020 |
| Construction Stop | June 2021 |

VI. CUSTOMER COMPOSITION AND RATE STRUCTURE

A) Customers

| Customers | Current | Proposed | Total |
|--------------------------|---------|----------|-------|
| Residential | 862 | 305 | 1,167 |
| Commercial | 156 | | 156 |
| Industrial/Institutional | 64 | | 64 |
| Total | 1,082 | 305 | 1,387 |

B) Rates

| | Sewer | |
|--------------------------------|--------------|----------|
| | Current | Prior |
| Date of Last Rate Increase | 08/29/19 | 03/06/15 |
| Minimum 2,000 Gallons | \$24.19 | \$19.35 |
| Next 18,000 Gallons | 8.44 | 6.75 |
| Over 20,000 Gallons | 7.50 | 6.00 |
| Cost for 4,000 gallons | \$41.07 | \$32.85 |
| Increase % | 25.0% | |
| Affordability Index (Rate/MHI) | 2.8% | 2.3% |

| | Water | | |
|--------------------------------|--------------|----------|----------|
| | Proposed | Current | Prior |
| Date of Last Rate Increase | 01/01/21 | 08/02/19 | 03/06/15 |
| Minimum 2,000 Gallons | \$22.50 | \$21.98 | \$20.35 |
| Over 2,000 Gallons | 9.25 | 7.29 | 6.75 |
| Cost for 4,000 gallons | \$41.00 | \$36.56 | \$33.85 |
| Increase % | 12.1% | 8.0% | |
| Affordability Index (Rate/MHI) | 2.8% | 2.5% | 2.3% |

VII. DEMOGRAPHICS

Based on current Census data from the American Community Survey 5-Year Estimate 2013-2017, the Utility’s service area population was 5,274 with a Median Household Income (MHI) of \$17,506. The median household income for the Commonwealth is \$46,535. The project will qualify for a 30-year term at 0.50% interest rate and \$450,000 principal forgiveness.

| Year | Population | | County Unemployment | |
|--------------|------------|----------|---------------------|------|
| | County | % Change | Date | Rate |
| 1980 | 15,634 | | June 2005 | 6.9% |
| 1990 | 15,603 | -0.2% | June 2010 | 9.9% |
| 2000 | 17,080 | 9.5% | June 2015 | 5.0% |
| 2010 | 18,306 | 7.2% | June 2019 | 4.5% |
| Current | 17,748 | -3.0% | | |
| Cumulative % | | 13.5% | | |

VIII. 2019 CAPITALIZATION GRANT EQUIVALENCIES

Additional Subsidization – This project qualifies for additional subsidization. Principal forgiveness of 50% of the assistance amount, not to exceed \$450,000 will be credited to the loan balance upon release of liens on all contracts and disbursement of the final draw request by KIA to the borrower.

IX. FINANCIAL ANALYSIS

Financial information was obtained from the audited financial statements for the years ended December 31, 2016 through December 31, 2018. The non-cash impacts of GASB 68 – Accounting and Financial Reporting for Pensions and GASB 75 – Other Postemployment Benefit have been removed from the operating expenses. Percentage references in the History section below are based on whole dollar amounts and not the rounded amounts presented.

HISTORY

Combined water and sewer revenues decreased 0.5% from \$4.19 million in 2016 to \$4.16 million in 2018 while operating expenses increased 7.9% from \$3.48 million to \$3.75 million during the same period due to higher repair and maintenance costs. The debt coverage ratios were 1.1, 1.0, and 0.8 in 2016, 2017, 2018 respectively.

The balance sheet reflects a current ratio of 1.5, a debt to equity ratio of 0.6, 31.5 days of sales in accounts receivable, and 1.3 months of operating expenses in unrestricted cash.

PROJECTIONS

Projections are based on the following assumptions:

- 1) Water revenues will increase 8% in 2020 and 12.1% in 2021.
- 2) Sewer revenues will increase 25% in 2020.
- 3) This project will add 305 new customers to the District's sewer services.
- 4) The District will receive RD commitment of a \$400,000 funding to subsidize this project.
- 5) Expenses will increase 2% each year for inflation.
- 6) Debt service coverage is 1.2 in 2022 when full principal and interest repayments begin.

Based on the pro forma assumptions, the utility shows adequate cash flow to repay the KIA Fund A loan.

REPLACEMENT RESERVE

The replacement reserve will be 5% (\$162,000 total) of the final amount borrowed prior to principal forgiveness to be funded annually (\$8,100 yearly) each December 1 for 20 years and maintained for the life of the loan.

X. DEBT OBLIGATIONS

| | <u>Outstanding</u> | <u>Maturity</u> |
|---|----------------------|-----------------|
| United Cumberland Loan | \$ 495,000 | 2020 |
| BB&T Loan | 797,355 | 2028 |
| RD Series 2013D | 955,000 | 2052 |
| RD Series 2013A | 590,000 | 2030 |
| RD Series 2005A | 630,000 | 2045 |
| RD Series 2008A | 285,800 | 2048 |
| RD Series 2008A | 131,900 | 2048 |
| RD Series 2012D | 2,700,000 | 2040 |
| RD Series 2012D1 | 1,213,000 | 2052 |
| RD Series 2015 | 1,142,000 | 2055 |
| KIA Loan F04-03 | 580,057 | 2026 |
| RD Series 2005A – Sewer | 243,000 | 2045 |
| RD Series 2012D – Sewer | 1,345,000 | 2040 |
| RD Loan i.a.o. \$400,000 for this project | | TBD |
| RD Loan i.a.o. \$722,000 for Marsh Creek project | | TBD |
| RD Loan i.a.o. \$819,750 for Parkers Lake project | | TBD |
| Total | \$ 11,108,612 | |

XI. CONTACTS

| | |
|------------------------|--------------------------------------|
| Legal Applicant | |
| Name | McCreary County Water District |
| Address | PO Box 488 Whitley City, KY 42653 |
| County | McCreary |
| Authorized Official | Randy Kidd, Chairman |
| Phone | (606) 376-2540 |
| Email | stepwhitaker@gmail.com |

| Project Contact - Applicant | |
|------------------------------------|--|
| Name | Stephen Whitaker, Superintendent |
| Organization | McCreary County Water District |
| Address | 456 N Hwy 27 Whitley City, KY 42653 |
| Phone | (606) 376-2445 |
| Email | stepwhitaker@gmail.com |

| Project Administrator | |
|------------------------------|--|
| Name | Judy Hachey, Community Development Specialist |
| Organization | LCADD |
| Address | 2384 Lakeway Drive, PO Box 1570 Russell Springs, KY 42642 |
| Phone | (270) 866-4200 |
| Email | judyh@lcadd.org |

| Consulting Engineer | |
|----------------------------|---|
| Name | Alan Ray Robinson |
| Firm | Eclipse Engineers, PLLC |
| Address | 113 W Mount Vernon Street Somerset, KY 42501 |
| Phone | (859) 433-9585 |
| Email | arobinson@eclipseengineers.net |

XII. RECOMMENDATIONS

KIA staff recommends approval of the loan with the standard conditions and the following special conditions as required by the PSC:

- 1) The District shall apply to the Public Service Commission (PSC), pursuant to KRS 278.300, for debt authorization for KIA loan A20-047. This debt authorization application should include a forecast meeting debt service projected through 2025.
- 2) Prior to the assistance agreement being executed, the District must receive a Certificate of Public Convenience and Necessity, pursuant to KRS 278.020, from the PSC for any portion of the project that may require it, or provide an opinion from legal counsel or the staff of the PSC, or a declaratory order from the PSC, that a CPCN is not required for any portion of the assets to be constructed as part of the loan agreement.

**MCCREARY COUNTY WATER DISTRICT
FINANCIAL SUMMARY (DECEMBER YEAR END)**

| | <u>Audited</u> <u>2016</u> | <u>Audited</u> <u>2017</u> | <u>Audited</u> <u>2018</u> | <u>Projected</u> <u>2019</u> | <u>Projected</u> <u>2020</u> | <u>Projected</u> <u>2021</u> | <u>Projected</u> <u>2022</u> | <u>Projected</u> <u>2023</u> |
|--|-------------------------------|-------------------------------|-------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Balance Sheet | | | | | | | | |
| Assets | | | | | | | | |
| Current Assets | 1,397,296 | 1,369,825 | 1,189,079 | 939,679 | 472,755 | 742,001 | 972,889 | 1,076,234 |
| Other Assets | 41,255,179 | 40,348,720 | 40,044,396 | 38,469,317 | 36,894,238 | 41,113,206 | 39,423,214 | 37,733,222 |
| Total | 42,652,475 | 41,718,545 | 41,233,475 | 39,408,996 | 37,366,993 | 41,855,207 | 40,396,103 | 38,809,456 |
| Liabilities & Equity | | | | | | | | |
| Current Liabilities | 708,044 | 690,140 | 796,881 | 1,311,504 | 830,520 | 956,564 | 1,006,514 | 998,533 |
| Long Term Liabilities | 12,532,400 | 13,535,185 | 14,618,282 | 13,645,399 | 13,156,700 | 17,732,218 | 17,074,125 | 16,427,414 |
| Total Liabilities | 13,240,444 | 14,225,325 | 15,415,163 | 14,956,903 | 13,987,220 | 18,688,781 | 18,080,639 | 17,425,946 |
| Net Assets | 29,412,031 | 27,493,220 | 25,818,312 | 24,452,093 | 23,379,773 | 23,166,426 | 22,315,465 | 21,383,510 |
| Cash Flow | | | | | | | | |
| Revenues | 4,186,432 | 4,179,599 | 4,164,004 | 4,311,454 | 4,655,503 | 5,077,909 | 5,228,225 | 5,228,225 |
| Operating Expenses | 3,476,694 | 3,922,787 | 3,751,384 | 3,826,412 | 3,902,940 | 4,026,660 | 4,116,180 | 4,198,208 |
| Other Income | 46,859 | 409,361 | 105,084 | 39,800 | 39,800 | 39,800 | 39,800 | 39,800 |
| Cash Flow Before Debt Service | 756,597 | 666,173 | 517,704 | 524,842 | 792,363 | 1,091,049 | 1,151,845 | 1,069,817 |
| Debt Service | | | | | | | | |
| Existing Debt Service | 707,190 | 687,789 | 689,414 | 786,986 | 1,288,987 | 858,303 | 827,941 | 860,456 |
| Proposed KIA Loan | 0 | 0 | 0 | 0 | 0 | 0 | 106,016 | 106,016 |
| Total Debt Service | 707,190 | 687,789 | 689,414 | 786,986 | 1,288,987 | 858,303 | 933,957 | 966,472 |
| Cash Flow After Debt Service | 49,407 | (21,616) | (171,710) | (262,144) | (496,624) | 232,746 | 217,888 | 103,345 |
| Ratios | | | | | | | | |
| Current Ratio | 2.0 | 2.0 | 1.5 | 0.7 | 0.6 | 0.8 | 1.0 | 1.1 |
| Debt to Equity | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 |
| Days Sales in Accounts Receivable | 29.8 | 31.4 | 31.5 | 31.5 | 31.5 | 31.5 | 31.5 | 31.5 |
| Months Operating Expenses in Unrestricted Cash | 1.8 | 1.7 | 1.3 | 0.4 | (1.1) | (0.4) | 0.3 | 0.6 |
| Debt Coverage Ratio | 1.1 | 1.0 | 0.8 | 0.7 | 0.6 | 1.3 | 1.2 | 1.1 |

EXHIBIT 22

**DETAILED ESTIMATE OF ACQUIRED PROPERTY CLASSIFIED ACCORDING
TO THE UNIFORM SYSTEM OF ACCOUNTS FOR
SEWER UTILITIES**

| Account No. | Account Description | Estimate |
|------------------------|----------------------------|--------------------|
| 351.1 | Collection Sewers-Force | \$1,258,124 |
| 351.2 | Collection Sewers-Gravity | 308,237 |
| 354 | Services to Customers | 237,322 |
| 363 | Pumping Equipment | \$1,440,817 |
| | TOTAL | \$3,244,500 |

EXHIBIT 23

PROPOSED DEPRECIATION SCHEDULE FOR PROPOSED FACILITIES

| Item | Cost | Project Cost Multiplier | Installed Value | Service Life | Annual Depreciation |
|--|---------------------|-------------------------|------------------------|--------------|----------------------|
| 1.5-inch Hope DR 11 CTS Force Main | \$ 296,125 | 25% | \$ 370,363.54 | 40 | \$ 9,259.09 |
| 2-inch PVC SDR 21 Force Main | \$ 297,003 | 25% | \$ 371,461.65 | 40 | \$ 9,286.54 |
| 3-inch PVC SDR 21 Force Main | \$ 77,957 | 25% | \$ 97,500.82 | 40 | \$ 2,437.52 |
| 4-inch PVC SCR 21 Force Main | \$ 124,788 | 25% | \$ 156,072.35 | 40 | \$ 3,901.81 |
| 4-inch PVC SDR 35 Gravity Sewer (Laterals) | \$ 210,195 | 25% | \$ 262,890.89 | 55 | \$ 4,779.83 |
| Flushing Connection (2-inch) | \$ 46,800 | 25% | \$ 58,532.76 | 40 | \$ 1,463.32 |
| Flushing Connection (3-inch) | \$ 17,500 | 25% | \$ 21,887.25 | 40 | \$ 547.18 |
| Flushing Connection (4-inch) | \$ 32,000 | 25% | \$ 40,022.40 | 40 | \$ 1,000.56 |
| 4-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | \$ 15,120 | 25% | \$ 18,910.58 | 40 | \$ 472.76 |
| 6-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | \$ 9,450 | 25% | \$ 11,819.12 | 40 | \$ 295.48 |
| 8-inch HDPE DR 11 IPS Casing Pipe (Directional Bore) | \$ 5,400 | 25% | \$ 6,753.78 | 40 | \$ 168.84 |
| 2-inch Combination Air Release Valve Assembly | \$ 109,500 | 25% | \$ 136,951.65 | 20 | \$ 6,847.58 |
| Bituminous Pavement Replacement | \$ 4,500 | 25% | \$ 5,628.15 | 35 | \$ 160.80 |
| Concrete Drive Replacement | \$ 6,000 | 25% | \$ 7,504.20 | 35 | \$ 214.41 |
| Electric Modifications / Breaker | \$ 180,000 | 25% | \$ 225,126.00 | 8 | \$ 28,140.75 |
| Grinder Check Valve Assembly | \$ 108,000 | 25% | \$ 135,075.60 | 8 | \$ 16,884.45 |
| Grinder Pump Station - Single Stage (Moving Parts) | \$ 172,800 | 25% | \$ 216,120.96 | 8 | \$ 27,015.12 |
| Grinder Pump Station - Single Stage (Non-Moving Parts) | \$ 691,200 | 25% | \$ 864,483.84 | 30 | \$ 28,816.13 |
| Sanitary Sewer Cleanout Assembly /Connect Lateral | \$ 189,750 | 25% | \$ 237,320.33 | 20 | \$ 11,866.02 |
| Total | \$ 2,594,088 | | \$ 3,244,425.86 | | \$ 153,558.20 |